

**SOUTHERN UNIVERSITY AND A&M COLLEGE
BATON ROUGE CAMPUS
REQUEST FOR BID**

MAY 20, 2024 @ 10:30 AM

MULTI-MEDIA CENTER RENOVATION

Location: W. W. Stewart Hall-State Building # 02170

Architects Project Number: 22-022

Architect Firm: M3A Architecture, PLLC

Contact: William L. McElroy AIA, NCARB

4880 McWillie Circle

Jackson, MS 39206

601-981-1227 voice/601-983-4444 facsimile

Engineer Firm: Thompson Luke & Associates, LLC

Contact: Scott Welch

10705 Rieger Road-Baton Rouge, LA 70809

225-293-9474 voice

**MANDATORY PRE-BID CONFERENCE
AND SITE VISIT:**

APRIL 29, 2024 @ 10:30 AM

Physical Plant Department

Benjamin H. Kraft Building

515 James L. Hunt Street

Southern University

Baton Rouge Campus

Site Telephone No. 225-771-4741

**DEADLINE TO SUBMIT INQUIRIES:
SUBMIT INQUIRIES TO:**

MAY 10, 2024 by 5:00 PM

Linda Antoine

Email: linda_antoine@subr.edu

DEADLINE TO RESPOND TO INQUIRIES MAY 13, 2024 by 5:00 PM

Note: Responses to inquiries/Addenda are pasted on LaPAC (LA Procurement Website)

LA State Procurement website:

<https://wwwcfprd.doa.louisiana.gov/OSP/LaPAC/Agency/outMain.cfm>

It is the responsibility of the vendor to check LAPAC for addenda.

**DEADLINE TO SUBMIT BID:
SUBMIT BID TO:**

MAY 20, 2024 @ 10:30 AM

Linda Antoine, Director

Southern University Purchasing Department-

P. O. Box 9534 or James L. Prestage Drive

J. S. Clark Adm. Bldg. Annex, 1stFloor

Baton Rouge, LA 70813

Telephone No. 225-771-2804 or 771-4580

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: **Southern University and A&M College**
Post Office Box 9534
James J. Prestage Dr-J.S. Clark Adm. Bldg. Annex
Baton Rouge, LA 70813

BID FOR: Bid Number 10321
Multi-Media Center Renovation
AG CENTER
Southern University and A&M College
Baton Rouge Campus

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: **Purchasing Department & M3A Architecture**

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) **N/A** _____.

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars (\$ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description, *not applicable*

Alternate No. 1 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of: _____ Dollars (\$ _____)

Alternate No. 2 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of: _____ Dollars (\$ _____)

Alternate No. 3 (Owner to provide description of alternate and state whether add or deduct) for the lump sum of: _____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

EMAIL: _____

PHONE: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

PRINT NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER: _____

DATE: _____

Completion Time: _____ consecutive calendar days, or within the time that may be extended as stipulated in the contract.

Liquidated Damages: **\$250 per day.**

5% Bid Security: **XX YES** (shall be included with bid)

(check here) _____ **Bid Security included. Bid Security shall be total of 5% for base bid and alternates.**

Successful bidder will be notified by letter to secure Performance and Payment Bond up to 100% of cost.

(check here) _____ **Board Resolution included or Secretary of State Registration**

A CORPORATE RESOLUTION OR WRITTEN EVIDENCE of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5) or Secretary of State verification.

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the bid. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

LOUISIANA UNIFORM PUBLIC WORK BID FORM UNIT PRICE FORM

BID FOR: Bid Number 10321

TO: Southern University and A&M College
Post Office Box 9534

James J. Prestage Dr.-J. S. Clark Administration Bldg. Annex
Baton Rouge, LA 70813

MULTI-MEDIA CENTER RENOVATIONS-W. W. STEWART HALL

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (Quantity times Unit Price)
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					
DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.#				
REF. NO.					

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

**SOUTHERN UNIVERSITY AND A&M COLLEGE
BATON ROUGE CAMPUS
REQUEST FOR BID**

PROJECT: MULTI-MEDIA CENTER RENOVATION

LOCATION: W. W. STEWART HALL

BID DUE DATE: MAY 20, 2024 @ 10:30 AM

BID # 10321

Bids submitted are subject to provisions of but not limited to La.R.S.38 Purchasing Rules and Regulations; Executive Orders; and the General Terms and Conditions, listed in this Invitation for Bid. Southern University reserves the right to award items separately, grouped or on an all or none basis and to reject any or all bids and waive any informalities.

BIDS MAY BE SENT BY MAIL OR HAND-DELIVERED TO:

Bids should be mailed to:

Southern University
Purchasing Department
Post Office Box 9534
Baton Rouge, Louisiana 70813

As an alternative, bids may be hand delivered to:

Southern University
Purchasing Department
1st Floor East-James L. Prestage Drive
J. S. Clark Administration Building
Baton Rouge, Louisiana 70813

MANDATORY PRE-BID CONFERENCE & SITE VISIT: APRIL 29, 2024 @ 10:30 AM

INQUIRIES:

No negotiations, decisions, or actions will be executed by any bidder as a result or any oral discussion with any University employee or State Consultant. Only those transactions which are in writing, sent to **Linda A. Antoine, Director of Purchasing, will be considered as valid.**

INSTRUCTIONS TO BIDDERS

1. Bid Forms

All written bids, unless otherwise provided for, must be submitted on, and in accordance with forms provided and properly signed in ink. Bids submitted in the following manner will not be accepted:

Bid containing no signature indicating intent to be bound

- (1) Bid filled out in pencil
- (2) Bid not submitted on University standard forms

Bids must be received at the address specified in the Invitation for Bid prior to bid opening time in order to be considered. .

2. Envelope (if mailed)

Bidders are requested to submit bid package in a sealed envelope of your choice that is clearly marked identifying the *company's name, complete address, bid number, time and date of bid opening, and license number, if applicable.*

Bidder is responsible for means of delivery of bid.

Louisiana Contractors License Number shall be placed on the outside of the envelope.

3. Standards of Quality

Any product or service bid shall conform to all applicable federal, state and local laws, regulations and the specifications contained in the IFB. Unless otherwise specified in the IFB, any manufacturer's name, trade name, brand name, or catalog numbers used in the specifications is for the purpose of describing the quality level, performance and characteristics required. Bidder must specify the brand and model number of the product offered in his/her bid. Bids not specifying brand and model numbers will be considered as offering the exact product(s) specified in the IFB.

4. Descriptive Information

Bidders proposing an equivalent brand or model should submit information with bid (such as illustrations, descriptive literature, technical data) sufficient for the University to evaluate quality, suitability and compliance with the specifications in the IFB. Failure to submit descriptive information may cause bid to be rejected. Any change made to a manufacturer's published specification submitted for a product should be verifiable by the manufacturer. If item(s) bid do not fully comply with specifications (including brand and/or product number), bidder must state in what respect the item(s) deviate. Failure to note exceptions on the bid form will not relieve the successful bidder(s) from supplying the actual products requested.

Document will be included with the successful vendor's contact.

5. ON-CAMPUS ATTENDANCE REQUIREMENTS (COVID-19)

The Center for Disease and Control (CDC) recommends social distancing and wearing masks to prevent the spread of the Corona Virus (COVID-19).

6. Prices

Unless otherwise specified by the Purchasing Department, bid prices must be complete, including transportation, prepaid by bidder to destination. In the event of extension errors, the unit price shall prevail.

7. Payment Terms

Payment is to be made within thirty (30) days after receipt of properly executed invoice, or delivery and acceptance, whichever is later. Delinquent payment penalties are governed by **L.R.S. 39:1695**.

8. Deliveries

Bids may be rejected if the delivery or completion time indicated is longer than that specified in the IFB.

9. Vendor Invoices

Invoices or AIA payment form shall reference the Southern University purchase/release order number, vendor's packing list/delivery ticket, ticket number, shipping/delivery date, etc. Invoices are to be itemized and billed in accordance with the order and should show the amount of any prompt payment discount and submitted on the vendor's own invoice form. Invoices submitted by the vendor's supplier will not be accepted. Terms are net 30.

10. Tax Information/State of Louisiana

Vendor is responsible for including all applicable taxes in the bid prices. Southern University is exempt from all Louisiana state and local sales and use taxes. By accepting an award, resident and non-resident firms acknowledge their responsibility for the payment of all taxes duly assessed by the State of Louisiana and its political subdivisions for which they are liable, including but not limited to: franchise taxes, privilege taxes, sales taxes, use taxes, ad valorem taxes, etc. In accordance with Act Number 1029 of the 1991 Regular Session, effective September 1, 1991 state agencies will no longer be required to pay state sales tax.

11. New Products

Unless specifically called for, all products for purchases must be new (never previously used) and the current model and/or packaging. The manufacturer's standard warranty will apply unless otherwise specified in the IFB.

12. Contract Renewals, Multi-Year Contracts (if applicable)

Upon agreement of Southern University and the contractor, an open-ended requirements contract may be extended for two (2) additional twelve (12) month periods at the same prices, terms and conditions. In such cases, the total contract term cannot exceed thirty six (36) months.

13. Contract Cancellation

Southern University has the right to cancel any contract, in accordance with Purchasing Rules and Regulations, for cause, including but not limited to, the following: (1) failure to deliver within time specified in the contract; (2) failure of the product or service to meet specifications, conform to sample quality or to be delivered in good condition; (3) misrepresentations by the contractor; (4) fraud, collusion, conspiracy or other unlawful means of obtaining any contract with the state; (5) conflict of contract provisions with constitutional or statutory provision of state or federal law; (6) any other breach of contract.

14. AWARD AND EXECUTION OF CONTRACT:

The owner shall incur no obligation to the contractor until the contract between the owner and contractor is duly executed. If the contractor is notified of the acceptance of the bid within thirty (30) days of the opening bid date, contractor agrees to execute and deliver to owner, Performance and Payment Bond and Certificate of Insurance, a copy of which is attached to the Contract Documents, within ten (10) working days after notice from the Owner that the instrument is ready for signature.

15. Fiscal Funding Clause (Renewal Contracts Only)

In accordance with LA R.S.39:1615 (c) and (e), any contract entered into by the State of Louisiana and Southern University shall include the following Fiscal Funding Clause:

C. Termination due to unavailability of funds in succeeding years. When funds are not appropriated to support continuation of performance in a subsequent year of a multiyear contract, the contract for such subsequent year shall be terminated. When a contract is terminated under these conditions, no additional funds shall be paid to the contractor as a result of such action. **E.** With respect to all multiyear contracts, there shall be no provisions for a penalty to the state for the cancellation or early payment of the contract. The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the legislature. All proposers should be aware that our legislative process is such that it is often impossible to give prior notice of the non-appropriation of funds.

Document will be included with the successful vendor's contact.

16. Default of Contactor

Failure to deliver within the time specified in the bid will constitute a default and may cause cancellation of the contract. Where the state had determined the contractor to be in default, the state reserves the right to purchase any or all products or services covered by the contract on the open market and to charge the contractor with cost in excess of the contract price. Until such assessed charges have been paid, no subsequent bid from the defaulting contractor will be considered.

17. Order of Priority

In the event there is a conflict between the Instructions to Bidders the General Terms and Conditions will govern.

18. Applicable Law

All contracts will be construed in accordance with and governed by the laws of State of Louisiana. Vendors shall be in compliance with applicable laws of the State of Louisiana and Federal Laws where applicable, to include licenses, fees and permits. Vendors are responsible for the cost of licenses, fees and permits.

19. Certification of No Suspension or Debarment (\$25,000 or more)

By signing and submitting this bid, bidder certifies that its company, any subcontractors, or principals thereof, are not suspended or debarred under federal or state laws or regulations. A list of parties who have been suspended or debarred by federal agencies is maintained by the General Services Administration and can be viewed on the internet at www.sam.gov.

Federal Funded **Non-Federal Funded**

20. E-VERIFY (verification of employees)

Contractor acknowledges and agrees to comply with the provisions of La R.S. 38:2212.10 and federal law pertaining to E-Verify in the performance of services under this contract.

21. Prohibited Contractual Arrangements

Per Louisiana R.S. 42:1113.a, no public servant, or member of such public servant's immediate family, or legal entity in which he is a controlling interest shall bid on or enter into any contract, subcontract, or other transaction that is under the supervision or jurisdiction of the agency of such public servant. See statute for complete law, exclusions and provisions.

22. Discriminatory Boycotts of Israel

This section applies to procurements with a value of \$100,000 or more and for vendors with five (5) or more employees

Prohibition of Discriminatory Boycotts of Israel

In accordance with R.S. 39:1602.1, for any contract for \$100,000 or more and for any contractor with five or more employees, the Contractor certifies that neither it nor its subcontractors are engaged in a boycott of Israel, and that the Contractor and any subcontractors shall, for the duration of this contract, refrain from a boycott of Israel. The State reserves the right to terminate this contract if the Contractor, or any Subcontractor, engages in a boycott of Israel during the term of this contract.

23. Mutual Indemnification

Each party hereto agrees to indemnify, defend and hold the other, its officers, directors, agents and employees harmless from and against any and all losses, liabilities and claims, including reasonable attorney's fees arising out of or resulting from the willful act, fault, omission, or negligence of the indemnifying party or of its employees, contractors, or agents in performing its obligations under this agreement, provided however, that neither party hereto shall be liable to the other for any consequential damages arising out of its willful act, fault, omission, or negligence.

24. Fair Labor Standards Act

Contractor shall be in compliance with the **Fair Labor Standards Act 29 USC 201-6**; Establishes minimum wage, overtime pay, equal pay, recordkeeping, and child labor standards for employees or in the production of goods for interstate commerce. By signing and submitting this bid, bidder certifies that its company, any subcontractors, or principals thereof is in accordance with said compliance. United States Department of Labor website: www.dol.gov/esa

25. Davis-Bacon Act (\$2,000 or more)

Contractor shall be in compliance with the **Davis-Bacon Act, 40 USC 276A-7**; ensures that laborers and mechanics employed pursuant to federally funded construction contracts, subcontracts and construction under Federal grants, will be paid wages as determined by the U.S. Secretary of Labor. By signing and submitting this bid, bidder certifies that its company, any subcontractors, or principals thereof is in accordance with said compliance. United States Department of Labor website: www.dol.gov/esa

Federal Funded **Non-Federal Funded**

26. Small Business Entrepreneurship Programs

Document will be included with the successful vendor's contact.

The Southern University System is a participant in the Louisiana for the Small Entrepreneurships Program (the Hudson Initiative) and the Louisiana Initiative for Veterans and Service-Connected Disabled Veterans-Owned Business Small Entrepreneurships. Bidders are encouraged to consider participation. A list of certified vendors and additional information can be obtained from website <http://www.ledsmallbiz.com>. Potential participants may also register at this website. Businesses include minority and women.

27. Public Works Projects (R.S. 38:2227)

In accordance with the provisions of R.S. 38:2227; in awarding public works projects, any public entity is authorized to reject a proposal or bid, or not award the contract, to a business in which any individual with an ownership interest of ten percent (10%) or more, has been convicted, or has entered a plea of guilty or nolo contendere to any state felony or equivalent federal felony crime.

28. Tobacco-Free Policy

The use of tobacco products on any Southern University campus is prohibited by students, staff, faculty or visitors in all campus buildings, facilities, or property owned or leased by Southern University System and outside areas of the campus where non-smokers cannot avoid exposure to smoke; on campus grounds, facilities, or vehicles that are the property of the University; and at lectures, conferences, meetings, and social and cultural events held on school property or school grounds. The sale or free distribution of tobacco products, including merchandise on campus or at school events is prohibited.

29. Equal Opportunity Employer

Southern University and A&M College Systems of the State of Louisiana is an equal opportunity employer and looks to its contractors, sub-contractors, vendors, and suppliers to take affirmative action to effect this commitment in its operations. By submitting and signing this bid, the bidder certifies that he agrees to adhere to the mandates dictated by Title VI and VII of the Civil Rights Act of 1964, as amended; the Vietnam Era Veterans' Readjustment Assistance Act of 1974; Section 303 of the Rehabilitation Act of 1973; Section 202 of Executive Order 11246, as amended; and the Americans with Disabilities Act of 1990. Bidder agrees that he will not discriminate in the rendering of services to and/or employment of individuals because of race, color, religion, sex, age, national origin, handicap, disability, veteran status, or any other non-merit factor. Bidder further agrees to keep informed of and comply with all Federal, State, and local laws, ordinances, and regulations which affect his employees or prospective employees. Any person who is a "Qualified Individual with a Disability" as defined by 42 USC 12131 of the American with Disabilities Act who has submitted a bid on this procurement and who desires to attend the bid opening, must notify this office in writing no later than seven (7) working days prior to the bid opening date of their need for special accommodations. If the requested accommodations cannot be reasonably provided, the individual will be so informed prior to the bid opening.

30. Code of Ethics

The contractor acknowledges that Chapter 15 of Title 42 of the Louisiana Revised Statutes (R.S. 42:1101 et. seq., Code of Governmental Ethics) applies to the Contracting Party in the performance of services called for in this contract. The contractor agrees to immediately notify the state if potential violations of the Code of Governmental Ethics arise at any time during the term of this contract.

31. Vendor Forms/SU Signature Authority

The terms and conditions of the SU solicitation and purchase order/contract shall solely govern the purchase agreement, and shall not be amended by any vendor contract, form, etc. The University's chief procurement officer, or designee, is delegated sole authority to execute any vendor contracts, forms, etc. Departments are prohibited from signing any vendor forms.

32. Prosecution of Work

The work is to be done when Southern University is in operation. The contractor shall, therefore, plan the repairs and installation in specifications so as not to interfere with normal operations of the facility and shall exert effort to expedite completion of the work once it has started. It is intended that the work shall be done during normal working hours, however, should work require overtime (Saturday, Sunday and/or night working hours), the cost must be borne by the contractor at no extra compensation from the Owner (Southern University).

33. On-Campus Attendance Requirements (COVID-19)

The Center for Disease and Control (CDC) recommends social distancing and wearing of masks to prevent the spread of the Coronavirus (COVID19). Persons visiting Southern University are required to wear a mask/face covering and stay at least 6 feet between yourself and others, even when you wear a face covering.

34. Termination of the Contract for Convenience

The State/University may terminate the contract at any time by giving thirty (30) days written notice to the Contractor of such termination or negotiating with the Contractor an effective date. The Contractor shall be entitled to payment for deliverables in progress, to the extent work has been performed satisfactorily.

35. Termination for Cause

The State may terminate this Contract for cause based upon the failure of the Contractor to comply with the terms and/or conditions of the Contract; provided that the State shall give the Contractor written notice specifying the Contractor's failure. If within thirty (30) days after receipt of such notice, the Contractor shall not have either corrected such failure or thereafter proceeded diligently to

Document will be included with the successful vendor's contact.

complete such correction, then the State may, at its option, place the Contractor in default and the Contract shall terminate on the date specified in such notice. The Contractor may exercise any rights available to it under Louisiana law to terminate for cause upon the failure of the Owner to comply with the terms and conditions of this contract; provided that the Contractor shall give the State written notice specifying the State's failure and a reasonable opportunity for the Owner to cure the defect.

36. Auditors

It is hereby agreed that the Legislative Auditor of the State of Louisiana and/or the Office of the Governor, Division of Administration auditors shall have the option of auditing all accounts of contractor which relate to this contract.

37. Awarded Products/Unauthorized Substitutions

Only those awarded brands and numbers stated in the SU contract are approved for delivery, acceptance, and payment purposes. Any substitutions require prior approval of the Purchasing Office. Unauthorized product substitutions are subject to rejection at time of delivery, post-return at vendor's expense, and non-payment.

38. Acceptance

Upon written notice by the Owner, a Notice by Owner of Acceptance of Work will be executed and forwarded to the Contractor for recording with the Clerk of Court in the parish in which the work has been performed and shall furnish a clear Lien Certificate from the Clerk of Court (to the owner along with final invoice) forty-five (45) days after recordation of acceptance. Final payment of ten percent (10%) will be made at this time.

39. Guarantee

It is the intention of the specifications to secure a first-class permanent material and construction and to this end, Contractor will be held responsible for and must correct defects discovered in the work within one (1) year from acceptance. Should any materials or methods be called for, of such nature to render this guarantee impossible, written notice to this effect should be given Owner (Southern University) before signing contract and/or beginning of work; failure to do this will be construed as agreement to the strictest terms of the guarantee.

40. Clean-Up

The Contractor will be directed during the progress of work to remove and properly dispose of the resultant and debris. Upon completion, Contractor shall remove all equipment, unused materials and debris and will leave the premises in a clean and first-class condition.

41. Examination of Site

Each bidder will visit the site of the proposed project and will fully acquaint himself with conditions relating to construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the execution of work under this contract. No consideration or allowance will be granted the Contractor for failure to visit the site or for any alleged misunderstanding of the materials to be furnished or the work to be done.

42. Anti-Kickback Clause

The Contractor hereby agrees to adhere to the mandate dictated by The Copeland "Anti-Kickback" ACT which provides that each Contractor or Subgrantee shall be prohibited from inducing, by any means, any person employed in the completion of work, to give up any part of the compensation to which he is otherwise entitled.

43. Clean Air Act

The Contractor hereby agrees to adhere to the provisions which require compliance with all applicable standards, orders or requirements issued under Section 306 of the CLEAN AIR ACT which prohibits the use under non-exempt contracts, grants or loans of facilities included on the EPA list of Violating Facilities.

44. Clean Water Act

The Contractor hereby agrees to adhere to the provisions which require compliance with all applicable standards, orders or requirements issued under Section 508 of the Clean Water Act which prohibits the use under non-exempt federal contracts, grants or loans of facilities included on the EPA list of Violating Facilities.

45. Energy Policy and Conservation Act

The Contractor hereby recognizes the mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-163).

46. Anti-Lobbying and Debarment Act

The Contractor will be expected to comply with federal statutes in the Anti-Lobbying Act and The Debarment Act.

47. Signature Authority

A CORPORATE RESOLUTION OR WRITTEN EVIDENCE OF THE AUTHORITY OF THE PERSON SIGNING THE BID FOR THE PUBLIC WORK AS PRESCRIBED BY LOUISIANA REVISED STATUTE 38:2212 (B)(5)

Document will be included with the successful vendor's contact.

A copy of the applicable signature authority document/Board Resolution or LA Secretary of State Registration must be submitted with bid.

48. ADDITIONAL REQUIREMENTS

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE PLANS; THE PROJECT SPECIFICATIONS, AND SHALL COMPLY WITH APPLICABLE LOCAL AND STATE BUILDING CODES AS WELL AS ANY AND ALL REGULATORY AGENCY REQUIREMENTS AND LAWS, INCLUDING BUT NOT LIMITED TO OSHA, ETC. GENERAL NOTES SHALL APPLY TO ALL DRAWINGS.
2. CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT, IF APPLICABLE, OF ALL CONFLICTS OR DISCREPANCIES PRESENTED IN THESE PLANS PRIOR TO THE START OF WORK.
3. ALL WORK WHETHER SHOWN OR IMPLIED, UNLESS SPECIFICALLY QUESTIONED SHALL BE CONSIDERED UNDERSTOOD IN ALL RESPECTS BY THE GENERAL CONTRACTOR AND WHO WILL BE RESPONSIBLE FOR ANY MISINTERPRETATIONS AND CONSEQUENCES THEREOF.
4. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. ENGINEER/ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ALL IDENTIFIED EXISTING UTILITIES NOT IDENTIFIED IN THE PLANS.
6. OWNER SHALL PROVIDE WATER FOR CLEANING OPERATIONS FROM ANY FIRE HYDRANT AT NO COST TO THE CONSULTANT.

THIS DOCUMENT IS FOR INFORMATION PURPOSES

Document will be included with the successful vendor's contact.

INSURANCE REQUIREMENTS

Southern University and A&M College

BID 10321

The Contractor shall purchase and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, employees or subcontractors.

A. MINIMUM SCOPE AND LIMITS OF INSURANCE

1. Workers Compensation

Workers Compensation insurance shall be in compliance with the Workers Compensation law of the State of the Contractor's headquarters. Employers Liability is included with a minimum limit of \$500,000 per accident/per disease/per employee. If work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act, or other maritime law coverage shall be included and the Employers Liability limit increased to a minimum of \$1,000,000. **A.M. Best's insurance company rating requirement may be waived for workers compensation coverage only.**

2. Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability, shall have a minimum limit per occurrence of \$1,000,000 and a minimum general aggregate of \$2,000,000. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

3. Automobile Liability

Automobile Liability Insurance shall have a minimum combined single limit per occurrence of \$1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned automobiles.

B. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and accepted by the Agency. The Contractor shall be responsible for all deductibles and self-insured retentions.

C. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability and Automobile Liability Coverage

- a. The Agency, its officers, agents, employees and volunteers shall be named as an additional insured as regards negligence by the contractor. ISO Form CG 20 10 (current form approved for use in Louisiana), or equivalent, is to be used when applicable. The coverage shall contain no special limitations on the scope of protection afforded to the Agency.
- b. The Contractor's insurance shall be primary as respects the Agency, its officers, agents, employees and volunteers. Any insurance or self-insurance maintained by the Agency shall be excess and non-contributory of the Contractor's insurance.
- c. Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Agency, its officers, agents, employees and volunteers.
- d. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the policy limits.

2. Workers Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the Agency, its officers, agents, employees and volunteers for losses arising from work performed by the Contractor for the Agency.

3. All Coverage

- a. Coverage shall not be canceled, suspended, or voided by either party (the Contractor or the insurer) or reduced in coverage or in limits except after 30 days written notice has been given to the Agency. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy.
- b. Neither the acceptance of the completed work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement.
- c. The insurance companies issuing the policies shall have no recourse against the Agency for payment of premiums or for assessments under any form of the policies.

- d. Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Agency, its officers, agents, employees and volunteers.

D. ACCEPTABILITY OF INSURERS

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with a A.M. Best's rating of **A-:VI or higher**. This rating requirement may be waived for workers compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another Certificate of Insurance as required in the contract.

E. VERIFICATION OF COVERAGE

Contractor shall furnish the Agency with Certificates of insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Agency before work commences and upon any contract renewal thereafter.

In addition to the Certificates, Contractor shall submit the declarations page and the cancellation provision endorsement for each insurance policy. The Agency reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain such insurance as above provided, this contract, at the election of the Agency, may be suspended, discontinued or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

F. SUBCONTRACTORS

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the Certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Agency reserves the right to request copies of subcontractor's Certificates at any time.

G. WORKERS COMPENSATION INDEMNITY

In the event Contractor is not required to provide or elects not to provide workers compensation coverage, the parties hereby agree that Contractor, its owners, agents and employees will have no cause of action against, and will not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Workers Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its owners, agents and employees. The parties further agree that Contractor is a wholly independent contractor and is exclusively responsible for its employees, owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

Maritime (Jones Act and LHWCA) needed when work is performed over navigable bodies of water

H. INDEMNIFICATION/HOLD HARMLESS AGREEMENT

Contractor agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees, and volunteers, from and against any and all claims, damages, expenses, and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants, and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits, or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits, or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent.

**NOTE: SUCCESSFUL BIDDER WILL BE REQUIRED TO PROVIDE A CERTIFICATE OF INSURANCE WITH SOUTHERN UNIVERSITY AS THE CERTIFICATE HOLDER
SOUTHERN UNIVERSITY AND A&M COLLEGE
PO BOX 9534
BATON ROUGE, LA 70813
225-771-4587**

ADVERTISEMENT
SOUTHERN UNIVERSITY AND A&M COLLEGE
REQUEST FOR BID
REQUEST FOR BID # 10321
MAY 20, 2024 – 10:30 AM
MULTI-MEDIA CENTER RENOVATION
at W.W. STEWART HALL-STATE BUILDING # 02170
Baton Rouge Campus

Sealed bids will be received by Southern University, Baton Rouge, Louisiana, in the Purchasing Office, 8100 James L. Prestage Drive, J. S. Clark Administration Building Annex, South Entrance, First Floor East. Bidders are solely responsible for ensuring timely delivery of their bids. The Southern University Purchasing Department is not responsible for any delays caused by bidders' chosen means of delivery. Failure to meet the bid deadline submittal date and time shall result in rejection of bid.

**MAIL OR HAND-DELIVER BID TO PURCHASING DEPARTMENT NO
LATER THAN 10:30 AM- MAY 20, 2024**

Bids are opened in the Purchasing Department.

Mandatory Pre-Bid Conference & Site Visit: April 29, 2024 @ 10:30 am
Site Visit Location: Physical Plant Department, Benjamin H. Kraft Building
515 James L. Hunt Street
(Southern University Campus)
Baton Rouge, La 70813
Site Visit Telephone Contact Numbers: 225-771-4741
Participants shall be in attendance by 10:30 a.m. and sign-in on sheet provided by the Purchasing Department.

Bidders shall visit the site and be familiarized with the local conditions under which the work is to be performed. No additional compensation will be granted because of unusual difficulties, which may be encountered in the execution of any portion of the work.

Inquiries will be accepted until May 10, 2024 by 5:00 p.m. Inquiries shall be submitted to Linda Antoine at linda_antoine@subr.edu

Responses to inquiries will be posted on LAPAC-LA State Procurement website by May 10, 2024 by 5:00 p.m.

All bids must be accompanied by bid security equal to **five (5%) percent of the sum of the base bid and all alternates, if applicable** and must be in the form of a certified/official check, cashier's check or bid bond, made payable to Southern University and A & M College. Surety represents that it is listed on the current U.S. Department of the Treasury Financial Management Service list of approved bonding companies and that is listed thereon as approved for amount equal to or greater than the amount for which it obligates itself in this instrument. No bid bond indicating an obligation of less than five percent (5%) by any method is acceptable.

The successful bidder shall be required to furnish a **Performance and Payment Bond** written by a company licensed to do business in Louisiana, in an amount equal to 100% of the contract amount and who is currently on the U.S. Department of the Treasury Financial Management Service List.

Any person requiring special accommodations should notify the Purchasing Office of the type(s) of accommodation required not less than seven (7) days before the bid opening date.

Bidders shall include the following on envelope of choice: company's name, address, Louisiana contractor's license number, bid number, bid opening date and time.

Bids may be withdrawn by written, telegraphic fax notice or email and received at the address or email address designated in the Invitation to Bid prior to the time set for bid opening, as recorded by date stamp at the Purchasing Office. Bids received after closing time will be returned unopened. Evidence of authority to submit the bid shall be required in accordance with R.S. 38:2212(a)(1)(c) and/or R.S. 39:1594(c)(2)(d).

The Southern University System is a participant in the Louisiana for the Small Entrepreneurships Program (the Hudson Initiative) and the Louisiana Initiative for Veterans and Service-Connected Disabled Veterans-Owned Business Small Entrepreneurships. Bidders are encouraged to consider participation. A list of certified vendors and additional information can be obtained from website <http://www.ledsmallbiz.com>. Potential participants may also register at this website.

ALL BID SPECIFICATIONS CAN BE OBTAINED BY ACCESSING THE LA STATE PROCUREMENT WEBSITE

<https://wwwcfprd.doa.louisiana.gov/osp/lapac/pubMain.cfm>

Any questions concerning bid documents, please contact Mary Jane Spruel, Assistant Director of Purchasing at (225) 771-2800 or (225) 771-2804 or email to maryjane_spruel@subr.edu

The University reserves the right to reject all bids and to waive any informalities incidental thereto. Bids will be accepted only from contractors who are licensed under Louisiana R.S. 39:2150-2173 for the classification of: 72000000 Building and Construction, and Maintenance Services; 72101500 Building Support Services; 72131600 Commercial or Industrial Constructions.

**SOUTHERN UNIVERSITY & A&M COLLEGE
AN EQUAL OPPORTUNITY EMPLOYER**

Linda A. Antoine, Director of Purchasing

DATES ADVERTISED:

APRIL 18, 25, 2024 & MAY 2, 2024

Project Manual

Architects Project Number: 22-022

PROJECT

MULTI-MEDIA CENTER RENOVATION AT:
SOUTHERN UNIVERSITY

Baton Rouge, Louisiana

ARCHITECT

**M3A Architecture, PLLC/
William L. McElroy AIA, NCARB**

4880 McWillie Circle

Jackson, MS 39206

601-981-1227 voice

601-983-4444 facsimile

MEP ENGINEERS

Thompson Luke and Associates, LLC

10705 Rieger Road

Baton Rouge, LA 70809

225-293-9474 voice

FEBRUARY 05, 2024

CONSTRUCTION DOCUMENTS SET

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- 00010 – Table of Contents
- 00100 – Invitation to Bid
- 00200 – Instructions to Bidders
- 00210 – Supplementary Instructions to Bidders
- 00400 – Proposal Form
- 00500 – Agreement Form
- 00600 – Bond Forms
- 00700 – General Conditions
- 00800 – Supplementary Conditions
- 00900 – Insurance Requirements

Division 01 – General Requirements

- 01015 – Project Start Work Date
- 01020 – Allowances
- 01023 – Project Start Up
- 01100 – Summary of Work
- 01200 – Price and Payment Procedures
- 01300 – Administrative Requirements
- 01325 – Construction Progress Schedule
- 01400 – Quality Requirements
- 01405 – Cutting and Patching
- 01410 – Testing Laboratory Services (Architectural)
- 01500 – Temporary Facilities and Controls
- 01510 – Temporary Utilities
- 01550 – Vehicular Access and Parking
- 01565 – Security Measures
- 01575 – Temporary Erosion and Sedimentation Control
- 01585 – Project Signs
- 01600 – Product Requirements
- 01700 – Execution Requirements
- 01710 – Cleaning

01720 – Project Record Documents

01780 – Closeout Submittals

01800 – Project Closeout

01820 – Demonstration and Training

Division 02 – Site Work

02225 – Selective Demolition

Division 04 – Masonry

04050 – Basic Masonry Materials and Methods

04065 – Mortar and Masonry Grout

04810 – Unit Masonry Assemblies

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Division 05 – Metals

05050 – Basic Metal Materials and Methods

05051 – Shop Applied Coatings for Metal

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05501 – Miscellaneous Metal Fabrications

Division 06 – Wood and Plastics

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06066 – Plastic Laminate Clad Countertops

06100 – Rough Carpentry

06160 – Exterior Sheathing

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06400 – Millwork

Division 07 – Thermal and Moisture Protection

07050 – Basic Thermal and Moisture Protection

07210 – Batt Insulation

07261 – Vapor Retarders for Existing Slabs

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Division 08 – Doors and Windows

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08120 – Hollow Metal Frames

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08310 – Access Doors and Panels

08510 – Aluminum Storefronts

08710 – Finish Hardware

Division 09 – Finishes

09110 – Non-Load Bearing Metal Framing

09260 – Gypsum Board Assemblies

09510 – Suspended Acoustical Tile Ceiling

09650 – Resilient Tile Flooring

09654 – Rubber Base and Accessories

09840 – Acoustical Ceiling and Wall Panels (Cementitious Wood)

09900 – Paints and Coatings

Division 10 – Specialties

10430 – Exterior Signage

10440 – Interior Signage

Division 22 - Plumbing

Division 23 - Heating, Ventilating, And Air Conditioning (HVAC)

Division 26 - Electrical

Division 28 Electronic Safety And Security

END OF SECTION 00010

ADVERTISEMENT FOR BIDS

Sealed bids will be received for the State of Louisiana by the Division of Administration and shall be directed to the Office of Facility Planning and Control, 1201 North Third Street, Claiborne Office Building, Suite 7-160, Baton Rouge, Louisiana, 70802 or P.O. Box 94095, Baton Rouge, Louisiana, 70804-9095. The deadline for receipt of bids is 2:00 PM on _____, 20_24_, at which time bids will be opened and read aloud in a public meeting in the Claiborne Office Building, Conference Room 1-145.

ANY PERSON REQUIRING SPECIAL ACCOMMODATIONS SHALL NOTIFY FACILITY PLANNING AND CONTROL OF THE TYPE(S) OF ACCOMMODATION REQUIRED NOT LESS THAN SEVEN (7) DAYS BEFORE THE BID OPENING.

FOR: Southern University Baton Rouge Multi-Media Center Renovation

PROJECT NUMBER: 22-022

USE ONE OF THE FOLLOWING PARAGRAPHS

Complete Bid Documents for this project are available in electronic form. They may be obtained without charge and without deposit from m3aarchplans.com. Printed copies are not available from the Designer, but arrangements can be made to obtain them through most reprographic firms. Plan holders are responsible for their own reproduction costs. Questions about this procedure shall be directed to the Designer at:

Mc3lroy Architecture, PLLC
4880 McWillie Circle
601-981-1227
yburks@m3aarch.com

All bids shall be accompanied by bid security in an amount of five percent (5.0%) of the sum of the base bid and all alternates. The form of this security shall be as stated in the Instructions to Bidders included in the Bid Documents for this project.

The successful Bidder shall be required to furnish a Performance and Payment Bond written as described in the Instructions to Bidders included in the Bid Documents for this project.

A PRE-BID CONFERENCE WILL BE HELD

at **1:00 pm** on **March 05, 2024**, at **Southern University Baton Rouge, Title III Conference Room-TH Harris Hall 1036**

Bids shall be accepted from Contractors who are licensed under LA. R.S. 37:2150-2192 for the classification of _____. Bidder is required to comply with provisions and requirements of LA R.S. 38:2212(B)(5). No bid may be withdrawn for a period of forty-five (45) days after receipt of bids, except under the provisions of LA. R.S. 38:2214.

The Owner reserves the right to reject any and all bids for just cause. In accordance with La. R.S. 38:2212(B)(1), the provisions and requirements of this Section; and those stated in the bidding documents shall not be waived by any entity.

When this project is financed either partially or entirely with State Bonds or financed in whole or in part by federal or other funds which are not readily available at the time bids are received, the award of this Contract is contingent upon the granting of lines of credit, or the sale of bonds by the Bond Commission or the availability of federal or other funds. The State shall incur no obligation to the Contractor until the Contract Between Owner and Contractor is fully executed.

Facility Planning and Control is a participant in the Small Entrepreneurship (SE) Program (the Hudson Initiative) and the Veteran-Owned and Service-Connected Disabled Veteran-Owned (LaVet) Small Entrepreneurships Program. Bidders are encouraged to consider participation. Information is available from the Office of Facility Planning and Control or on its website at <https://www.doa.la.gov/doa/fpc/>.

STATE OF LOUISIANA
DIVISION OF ADMINISTRATION
FACILITY PLANNING AND CONTROL
ROGER E. HUSSER, JR., DIRECTOR

APRIL 2023

INSTRUCTIONS TO BIDDERS

COMPLETION TIME:

The Bidder shall agree to fully complete the contract within (90) consecutive calendar days, subject to such extensions as may be granted under Paragraph 8.3, in the General Conditions and the Supplementary Conditions, and acknowledges that this construction time will start on or before the date specified in the written "Notice to Proceed" from the Owner.

LIQUIDATED DAMAGES:

The Bidder shall agree to pay as Liquidated Damages the amount of (One Thousand) Dollars (\$ 1,000.00) for each consecutive calendar day for which the work is not complete, beginning with the first day beyond the contract completion date stated on the "Notice to Proceed" or as amended by change order.

ARTICLE 1

DEFINITIONS

1.1 The Bid Documents include the following:

Advertisement for Bids
Instructions to Bidders
Bid Form
Bid Bond
General Conditions of the Contract for Construction,
AIA Document A201, 2017 Edition
Supplementary Conditions
Contract Between Owner and Contractor and Performance and Payment Bond
Affidavit
User Agency Documents (if applicable)
Change Order Form
Partial Occupancy Form
Recommendation of Acceptance
Asbestos Abatement (if applicable)
Other Documents (if applicable)
Specifications & Drawings
Addenda issued during the bid period and acknowledged in the Bid Form

1.2 All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201 and the Supplementary Conditions are applicable to the Bid Documents.

1.3 Addenda are written and/or graphic instruments issued by the Architect prior to the opening of bids, which modify or interpret the Bid Documents by additions, deletions, clarifications, corrections and prior approvals.

1.4 A bid is a complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein supported by data called for by the Bid Documents.

1.5 Base bid is the sum stated in the bid for which the Bidder offers to perform the work described as the base, to which work may be added, or deleted for sums stated in alternate bids.

1.6 An alternate bid (or alternate) is an amount stated in the bid to be added to the amount of the base bid if the corresponding change in project scope or materials or methods of construction described in the Bid Documents is accepted.

1.7 A Bidder is one who submits a bid for a prime Contract with the Owner for the work described in the Bid Documents.

1.8 A Sub-bidder is one who submits a bid to a Bidder for materials and/or labor for a portion of the work.

1.9 Where the word "Architect" is used in any of the documents, it shall refer to the Prime Designer of the project, regardless of discipline.

ARTICLE 2

PRE-BID CONFERENCE

2.1 A Pre-Bid Conference shall be held at least 10 days before the date for receipt for bids. The Architect shall coordinate the setting of the date, time and place for the Pre-Bid Conference with the User Agency and shall notify in writing the Owner and all who have received sets of the Bid Documents to

attend. The purpose of the Pre-Bid Conference is to familiarize Bidders with the requirements of the Project and the intent of the Bid Documents, and to receive comments and information from interested Bidders. If the Pre-Bid Conference is stated in the Advertisement for Bids to be a Mandatory Pre-Bid Conference, bids shall be accepted only from those bidders who attend the Pre-Bid Conference. Contractors who are not in attendance for the **entire** Pre-Bid Conference will be considered to have not attended.

2.2 Any revision of the Bid Documents made as a result of the Pre-Bid Conference shall not be valid unless included in an addendum.

ARTICLE 3

BIDDER'S REPRESENTATION

3.1 Each Bidder by making his bid represents that:

3.1.1 He has read and understands the Bid Documents and his bid is made in accordance therewith.

3.1.2 He has visited the site and has familiarized himself with the local conditions under which the work is to be performed.

3.1.3 His bid is based solely upon the materials, systems and equipment described in the Bid Documents as advertised and as modified by addenda.

3.1.4 His bid is not based on any verbal instructions contrary to the Bid Documents and addenda.

3.1.5 He is familiar with Code of Governmental Ethics requirement that prohibits public servants and/or their immediate family members from bidding on or entering into contracts; he is aware that the Designer and its principal owners are considered Public Servants under the Code of Governmental Ethics for the limited purposes and scope of the Design Contract with the State on this Project (see Ethics Board Advisory Opinion, No. 2009-378 and 2010-128); and neither he nor any principal of the Bidder with a controlling interest therein has an immediate family relationship with the Designer or any principal within the Designer's firm (see La. R.S.

42:1113). Any Bidder submitting a bid in violation of this clause shall be disqualified and any contract entered into in violation of this clause shall be null and void.

3.2 The Bidder must be fully qualified under any State or local licensing law for Contractors in effect at the time and at the location of the work before submitting his bid. In the State of Louisiana, Revised Statutes 37:2150, et seq. will be considered, if applicable.

The Contractor shall be responsible for determining that all of his Sub-bidders or prospective Subcontractors are duly licensed in accordance with law.

ARTICLE 4

BID DOCUMENTS

4.1 Copies

4.1.1 Bid Documents may be obtained from the Architect for a deposit as stated in the Advertisement for Bids. The deposit will be refunded as stated in the Advertisement for Bids. No deposits will be refunded on Bid Documents returned later than ten days after receipt of bids.

4.1.1.2 As an alternative method of distribution, the Designer may provide the Bid Documents in electronic format. They may be obtained without charge and without deposit as stated in the Advertisement for Bids.

4.1.1.2.1 If electronic distribution is available, printed copies will not be available from the Designer, but arrangements can be made to obtain them through most reprographic firms and/or plan rooms.

4.1.1.2.2 If electronic distribution is available, the reproduction cost on the first paper plan set acquired by bona fide prime bidders will be fully refunded by the Designer upon delivery of the documents to the Designer in good condition no later than ten days after receipt of bids.

4.1.1.2.3 If electronic distribution is available, all other plan holders are responsible for their own reproduction costs.

4.1.2 Complete sets of Bid Documents shall be used in preparing bids; neither the Owner nor the Architect assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.

4.1.3 The Owner or Architect in making copies of the Bid Documents available on the above terms, do so only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

4.2 Interpretation or Correction of Bid Documents

4.2.1 Bidders shall promptly notify the Architect of any ambiguity, inconsistency or error which they may discover upon examination of the Bid Documents or of the site and local conditions.

4.2.2 Bidders requiring clarification or interpretation of the Bid Documents shall make a written request to the Architect, to reach him at least seven days prior to the date for receipt of bids.

4.2.3 Any interpretation, correction or change of the Bid Documents will be made by addendum. Interpretations, corrections or changes of the Bid Documents made in any other manner will not be binding and Bidders shall not rely upon such interpretations, corrections and changes.

4.3 Substitutions

4.3.1 The materials, products and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitutions shall be allowed after bids are received.

4.3.2 No substitution will be considered unless written request for approval has been submitted by the Proposer and has been received by the Architect at least seven (7) working days prior to the opening of bids. (La. R.S. 38:2295(C)) Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including model numbers, drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. It

shall be the responsibility of the proposer to include in his proposal all changes required of the Bid Documents if the proposed product is used. Prior approval, if given, is contingent upon supplier being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and equipment approved.

4.3.3 If the Architect approves any proposed substitution, such approval shall be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner.

4.4 Addenda

4.4.1 Addenda will be transmitted to all who are known by the Architect to have received a complete set of Bid Documents.

4.4.2 Copies of addenda will be made available for inspection wherever Bid Documents are on file for that purpose.

4.4.3 Except as described herein, addenda shall not be issued within a period of seventy-two (72) hours prior to the advertised time for the opening of bids, excluding Saturdays, Sundays, and any other legal holidays. If the necessity arises of issuing an addendum modifying plans and specifications within the seventy-two (72) hour period prior to the advertised time for the opening of bids, then the opening of bids shall be extended at least seven but no more than twenty-one (21) working days, without the requirement of re-advertising. Facility Planning shall be consulted prior to issuance of such an addendum and shall approve such issuance. The revised time and date for the opening of bids shall be stated in the addendum.

4.4.4 Each Bidder shall ascertain from the Architect prior to submitting his bid that he has received all addenda issued, and he shall acknowledge their receipt on the Bid Form.

4.4.5 The Owner shall have the right to extend the bid date by up to (30) thirty days without the requirement of re-advertising. Any such extension shall be made by addendum issued by the Architect.

ARTICLE 5

BID PROCEDURE

5.1 Form and Style of Bids

5.1.1 Bids shall be submitted on the Louisiana Uniform Public Work Bid Form provided by the Architect for this project.

5.1.2 The Bidder shall ensure that all applicable blanks on the bid form are completely and accurately filled in.

5.1.3 Bid sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written words shall govern.

5.1.4 Any interlineation, alteration or erasure must be initialed by the signer of the bid or his authorized representative.

5.1.5 Bidders are cautioned to complete all alternates should such be required in the Bid Form. Failure to submit alternate prices will render the bid non responsive and shall cause its rejection.

5.1.6 Bidders are cautioned to complete all unit prices should such be required in the Bid Form. Unit prices represent a price proposal to do a specified quantity and quality of work. Unit prices are incorporated into the base bid or alternates, as indicated on the Unit Price Form, but are not the sole components thereof.

5.1.7 Bidder shall make no additional stipulations on the Bid Form nor qualify his bid in any other manner.

5.1.8 Written evidence of the authority of the person signing the bid for the public work shall be submitted in accordance with La. R.S. 38:2212 (B)(5).

5.1.9 On any bid in excess of fifty thousand dollars (\$50,000.00), the Contractor shall certify that he is licensed under La. R.S. 37: 2150-2173 and show his license number on the bid above his signature or his duly authorized representative.

5.2 Bid Security

5.2.1 No bid shall be considered or accepted unless the bid is accompanied by bid security in an

amount of five percent (5.0%) of the base bid and all alternates.

The bid security shall be in the form of a certified check or cashier's check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a Bid Bond written by a surety company licensed to do business in Louisiana and signed by the surety's agent or attorney-in-fact. The Bid Bond shall be written on the Facility Planning and Control Bid Bond Form, and the surety for the bond must meet the qualifications stated thereon. The Bid Bond shall include the legal name of the bidder be in favor of the State of Louisiana, Office of Facility Planning and Control, and shall be accompanied by appropriate power of attorney. The Bid Bond must be signed by both the bidder/principal and the surety in the space provided on the Facility Planning and Control Bid Bond Form. Failure by the bidder/principal or the surety to sign the bid bond shall result in the rejection of the bid.

Bid security furnished by the Contractor shall guarantee that the Contractor will, if awarded the work according to the terms of his proposal, enter into the Contract and furnish Performance and Payment Bonds as required by these Bid Documents, within fifteen (15) days after written notice that the instrument is ready for his signature.

Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as penalty.

5.2.2 The Owner will have the right to retain the bid security of Bidders until either (a) the Contract has been executed and bonds have been furnished, or (b) the specified time has elapsed so that bids may be withdrawn, or (c) all bids have been rejected.

5.3 Submission of Bids

5.3.1 The Bid shall be sealed in an opaque envelope. The bid envelope shall be identified on the outside with the name of the project, and the name, address, and license number of the Bidder.

The envelope shall not contain multiple bid forms, and will be received until the time specified and at the place specified in the Advertisement for Bids. It shall be the specific responsibility of the Bidder to deliver his sealed bid to Facility Planning and Control Department at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any reason, including late

delivery by United States Mail, or express delivery, shall disqualify the bid.

If the bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "Bid Enclosed" on the face thereof. Such bids shall be sent by Registered or Certified Mail, Return Receipt Requested, addressed to:

Facility Planning and Control,
P. O. Box 94095
Baton Rouge, Louisiana, 70804-9095.

Bids sent by express delivery shall be delivered to:

Facility Planning and Control
Suite 7-160
Claiborne Office Building
1201 North Third Street
Baton Rouge, Louisiana 70802

5.3.2 Bids shall be deposited at the designated location prior to the time on the date for receipt of bids indicated in the Advertisement for Bids, or any extension thereof made by addendum. Bids received after the time and date for receipt of bids will be returned unopened.

5.3.3 Bidder shall assume full responsibility for timely delivery at location designated for receipt of bids.

5.3.4 Oral, telephonic or telegraphic bids are invalid and shall not receive consideration. Owner shall not consider notations written on outside of bid envelope which have the effect of amending the bid. Written modifications enclosed in the bid envelope, and signed or initialed by the Contractor or his representative, shall be accepted.

5.4 Modification or Withdrawal of Bid

5.4.1 A bid may not be modified, withdrawn or canceled by the Bidder during the time stipulated in the Advertisement for Bids, for the period following the time and bid date designated for the receipt of bids, and Bidder so agrees in submitting his bid, except in accordance with R.S. 38:2214 which states, in part, "Bids containing patently obvious, unintentional, and substantial mechanical, clerical, or mathematical errors, or errors of unintentional omission of a substantial quantity of work, labor, material, or services made directly in the compilation of the bid, may be withdrawn by the contractor if clear and convincing sworn, written evidence of such

errors is furnished to the public entity within forty-eight hours of the bid opening excluding Saturdays, Sundays, and legal holidays".

5.4.2 Prior to the time and date designated for receipt of bids, bids submitted early may be modified or withdrawn only by notice to the party receiving bids at the place and prior to the time designated for receipt of bids.

5.4.3 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids provided that they are then fully in conformance with these Instructions to Bidders.

5.4.4 Bid Security shall be in an amount sufficient for the bid as modified or resubmitted.

5.5 Prohibition of Discriminatory Boycotts of Israel

By submitting a bid, the bidder certifies and agrees that the following information is correct:

In preparing its bid, the bidder has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israel-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The bidder has also not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. The state reserves the right to reject any bid if this certification is subsequently determined to be false and to terminate any contract awarded based on such a false response.

ARTICLE 6

CONSIDERATION OF BIDS

6.1 Opening of Bids

6.1.1 The properly identified Bids received on time will be opened publicly and will be read aloud, and a tabulation abstract of the amounts of the base bids and alternates, if any, will be made available to Bidders.

6.2 Rejection of Bids

6.2.1 The Owner shall have the right to reject any or all bids and in particular to reject a bid not accompanied by any required bid security or data required by the Bid Documents or a bid in any way incomplete or irregular.

6.3 Acceptance of Bid

6.3.1 It is the intent of the Owner, if he accepts any alternates, to accept them in the order in which they are listed in the Bid Form. Determination of the Low Bidder shall be on the basis of the sum of the base bid and the alternates accepted. However, the Owner shall reserve the right to accept alternates in any order which does not affect determination of the Low Bidder.

ARTICLE 7

POST-BID INFORMATION

7.1 Submissions

7.1.1 At the Pre-Construction Conference, the Contractor shall submit the following information to the Architect.

7.1.1.1 A designation of the work to be performed by the Contractor with his own forces.

7.1.1.2 A breakdown of the Contract cost attributable to each item listed in the Schedule of Values Form (attached). No payments will be made to the Contractor until this is received.

7.1.1.3 The proprietary names and the suppliers of principal items or systems of material and equipment proposed for the work.

7.1.1.4 A list of names and business domiciles of all Subcontractors, manufacturers, suppliers or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the work. It is the preference of the Owner that, to the greatest extent possible or practical, the Contractor utilize Louisiana Subcontractors, manufacturers, suppliers and labor.

7.1.2 The General Contractor shall be responsible for actions or inactions of Subcontractors and/or material suppliers.

The General Contractor is totally responsible for any lost time or extra expense incurred due to a Subcontractor's or Material Supplier's failure to perform. Failure to perform includes, but is not limited to, a Subcontractor's financial failure, abandonment of the project, failure to make prompt delivery, or failure to do work up to standard. Under no circumstances shall the Owner mitigate the General Contractor's losses or reimburse the General Contractor for losses caused by these events.

7.1.3 The lowest responsive and responsible bidder shall submit to the Architect and the Owner within ten days after the bid opening a letter/letters from the manufacturer stating that the manufacturer will issue the roof system guarantee complying with the requirements of Facility Planning and Control based on the specified roof system and include the name of the applicator acceptable to the manufacturer at the highest level of certification for installing the specified roof system. This manufacturer shall be one that has received prior approval or is named in the specifications.

In accordance with La. R.S. 38:2227 [references La R.S. 38:2212(A)(3)(c)(ii), which has since been renumbered as La R.S. 38:2212(B)(3)], La. R.S. 38:2212.10 and La. R.S. 23:1726(B) the apparent low bidder on this project shall submit the completed Attestations Affidavit (Past Criminal Convictions of Bidders, Verification of Employees and Certification Regarding Unpaid Workers Compensation Insurance) form found within this bid package to Facility Planning and Control within 10 days after the opening of bids.

ARTICLE 8

PERFORMANCE AND PAYMENT BOND

8.1 Bond Required

8.1.1 The Contractor shall furnish and pay for a Performance and Payment Bond written by a company licensed to do business in Louisiana, which shall be signed by the surety's agent or attorney-in-fact, in an amount equal to 100% of the Contract amount. Surety must be listed currently on

the U. S. Department of Treasury Financial Management Service List (Treasury List) as approved for an amount equal to or greater than the contract amount, or must be an insurance company domiciled in Louisiana or owned by Louisiana residents. If surety is qualified other than by listing on the Treasury list, the contract amount may not exceed fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance and may not exceed the amount of \$500,000. However, a Louisiana domiciled insurance company with at least an A- rating in the latest printing of the A. M. Best's Key Rating Guide shall not be subject to the \$500,000 limitation, provided that the contract amount does not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide nor fifteen percent of policyholders' surplus as shown by surety's most recent financial statements filed with the Louisiana Department of Insurance. The Bond shall be signed by the surety's agent or attorney-in-fact. The Bond shall be in favor of the State of Louisiana, Office of Facility Planning and Control.

8.2 Time of Delivery and Form of Bond

8.2.1 The Bidder shall deliver the required bond to the Owner simultaneous with the execution of the Contract.

8.2.2 Bond shall be in the form furnished by Facility Planning and Control, entitled CONTRACT BETWEEN OWNER AND CONTRACTOR AND PERFORMANCE AND PAYMENT BOND, a copy of which is included in the Bid Documents.

8.2.3 The Bidder shall require the Attorney-in-Fact who executes the required bond on behalf of the surety to affix thereto a certified and current copy of his power of Attorney.

ARTICLE 9

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

9.1 Form to be Used

9.1.1 Form of the Contract to be used shall be furnished by Facility Planning and Control, an example of which is bound in the Bid Documents.

9.2 Award

9.2.1 After award of the Contract, the successful Bidder, if a corporation, shall furnish to the Owner the most current copy of a Disclosure of Ownership Affidavit on file with the Secretary of State.

9.2.2 In accordance with Louisiana Law, when the Contract is awarded, the successful Bidder shall, at the time of the signing of the Contract, execute the Non-Collusion Affidavit included in the Contract Documents

9.2.3 When this project is financed either partially or entirely with State Bonds, the award of this Contract is contingent upon the sale of bonds by the State Bond Commission. The State shall incur no obligation to the Contractor until the Contract Between Owner and Contractor is duly executed.

SECTION 00210 – SUPPLEMENTARY INSTRUCTION TO BIDDERS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Identification of Project Supplementary Instructions To Bidders.
- B. General Provisions.
- C. Supplements.

1.02 IDENTIFICATION

- A. The "Supplements" included hereinafter modify the Section 00200 Instructions to Bidder.

1.03 GENERAL REVISIONS

- A. Where a portion of the Instructions To Bidders is modified by these Supplementary Instructions To Bidders, the unaltered portions shall remain in effect.

END OF SECTION 00210

Division 00 –Procurement and Contracting Requirements
00210 – Supplementary Instructions to Bidders

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: Southern University and A&M College
801 Harding Blvd
Baton Rouge, LA 70807
(Owner to provide name and address of owner)

BID FOR: Southern University Multi-Media Center
Renovation Project
(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: MC3LROY ARCHITECTURE, PLLC/WILLIAM L.MCELROY, AIA, NCARB and dated: March 25, 2024
(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars (\$ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** **A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: _____
 Southern University and A&M College
 801 Harding Blvd.
 Baton Rouge, LA 70807

(Owner to provide name and address of owner)

BID FOR: Southern University Multi-Media Center Renovation
Project _____

(Owner to provide name of project and other identifying information)

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

DESCRIPTION:	<input type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# ____			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION <i>(Quantity times Unit Price)</i>

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

FOR INFORMATION ONLY

This document will be prepared by Facility Planning & Control in the form appropriate for the project.

STATE OF LOUISIANA
PARISH OF «EAST BATON ROUGE»

CONTRACT BETWEEN OWNER AND CONTRACTOR AND PERFORMANCE AND PAYMENT BOND

This agreement entered into this _____ day of _____, 2024, by «Contractor» hereinafter called the "Contractor", whose business address is «Contractor Address», «Contractor City», «Contractor State» «Contractor Zip», and the State of Louisiana Division of Administration, herein represented by the contracting officer executing this contract, hereinafter called the "Owner".

Witnesseth that the Contractor and the Owner, in consideration of premises and the mutual covenants; consideration and agreement herein contained, agree as follows:

Statement of Work: The contractor shall furnish all labor and materials and perform all of the work required to build, construct and complete in a thorough and workmanlike manner:

«Project_Reference_1»
«Project_Reference_2»
«Project_Reference_3»
«Project_City», Louisiana
Project No.: «ProjectNo», «Part_No»«WBS»;
«Supplement_Project_No», Part «Supplement_Part_No»
(«Supplement_WBS»)(Supplement)
State ID No.: «StateID» Site Code: «SiteCode»

in strict accordance with Contract Documents prepared by:

«Designer»
«Designer_Address»
«Designer_City», «Designer_State» «Designer_Zip»

It is recognized by the parties herein that said Contract Documents including by way of example and not of limitation, the Drawings and Specifications dated «Drawings and Specs Date», Addenda number(s) «Addenda No», the Instruction to Bidders, Bid Form, General Conditions, Supplementary Conditions, any Addenda thereto, impose duties and obligations upon the parties herein, and said parties thereby agree that they shall be bound by said duties and obligations. For these purposes, all of the provisions contained in the aforementioned Construction Documents are incorporated herein by reference with the same force and effect as though said Construction Documents were herein set out in full.

Time for Completion: The work shall be commenced on a date to be specified in a written order of the Owner and shall be completed within 90 consecutive calendar days from and after the said date.

Liquidated Damages: Contractor shall be assessed Liquidated Damages in the amount of \$1,000 per day for each consecutive calendar day which work is not complete beginning with the first day beyond the completion time.

Compensation to be paid to the Contractor: The Owner will pay and the Contractor will accept in full consideration for the performance of the contract the sum of «Contract Amount Words» and No/100 Dollars («Contract Amount Numeral») which sum represents the «Base Bid Only or Plus Alternates»

Taxes: Contractor hereby agrees that the responsibility for payment of taxes from the funds thus received under this Contract and/or legislative appropriation shall be contractor's obligation and identified under Federal tax identification number _____.

Performance and Payment Bond: To these presents personally came and intervened _____, herein acting for _____, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact business in the State of Louisiana, as surety, who declared that having taken cognizance of this contract and of the Construction Documents mentioned herein, he hereby in his capacity as its Attorney in Fact obligates his said company, as Surety for the said Contractor, unto the said Owner, up to the sum of «Contract Amount Words» and No/100 Dollars («Contract Amount Numeral»). By issuance of this bond, the surety acknowledges they are in compliance with R.S. 38:2219.

The condition of this performance and payment bond shall be that should the Contractor herein not perform the contract in accordance with the terms and conditions hereof, or should said Contractor not fully indemnify and save harmless the Owner, from all cost and damages which he may suffer by said Contractor's non-performance or should said Contractor not pay all persons who have and fulfill obligations to perform labor and/or furnish materials in the prosecution of the work provided for herein, including by way of example workmen, laborers, mechanics, and furnishers of materials, machinery, equipment and fixtures, then said Surety agrees and is bound to so perform the contract and make said payment(s).

Provided, that any alterations which may be made in the terms of the contract or in the work to be done under it, or the giving by the Owner of any extensions of time for the performance of the contract, or any other forbearance on the part of either the Owner or the Contractor to the other shall not in any way release the Contractor or the Surety from their liability hereunder, notice to the Surety of any such alterations, extensions or other forbearance being hereby waived.

Contractor acknowledges and agrees to comply with the provisions of La. R.S. 38:2212.10 and federal law pertaining to E-Verify in the performance of services under this Contract.

It is hereby agreed that the Legislative Auditor of the State of Louisiana and/or the Office of the Governor, Division of Administration auditors shall have the option of auditing all accounts of contractor which relate to this contract.

The continuation of this contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the legislature. If the legislature fails to appropriate sufficient monies to provide for the continuation of the contract, or if such appropriation is reduced by the veto of the Governor or by any means provided in the appropriations act to prevent the total appropriation for the year from exceeding revenues for that year, or for any other lawful purpose, and the effect of such reduction is to provide insufficient monies for the continuation of the contract, the contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

The contractor agrees to abide by the requirements of the following as applicable: Title VI of the Civil Rights Act of 1964 and Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972, Federal Executive Order 11246 as amended, the Rehabilitation Act of 1973, as amended, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, the Fair Housing Act of 1968 as amended, and contractor agrees to abide by the requirements of the Americans with Disabilities Act of 1990.

Contractor agrees not to discriminate in its employment practices, and will render services under this contract without regard to race, color, religion, sex, sexual orientation, national origin, veteran status, political affiliation, disability, or age in any matter relating to employment. Any act of discrimination committed by Contractor, or failure to comply with these statutory obligations when applicable shall be grounds for termination of this contract.

In accordance with R.S. 39:1602.1, effective May 22, 2018, for any contract for \$100,000 or more and for any contractor with five or more employees, Contractor, or any Subcontractor, shall certify it is not engaging in a boycott of Israel, and shall, for the duration of this contract, refrain from a boycott of Israel. The State reserves the right to terminate this contract if the Contractor, or any Subcontractor, engages in a boycott of Israel during the term of the contract.

Contractor has a continuing obligation to disclose any suspensions or debarment by any government entity, including but not limited to General Services Administration (GSA). Failure to disclose may constitute grounds for suspension and/or termination of the Contract and debarment from future Contracts.

Contractor, and each tier of Subcontractors, shall certify that it is not on the List of Parties Excluded from Federal Procurement or Nonprocurement Programs promulgated in accordance with E.O.s 12549 and 12689, "Debarment and Suspension," as set forth at 24 CFR part 24.

In Witness whereof, the parties hereto on the day and year first above written have executed this agreement in six (6) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

THUS DONE AND SIGNED at Baton Rouge, Louisiana, on the day, month, and year first written above.

WITNESSES:

**STATE OF LOUISIANA
DIVISION OF ADMINISTRATION**

FP&C Witness #1 Sign Here

BY: _____
**ROGER E. HUSSER, JR.,
FP&C DIRECTOR**

FP&C Witness #2 Sign Here

BY: _____
«CONTRACTOR»

Contractor Witness #1 Sign Here

Contractor Witness #2 Sign Here

SURETY:

Surety Witness #1 Sign Here

BY: _____
ATTORNEY IN FACT

Surety Witness #2 Sign Here

ADDRESS

TELEPHONE NUMBER

PROJECT NO.:«ProjectNo», «Part No»«WBS»;
«Supplement Project No», Part
«Supplement Part No» («Supplement WBS»)(Supplement)
NAME: «Project Reference 1»
«Project Reference 2»
«Project Reference 3»
LOCATION: «Project City»

NON-COLLUSION AFFIDAVIT

Before me, the undersigned authority, duly commissioned and qualified within and for the State and Parish aforesaid, personally came and appeared _____ representing «Contractor» who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

PART I.

Section 2224 of Part II of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the Contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the Contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction, alteration or demolition of the public building or project were in the regular course of their duties for affiant.

PART II.

Section 2190 of Part I of Chapter 10 of Title 38 of the Louisiana Revised Statutes, as amended.

That affiant, if an architect or engineer, or representative thereof, does not own a substantial financial interest, either directly or indirectly, in any corporation, firm, partnership, or other organization which supplies materials for the construction of a public work when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public work for which the materials are being supplied.

For the purposes of this Section, a "substantial financial interest" shall exclude any interest in stock being traded on the American Stock Exchange or the New York Stock Exchange.

That affiant, if subject to the provisions of this section, does hereby agree to be subject to the penalties involved for the violation of this section.

AFFIANT

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 2024.

NOTARY

SECTION 00700 - GENERAL CONDITIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Identification of Project General Conditions
- B. Provisions for Document Modifications
- C. Definition of Contractor’s Responsibility
- D. Related Requirements

1.02 IDENTIFICATION

- A. The Project General Conditions shall be the standard document of the American Institute of Architects known as “AIA DOCUMENT A201, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, 2007 EDITION.”
- B. The AIA Document A201 is hereby incorporated by reference as though fully written herein and attached a draft copy attached hereto.
- C. A copy of the Project General Conditions is on file at the Architect's office and is available for examination upon request.

1.03 DOCUMENT MODIFICATIONS

- A. Modifications to the General Conditions are made only under the provisions of Section 00800 – Supplementary General Conditions included in this Project Manual.
- B. Refer to Section 00800 – Supplementary General Conditions for any and all amendments to these General Conditions.

1.04 CONTRACTOR’S RESPONSIBILITY

- A. Contractors are presumed to be familiar with the Project General Conditions. If not, any and all parties, intending to provide products or services for the Work for this Project are advised to read and understand the referenced document prior to submitting bids and performing and work.

1.05 RELATED REQUIREMENTS

- A Section 00800 - Supplementary Conditions.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 00700

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions modify, change, delete from or add to the General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition. Where any Article of the General Conditions is modified or any Section, Paragraph, Subparagraph or Clause thereof is modified or deleted by these supplements, the unaltered provisions of that Section, Article, Paragraph, Subparagraph or Clause shall remain in effect.

Articles, Sections, Paragraphs, Subparagraphs or Clauses modified or deleted have the same numerical designation as those occurring in the General Conditions.

ARTICLE 1

GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1. The Contract Documents

In Section 1.1.1 delete the third sentence, and add the following sentence:

The Contract Documents shall include the Bid Documents as listed in the Instructions to Bidders and any modifications made thereto by addenda.

1.1.8 Initial Decision Maker

Delete all after the words, “shall not show partiality to the Owner or Contractor”.

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE [REFER TO *La R.S. 38:2317*]

1.5.1 Delete the first sentence of the paragraph.

1.5.1 In the third sentence: delete the remainder after the word “publication”.

1.7 DIGITAL DATA USE AND TRANSMISSION

In the first sentence after the words, “in digital form” delete “. The parties will use AIA Document E203 2013, Building Information Modeling and Digital Data Exhibit”.

1.8 BUILDING INFORMATION MODELS USE AND RELIANCE

Delete Section 1.8.

ARTICLE 2

OWNER

2.2 EVIDENCE OF THE OWNER’S FINANCIAL ARRANGEMENTS

Delete Section 2.2.

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.1 In the first sentence, delete: all before “the Owner shall secure...”

Delete Section 2.3.2 and substitute the following:

2.3.2 The term Architect, when used in the Contract Documents, shall mean the prime Designer (Architect, Engineer, or Landscape Architect), or his authorized representative, lawfully licensed to practice architecture, engineering, or landscape architecture in the State of Louisiana, identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.

2.3.3 Delete the words: “to whom the Contractor has no reasonable objection and”.

ARTICLE 3

CONTRACTOR

3.4 LABOR AND MATERIALS

3.4.2 Delete Section 3.4.2.

Delete Section 3.4.3 and substitute with the following:

3.4.3 Contractor and its employees, officers, agents, representatives, and Subcontractors shall conduct themselves in an appropriate and professional manner, in accordance with the Owner’s requirements, at all times while working on the Project. Any such individual who behaves in an inappropriate manner or who engages in the use of inappropriate language or conduct while on Owner’s property, as determined by the Owner, shall be removed from the Project at the Owner’s request. Such individual shall not be permitted to return without the written permission of the Owner. The Owner shall not be responsible or liable to Contractor or any Subcontractor for any additional costs, expenses, losses, claims or damages incurred by Contractor or its Subcontractor as a result of the removal of an individual from the Owner’s property pursuant to this Section. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

3.5 WARRANTY

3.5.2 Replace reference to “Section 9.8.4” with “Section 9.8.6”.

3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS (La R.S. 40:1724[A])

3.7.1 Delete Section 3.7.1.

3.7.2 In Section 3.7.2, replace the word “public” with the word “State”.

Delete Section 3.7.5 and substitute the following:

- 3.7.5 If, during the course of the Work, the Contractor discovers human remains, unmarked burial or archaeological sites, burial artifacts, or wetlands, which are not indicated in the Contract Documents, the Contractor shall follow all procedures mandated by State and Federal law, including but not limited to La R.S. 8:671 et seq., the Office of Coastal Protection and Restoration, and Sections 401 & 404 of the Federal Clean Water Act. Request for adjustment of the Contract Sum and Contract Time arising from the existence of such remains or features shall be submitted in writing to the Owner pursuant to the Contract Documents.

3.8 ALLOWANCES

Delete Sections 3.8.1, 3.8.2, and 3.8.3 in their entirety and add the following new Section 3.8.1:

- 3.8.1 Allowances shall not be made on any of the Work.

3.9 SUPERINTENDENT

- 3.9.1 Add the following to the end of the paragraph:
Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

3.10 CONTRACTOR'S CONSTRUCTION AND SUBMITTAL SCHEDULES

- 3.10.1 Add the following: For projects with a contract sum greater than \$1,000,000.00, the Contractor shall include with the schedule, for the Owner's and Architect's information, a network analysis to identify those tasks which are on the critical path, i.e., where any delay in the completion of these tasks will lengthen the project timescale, unless action is taken. A revised schedule shall be submitted with each Application and Certificate for Payment. No payment shall be made until this schedule is received.

- 3.10.3 In the first sentence, delete the word "general".

After the first sentence, add the following:

If the Work is not on schedule, as determined by the Architect, and the Contractor fails to take action to bring the Work on schedule, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. Such default may be considered grounds for termination by the Owner for cause in accordance with Section 14.2.

Add the following Sections:

- 3.10.4 Add the following: Submittal by the contractor of a schedule or other documentation showing a completion date for his Work prior to the completion date stated in the contract shall not impose any obligation or responsibility on the Owner or Architect for the earlier completion date.
- 3.10.5 In the event the Owner employs a commissioning consultant, the Contractor shall cooperate fully in the commissioning process and shall require all subcontractors and

others under his control to cooperate. The purpose of such services shall be to ensure that all systems perform correctly and interactively according to the provisions of the Contract Documents.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following: This requirement is of the essence of the contract. The Architect shall determine the value of these documents and this amount shall not be approved for payment to the Contractor until all of the listed documents are delivered to the Architect in good order, completely marked with field changes and otherwise complete in all aspects.

ARTICLE 4

ARCHITECT

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1 In the first sentence, delete the phrase: “the date the Architect issues the final Certificate for Payment” and replace with the phrase “final payment is due, and with the Owner’s concurrence, from time to time during the one year period for correction of Work described in Section 12.2.”

4.2.2 In the first sentence, after the phrase: “become generally familiar with”; insert the following: “and to keep the Owner informed about”.

In the first sentence, after the phrase “portion of the Work completed”, insert the following: “to endeavor to guard the Owner against defects and deficiencies in the Work,”

4.2.4 In the first sentence, delete all after “The Owner and Contractor”, and add the following “may communicate directly with each other, when deemed necessary by the Owner, and the Owner will notify the Architect of any decision.”

4.2.10 Add the following sentence to the end of Section 4.2.10: There shall be no restriction on the Owner having a Representative.

4.2.11 Add the following sentence to the end of Section 4.2.11:

If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them.

4.2.14 Insert the following sentence between the second and third sentences of Section 4.2.14:

If no agreement is made concerning the time within which interpretation required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretation until 15 days after written request is made for them.

ARTICLE 5

SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete Section 5.2.1, and substitute the following:

5.2.1 Unless otherwise required by the Contract Documents, the Contractor shall furnish at the Pre-Construction Conference, to the Owner and the Architect, in writing, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. No Contractor payments shall be made until this information is received.

Delete Section 5.2.2, and substitute the following:

5.2.2 The Contractor shall be solely responsible for selection and performance of all subcontractors. The Contractor shall not be entitled to claims for additional time and/or an increase in the contract sum due to a problem with performance or nonperformance of a subcontractor.

Delete Sections 5.2.3 and 5.2.4 and substitute the following:

5.2.3 The Contractor shall notify the Architect and the Owner when a subcontractor is to be changed and substituted with another subcontractor.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

Delete Sections 5.4, 5.4.1, 5.4.2 and 5.4.3

ARTICLE 7

CHANGES IN THE WORK

7.1 GENERAL

Add the following Sections:

7.1.4 As part of the pre-construction conference submittals, the Contractor shall submit the following prior to the Contractor's initial request for payment:

7.1.4.1 Fixed job site overhead cost itemized with documentation to support daily rates.

7.1.4.2 Bond Premium Rate with supporting information from the General Contractor's carrier.

7.1.4.3 Labor Burden by trade for both Subcontractors and General Contractor. The Labor Burden shall be supported by the Worker's Compensation and Employer's Liability Insurance Policy Information Page. Provide for all trades.

7.1.4.4 Internal Rate Charges for all significant company owned equipment.

7.1.5 If the General Contractor fails to submit the aforementioned documentation as part of the pre-construction submittals, then pay applications shall not be processed until such time as the Owner receives this information.

7.2 CHANGE ORDERS

Delete Section 7.2.1, and substitute the following Sections:

7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, the Architect, and the Contractor issued after execution of the Contract, authorizing a change in the Work and/or an adjustment in the Contract Sum and/or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any reservation of rights, stipulation, or other modification made on the change order by the contractor shall have no effect.

7.2.2 "Cost of the Work" for the purpose of Change Orders shall be the eligible costs required to be incurred in performance of the Work and paid by the Contractor and Subcontractors which eligible costs shall be limited to:

7.2.2.1 Actual wages paid directly to labor personnel, with a labor burden markup exclusively limited to applicable payroll taxes, worker's compensation insurance, unemployment compensation, and social security taxes for those labor personnel performing the Work. Wages shall be the basic hourly labor rate paid an employee exclusive of fringe benefits or other employee costs. The labor burden percentage for the "Cost of the Work" is limited to categories listed herein. Employer-provided health insurance, fringe benefits, employee training (whether a requirement of employment or not), vacation pay, etc., are examples of ineligible labor burden costs which **shall not** be included, as these costs are already compensated by the Overhead and Profit markup.

Supervision shall not be included as a line item in the "Cost of the Work", except when the change results in a documented delay in the critical path, as described in Section 7.2.7.

7.2.2.2 Cost of all materials and supplies necessary and required to perform the Work, identifying each item and its individual cost, including taxes. Incidental consumables are not eligible costs and shall not be included.

7.2.2.3 Cost of each necessary piece of machinery and equipment required to perform the Work, identifying each item and its individual cost, including taxes. Incidental small tools of a specific trade (i.e., shovels, saws, hammers, air compressors, etc.,) and general use vehicles, such as pickup trucks even for

moving items around the site, fuel for these general use vehicles, travel, lodging, and/or meals are not eligible and shall not be included.

7.2.2.4 Eligible Insurance costs shall be limited to documented increases in “Builder’s Risk” insurance premium / costs only. Commercial General Liability, Automobile Liability, and all other required insurances, where referenced in the Contract shall be considered part of normal overhead. These costs are already compensated by the Overhead and Profit markup.

7.2.2.5 Cost for the General Contractor Performance and Payment Bond premium, where the documented cost of the premiums have been increased due to the Change Order.

7.2.3 Overhead and Profit - The Contractor and Subcontractor shall be due home office fixed overhead and profits on the Cost of the Work, but shall not exceed a total of 16% of the direct cost of any portion of Work.

The credit to the Owner resulting from a change in the Work shall be the sum of those items above, including overhead and profit. Where a change results in both credits to the Owner and extras to the Contractor for related items, overhead and profit shall be computed for credits to the Owner and extras to the Contractor. The Owner shall receive full credit for the computed overhead and profit on credit change order items.

7.2.4 The cost to the Owner resulting from a change in the Work shall be the sum of: Cost of the Work (as defined at Section 7.2.2) and Overhead and Profit (as defined at Section 7.2.3), and shall be computed as follows:

7.2.4.1 When all of the Work is General Contractor Work; 8% markup on the Cost of the Work.

7.2.4.2 When the Work is all Subcontract Work; 8% markup on the Cost of the Work for Subcontractor’s Overhead and Profit, plus 8% markup on the Cost of the Work, not including the Subcontractor’s Overhead and Profit markup, for General Contractor’s Overhead and Profit.

7.2.4.3 When the Work is a combination of General Contractor Work and Subcontract Work; that portion of the direct cost that is General Contract Work shall be computed per Section 7.2.4.1 and that portion of the direct cost that is Subcontract Work shall be computed per Section 7.2.4.2.

Premiums for the General Contractor’s bond may be included, but after the markup is added to the Cost of the Work.

Premiums for the Subcontractor’s Bond shall not be included.

7.2.4.4 Subcontract cost shall consist of the items in Section 7.2.2 above plus Overhead and Profit as defined in Section 7.2.3.

7.2.5 Before a Change Order is prepared, the Contractor shall prepare and deliver to the Architect the following information concerning the Cost of the Work, not subject to waiver, within a reasonable time after being notified to prepare said Change Order:

A detailed, itemized list of labor, material and equipment costs for the General Contractor's Work including quantities and unit costs for each item of labor, material and equipment.

An itemized list of labor, material and equipment costs for each Subcontractor's and/or Sub-Subcontractor's Work including quantities and unit costs for each item of labor, material and equipment.

7.2.6 After a Change Order has been approved, no future requests for extensions of time or additional cost shall be considered for that Change Order.

7.2.7 Extended fixed job-site costs are indirect costs that are necessary to support the work in the field. Examples of fixed job-site costs are field office rental, salaries of field office staff, field office utilities, and telephone.

Extended fixed job-site costs or equitable adjustment may be included in a Change Order due to a delay in the critical path, with the exception of weather related delays. In the event of a delay in the critical path, the Contractor shall submit all changes or adjustments to the Contract Time **within twenty-one (21) days** of the event giving rise to the delay. The Contractor shall submit documentation and justification for the adjustment by performing a critical path analysis of its most recent schedule in use prior to the change, which shows an extension in critical path activities.

The Contractor shall notify the Architect in writing that the Contractor is making a claim for extended fixed job-site overhead as required by Section 15.1.2. The Contractor shall provide proof that the Contractor is unable to mitigate financial damages through Alternate Work within this Contract or replacement work. "Replacement Work" is that work which the Contractor is obligated to perform under any construction contract separate from this Contract. Reasonable proof shall be required by the Architect that the delays affected the Completion Date.

7.2.8 "Cost of the Work" whether General Contractor cost or Subcontractor cost shall not apply to the following:

7.2.8.1 Salaries or other compensation of the Contractor's personnel at the Contractor's principal office and branch offices.

7.2.8.2 Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

7.2.8.3 Overhead and general expenses of any kind or the cost of any item not specifically and expressly included above in Cost of the Work.

7.2.8.4 Cost of supervision refer to section 7.2.2.1, with exception as provided in Section 7.2.7.

7.2.9 When applicable as provided by the Contract, the cost to Owner for Change Orders shall be determined by quantities and unit prices. The quantity of any item shall be as

submitted by the Contractor and approved by the Architect. Unit prices shall cover cost of Material, Labor, Equipment, Overhead and Profit.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.3 In the first sentence after “following methods” insert: “, but not to exceed a specified amount”.

7.3.4 From .1 of the list, delete all after “Costs of labor, including” and substitute the following “social security, old age and employment insurance, applicable payroll taxes, and workers’ compensation insurance;”

Delete the following from .4 of the list: “permit fees,”

Delete Section 7.3.9 and substitute the following:

7.3.9 Pending final determination of the total costs of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties’ agreement with part or all of such costs.

ARTICLE 8

TIME

8.1 DEFINITIONS

Add the following:

8.1.5 The Contract Time shall not be changed by the submission of a schedule that shows an early completion date unless specifically authorized by change order.

8.2 PROGRESS AND COMPLETION

Add to Section 8.2.1 the following:

Completion of the Work must be within the Time for Completion stated in the Agreement, subject to such extensions as may be granted under Section 8.3. The Contractor agrees to commence Work not later than fourteen (14) days after the transmittal date of Written Notice to Proceed from the Owner and to substantially complete the project within the time stated in the Contract. The Owner will suffer financial loss if the project is not substantially complete in the time set forth in the Contract Documents. The Contractor and the Contractor’s Surety shall be liable for and shall pay to the Owner the sum stated in the Contract Documents as fixed, agreed and liquidated damages for each consecutive calendar day (Saturdays, Sundays and holidays included) of delay until the Work is substantially complete. The Owner shall be entitled to the sum stated in the Contract Documents. Such Liquidated Damages shall be withheld by the Owner from the amounts due the Contractor for progress payments.

Delete Section 8.2.2.

8.3 DELAYS AND EXTENSIONS OF TIME

- 8.3.1 In the first sentence after the words “Owner pending” delete the words “mediation and binding dispute resolution” and add the word “litigation”, and delete the last word “determine” and add the following: “recommend, subject to Owner’s approval of Change Order. If the claim is not made within the limits of Article 15, all rights for future claims for that month are waived.”

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

Delete Section 9.1.2.

Delete Section 9.2 and substitute the following:

9.2 SCHEDULE OF VALUES

At the Pre-Construction Conference, the Contractor shall submit to the Owner and the Architect a Schedule of Values prepared as follows:

- 9.2.1 The attached Schedule of Values Format shall be used. If applicable, the cost of Work for each section listed under each division, shall be given. The cost for each section shall include Labor, Materials, Overhead and Profit.
- 9.2.2 The Total of all items shall equal the Total Contract Sum. This schedule, when approved by the Architect, shall be used as a basis for the Contractor’s Applications for Payment and it may be used for determining the cost of the Work in deductive change orders, when a specific item of Work listed on the Schedule of Values is to be removed. Once the Schedule of Values is submitted at the Pre-Construction Conference, the schedule shall not be modified without approval from the Owner and Architect.

9.3 APPLICATIONS FOR PAYMENT

Delete Sections 9.3.1, 9.3.1.1, and 9.3.1.2 and substitute the following:

- 9.3.1 Monthly, the Contractor shall submit to the Architect a Facility Planning and Control – Application and Certification for Payment form, supported by any additional data substantiating the Contractor’s right to payment as the Owner or the Architect may require. Application for Payment shall be submitted on or about the first of each month for the value of labor and materials incorporated into the Work and of materials, suitably stored, at the site as of the twenty-fifth day of the preceding month, less normal retainage as follows, per La R.S. 38:2248:

9.3.1.1 Projects with Contract price up to \$500,000.00 – 10% of the Contract price.

9.3.1.2 Projects with Contract price of \$500,000.00, or more – 5% of the Contract price.

9.3.1.3 No payment shall be made until the revised schedule required by Section 3.10.1 is received.

9.3.1.4 The normal retainage shall not be due the Contractor until after substantial completion and expiration of the forty-five day lien period and submission to the Architect of a clear lien certificate, consent of surety, and invoice for retainage.

Delete Section 9.3.2 and substitute the following:

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. Payments for materials or equipment stored on the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, including applicable insurance.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Section 9.5.1.7: Delete the word "repeated".

Delete Section 9.5.4.

9.6 PROGRESS PAYMENTS

Delete Section 9.6.1 and substitute the following:

9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment within twenty days except for projects funded fully or in part by a Federal reimbursement program. For such projects the Owner will make payment in a timely manner consistent with reimbursement.

9.6.2 Delete the phrase: "no later than seven days" from the first sentence.

After the end of the second sentence, add the following:

La R.S. 9:2784 (A) and (C) require a Contractor or Subcontractor to make payment due to each Subcontractor and supplier within fourteen (14) consecutive days of the receipt of payment from the Owner. If not paid, a penalty in the amount of ½ of 1% per day is due, up to a maximum of 15% from the expiration date until paid. The contractor or subcontractor, whichever is applicable, is solely responsible for payment of a penalty.

9.6.4 Delete the first two sentences of Section 9.6.4 and add the following to the end of the Section:

Pursuant to La. R.S. 38:2242 and La. R.S. 38:2242.2, when the Owner receives any claim of nonpayment arising out of the Contract, the Owner shall deduct 125% of such claim from the Contract Sum. The Contractor, or any interested party, may deposit security, in accordance with La. R.S. 38:2242.2, guaranteeing payment of the claim with the recorder

of mortgages of the parish where the Work has been done. When the Owner receives original proof of such guarantee from the recorder of mortgages, the claim deduction will be added back to the Contract Sum.

Delete Section **9.7 FAILURE OF PAYMENT**.

Delete Section 9.8 and substitute the following:

9.8 SUBSTANTIAL COMPLETION

- 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The Architect shall determine if the project is substantially complete in accordance with this Section.
- 9.8.2 When the Contractor considers that the Work is Substantially Complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
- 9.8.3 Upon receipt of the Contractor's list, the Architect shall make an inspection to determine whether the Work is substantially complete. A prerequisite to the Work being considered as substantially complete is the Owner's receipt of the executed Roofing Contractor's and Roofing Manufacturer's guarantees, where roofing Work is part of the Contract. Prior to inspection by the Architect, the Contractor shall notify the Architect that the project is ready for inspection by the State Fire Marshal's office. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use, the Contractor shall, before the Work can be considered as Substantially Complete, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.
- 9.8.4 When the Architect determines that the project is Substantially Complete, he shall prepare a punch list of exceptions and the dollar value related thereto. The monetary value assigned to this list will be the sum of the cost estimate for each particular item of Work the Architect develops based on the mobilization, labor, material and equipment costs of correcting the item and shall be retained from the monies owed the contractor, above and beyond the standard lien retainage. The cost of these items shall be prepared in the same format as the schedule of values. At the end of the forty-five day lien period payment shall be approved for all punch list items completed up to that time. After that payment, none of the remaining funds shall be due the contractor until all punch list items are completed and are accepted by the Architect. If the dollar value of the punch list exceeds the amount of funds, less the retainage amount, in the remaining balance of the Contract, then the Project shall not be considered as substantially complete. If funds remaining are less than that required to complete the Work, the Contractor shall pay the difference.

- 9.8.5 When the preparation of the punch list is complete the Architect shall prepare a Recommendation of Acceptance incorporating the punch list and submit it to the Owner. Upon approval of the Recommendation of Acceptance, the Owner may issue a Notice of Acceptance of Building Contract which shall establish the Date of Substantial Completion. The Contractor shall record the Notice of Acceptance with the Clerk of Court in the Parish in which the Work has been performed. If the Notice of Acceptance has not been recorded seven (7) days after issuance, the Owner may record the Acceptance at the Contractor's expense. All additive change orders must be processed before issuance of the Recommendation of Acceptance. The Owner shall not be responsible for payment for any Work associated with change orders that is not incorporated into the contract at the time of the Recommendation of Acceptance.
- 9.8.6 Warranties required by the Contract Documents shall commence on the date of Acceptance of the Work unless otherwise agreed to in writing by the Owner and Contractor. Unless otherwise agreed to in writing by the Owner and Contractor, security, maintenance, heat, utilities, damage to the Work not covered by the punch list and insurance shall become the Owner's responsibility on the Date of Substantial Completion.
- 9.8.7 If all punch list items have not been completed by the end of the forty-five (45) day lien period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within forty-five (45) days after notification, the Surety has not completed the punch list, through no fault of the Architect or Owner, the Owner may, at his option, contract to have the balance of the Work completed and pay for such Work with the unpaid funds remaining in the Contract sum. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts. If the surety fails to complete the punch list within the stipulated time period, the Owner may not accept bonds submitted, in the future, by the surety.

9.9 PARTIAL OCCUPANCY OR USE

Delete Section 9.9.1 and substitute the following:

- 9.9.1 Partial Occupancy is that stage in the progress of the Work when a designated portion of the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the designated portion of the Work for its intended use. The Owner may occupy or use any substantially completed portion of the Work so designated by separate agreement with the Contractor and authorized by public authorities having jurisdiction over the Work. Such occupancy or use may commence provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers the designated portion substantially complete the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld.

9.10 FINAL COMPLETION AND FINAL PAYMENT

Delete Section 9.10.4 and replace with the following:

9.10.4 The making of final payment shall not constitute a waiver of Claims by the Owner for the following:

9.10.4.1 Claims, security interests, or encumbrances arising out of the Contract and unsettled;

9.10.4.2 failure of the Work to comply with the requirements of the Contract Documents irrespective of when such failure is discovered;

9.10.4.3 terms of special warranties required by the Contract Documents; or

9.10.4.4 audits performed by the Owner, after final payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.2 In the first sentence, between the words: “bearing on” and “safety”, add the words: “the health and,”

10.3 HAZARDOUS MATERIALS

10.3.1 In the second sentence after (PCB) add: “or lead”.

10.3.2 After the first sentence, delete all remaining sentences.

Add at the end: “The Contract time shall be extended appropriately.”

Delete Section 10.4 and substitute the following:

10.4 EMERGENCIES

In an emergency affecting the safety of persons or property, the Contractor shall notify the Owner and Architect immediately of the emergency, simultaneously acting at his discretion to prevent damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency Work shall be determined as provided in Article 15 and Article 7.

ARTICLE 11

INSURANCE AND BONDS

AIA A101 – 2017 Exhibit A is not a part of these documents. Delete all of Sections 11.1, 11.2, 11.3, 11.4, and 11.5, and substitute the following:

**INSURANCE REQUIREMENTS FOR
NEW CONSTRUCTION, ADDITIONS AND RENOVATIONS**

11.1 CONTRACTOR’S LIABILITY INSURANCE

The Contractor shall purchase and maintain without interruption for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or subcontractors. The duration of the contract shall be from the inception of the contract until the date of final payment.

11.2 MINIMUM SCOPE AND LIMITS OF INSURANCE

11.2.1 Worker’s Compensation

Worker’s Compensation insurance shall be in compliance with the Worker’s Compensation law of the Contractor’s headquarters. Employers Liability is included with a minimum limit of \$1,000,000 per accident/per disease/per employee. If Work is to be performed over water and involves maritime exposure, applicable LHWCA, Jones Act or other maritime law coverage shall be included. A.M. Best’s insurance company rating requirement may be waived for Worker’s compensation coverage only.

11.2.2 Commercial General Liability

Commercial General Liability insurance, including Personal and Advertising Injury Liability and Products and Completed Operations Liability, shall have a minimum limit per occurrence based on the project value. The Insurance Services Office (ISO) Commercial General Liability occurrence coverage form CG 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. Claims-made form is unacceptable.

The aggregate loss limit must apply to each project. ISO form CG 25 03 (current form approved for use in Louisiana), or equivalent, shall also be submitted. The State project number, including part number, and project name shall be included on this endorsement.

COMBINED SINGLE LIMIT (CSL) PER OCCURRENCE

<u>Type of Construction</u>	<u>Projects up to \$1,000,000</u>	<u>Projects over \$1,000,000 up to \$10,000,000</u>	<u>Projects over \$10,000,000</u>
New Buildings:			
Each Occurrence Minimum Limit	\$1,000,000	\$2,000,000	\$4,000,000
Per Project Aggregate	\$2,000,000	\$4,000,000	\$8,000,000
Renovations:	The building(s) value for the Project is \$_____.		
Each Occurrence Minimum Limit	\$1,000,000**	\$2,000,000**	\$4,000,000**

Per Project Aggregate	2 times per occur limit**	2 times per occur limit**	2 times per occur limit**
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**While the minimum Combined Single Limit of \$1,000,000 is required for any renovation, the limit is calculated by taking 10% of the building value and rounding it to the nearest \$1,000,000 to get the insurance limit. Example: Renovation on a \$33,000,000 building would have a calculated \$3,300,000 combined single limit of coverage (33,000,000 times .10 = 3,300,000 and then rounding down to \$3,000,000). If the calculated limit is less than the minimum limit listed in the above chart, then the amount needed is the minimum listed in the chart. Maximum per occurrence limit required is \$10,000,000 regardless of building value. The per project aggregate limit is then calculated as twice the per occurrence limit.

11.2.3 Automobile Liability

Automobile Liability Insurance shall have a minimum combined single limit per occurrence of \$1,000,000. ISO form number CA 00 01 (current form approved for use in Louisiana), or equivalent, is to be used in the policy. This insurance shall include third-party bodily injury and property damage liability for owned, hired and non-owned automobiles.

11.2.4 Excess Umbrella

Excess Umbrella Insurance may be used to meet the minimum requirements for General Liability and Automobile Liability only.

11.2.5 Builder's Risk

11.2.5.1 Builder's Risk Insurance shall be in an amount equal to the amount of the construction contract including any amendments and shall be upon the entire Work included in the contract. The policy shall provide coverage equivalent to the ISO form number CP 10 20, Broad Form Causes of Loss (extended, if necessary, to include the perils of wind, earthquake, collapse, vandalism/malicious mischief, and theft, including theft of materials whether or not attached to any structure). The policy must include architects' and engineers' fees necessary to provide plans, specifications and supervision of Work for the repair and/or replacement of property damage caused by a covered peril, not to exceed 10% of the cost of the repair and/or replacement.

11.2.5.2 Flood coverage shall be provided by the Contractor on the first floor and below for all projects, except as otherwise noted. The builder's risk insurance policy, sub-limit for flood coverage shall not be less than ten percent (10%) of the total contract cost per occurrence. If flood is purchased as a separate policy, the limit shall be ten percent (10%) of the total contract cost per occurrence (with a max of \$500,000 if NFIP). Coverage for roofing projects shall **not** require flood coverage.

11.2.5.3 A Specialty Contractor may provide an installation floater in lieu of a Builder's Risk policy, with the similar coverage as the Builder's Risk policy, upon the

system to be installed in an amount equal to the amount of the contract including any amendments. Flood coverage is not required.

11.2.5.4 The policy must include coverage for the Owner, Contractor and any subcontractors as their interests may appear.

11.2.6 Pollution Liability (*required when asbestos or other hazardous material abatement is included in the contract*)

Pollution Liability insurance, including gradual release as well as sudden and accidental, shall have a minimum limit of not less than \$1,000,000 per claim. A claims-made form will be acceptable. A policy period inception date of no later than the first day of anticipated Work under this contract and an expiration date of no earlier than 30 days after anticipated completion of all Work under the contract shall be provided. There shall be an extended reporting period of at least 24 months, with full reinstatement of limits, from the expiration date of the policy if the policy is not renewed. The policy shall not be cancelled for any reason, except non-payment of premium.

11.2.7 Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and accepted by the Owner. The Contractor shall be responsible for all deductibles and self-insured retentions.

11.3 OTHER INSURANCE PROVISIONS

11.3.1 The policies are to contain, or be endorsed to contain, the following provisions:

11.3.1.1 Worker's Compensation and Employers Liability Coverage

11.3.1.1.1 To the fullest allowed by law, the insurer shall agree to waive all rights of subrogation against the Owner, its officers, agents, employees and volunteers for losses arising from Work performed by the Contractor for the Owner.

11.3.1.2 Commercial General Liability Coverage

11.3.1.2.1 The Owner, its officers, agents, employees and volunteers are to be added as additional insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. ISO Form CG 20 10 (for ongoing work) AND CG 20 37 (for completed work) (current forms approved for use in Louisiana), or equivalent, are to be used.

11.3.1.2.2 The Contractor's insurance shall be primary as respects the Owner, its officers, agents, employees and volunteers for any and all losses that occur under the contract. The coverage shall contain no special limitations on the scope of protection afforded to the Owner, its officers, officials, employees or volunteers. Any insurance or self-

insurance maintained by the Owner shall be excess and non-contributory of the Contractor's insurance.

11.3.1.3 Builder's Risk

The policy must include an endorsement providing the following:

In the event of a disagreement regarding a loss covered by this policy, which may also be covered by a State of Louisiana self-insurance or commercial property policy through the Office of Risk Management (ORM), Contractor and its insurer agree to follow the following procedure to establish coverage and/or the amount of loss:

Any party to a loss may make written demand for an appraisal of the matter in disagreement. Within 20 days of receipt of written demand, the Contractor's insurer and either ORM or its commercial insurance company shall each select a competent and impartial appraiser and notify the other of the appraiser selected. The two appraisers shall select a competent and impartial umpire. The appraisers shall then identify the policy or policies under which the loss is insured and, if necessary, state separately the value of the property and the amount of the loss that must be borne by each policy. If the two appraisers fail to agree, they shall submit their differences to the umpire. A written decision by any two shall determine the policy or policies and the amount of the loss. Each insurance company agrees that the decision of the appraisers and the umpire if involved shall be binding and final and that neither party will resort to litigation. Each of the two parties shall pay its chosen appraiser and bear the cost of the umpire equally.

11.3.1.4 All Coverages

11.3.1.4.1 All policies must be endorsed to require 30 days written notice of cancellation to the Agency. Ten-day written notice of cancellation is acceptable for non-payment of premium. Notifications shall comply with the standard cancellation provisions in the Contractor's policy. In addition, Contractor is required to notify Agency of policy cancellations or reductions in limits.

11.3.1.4.2 Neither the acceptance of the completed Work nor the payment thereof shall release the Contractor from the obligations of the insurance requirements or indemnification agreement.

11.3.1.4.3 The insurance companies issuing the policies shall have no recourse against the Owner for payment of premiums or for assessments under any form of the policies.

11.3.1.4.4 Any failure of the Contractor to comply with reporting provisions of the policy shall not affect coverage provided to the Owner, its officers, agents, employees and volunteers.

11.3.2 Acceptability of Insurers

All required insurance shall be provided by a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located. Insurance shall be placed with insurers with an A.M. Best's rating of **A-: VI or higher**. This rating requirement may be waived for Worker's compensation coverage only.

If at any time an insurer issuing any such policy does not meet the minimum A.M. Best rating, the Contractor shall obtain a policy with an insurer that meets the A.M. Best rating and shall submit another certificate of insurance within 30 days.

11.3.3 Verification of Coverage

Contractor shall furnish the Owner with Certificates of Insurance reflecting proof of required coverage. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The Certificates are to be received and approved by the Owner before Work commences and upon any contract renewal or insurance policy renewal thereafter. The Certificate Holder must be listed as follows:

State of Louisiana

Name of Owner

Owner Address

City, State, Zip

Attn: Project # _____

The Owner reserves the right to request complete certified copies of all required insurance policies at any time.

Upon failure of the Contractor to furnish, deliver and maintain required insurance, this contract, at the election of the Agency, may be suspended, discontinued, or terminated. Failure of the Contractor to purchase and/or maintain any required insurance shall not relieve the Contractor from any liability or indemnification under the contract.

If the Contractor does not meet the insurance requirements at policy renewal, at the option of the Owner, payment to the Contractor may be withheld until the requirements have been met, OR the Owner may pay the renewal premium and withhold such payment from any monies due the Contractor, OR the contract may be suspended or terminated for cause.

11.3.4 Subcontractors

Contractor shall include all subcontractors as insureds under its policies OR shall be responsible for verifying and maintaining the certificates provided by each subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The Owner reserves the right to request copies of subcontractor's certificates at any time.

If Contractor does not verify subcontractors' insurance as described above, Owner has the right to withhold payments to the Contractor until the requirements have been met.

11.3.5 Worker's Compensation Indemnity

In the event Contractor is not required to provide or elects not to provide Worker's compensation coverage, the parties hereby agree the Contractor, its Owners, agents and employees shall have no cause of action against, and shall not assert a claim against, the State of Louisiana, its departments, agencies, agents and employees as an employer, whether pursuant to the Louisiana Worker's Compensation Act or otherwise, under any circumstance. The parties also hereby agree that the State of Louisiana, its departments, agencies, agents and employees shall in no circumstance be, or considered as, the employer or statutory employer of Contractor, its Owners, agents and employees. The parties further agree that Contractor is a wholly independent Contractor and is exclusively responsible for its employees, Owners, and agents. Contractor hereby agrees to protect, defend, indemnify and hold the State of Louisiana, its departments, agencies, agents and employees harmless from any such assertion or claim that may arise from the performance of this contract.

11.3.6 Indemnification/Hold Harmless Agreement

Contractor agrees to protect, defend, indemnify, save, and hold harmless, the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants, employees and volunteers, from and against any and all claims, damages, expenses and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur, or in any way grow out of, any act or omission of Contractor, its agents, servants and employees, or any and all costs, expenses and/or attorney fees incurred by Contractor as a result of any claims, demands, suits or causes of action, except those claims, demands, suits or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its officers, agents, servants, employees and volunteers.

Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent. The State of Louisiana may, but is not required to, consult with the Contractor in the defense of claims, but this shall not affect the Contractor's responsibility for the handling and expenses of all claims.

11.4 PERFORMANCE AND PAYMENT BOND

- 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.
- 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.
- 11.4.3 Recordation of Contract and Bond [La R.S. 38:2241 thru 38:2241.1]

The Owner shall record within thirty (30) days the Contract Between Owner and Contractor and Performance and Payment Bond with the Clerk of Court in the Parish in which the Work is to be performed.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

12.2.1 Before Substantial Completion

At the end of the paragraph, add the following sentences:

“If the Contractor fails to correct Work identified as defective within a thirty (30) day period, through no fault of the Designer, the Owner may hold the Contractor in default. If the Owner finds the Contractor in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the nonconforming Work, through no fault of the Architect or Owner, the Owner may contract to have nonconforming Work corrected and hold the Surety and Contractor responsible for the cost, including architectural fees and other indirect costs. If the Surety fails to correct the Work within the stipulated time period and fails to meet its obligation to pay the costs, the Owner may elect not to accept bonds submitted in the future by the Surety. Finding the Contractor in default shall constitute a reason for disqualification of the Contractor from bidding on future state contracts.

12.2.2 After Substantial Completion

12.2.2.1 At the end of the paragraph delete the last sentence and add the following sentences:

“If the Contractor fails to correct nonconforming Work, or Work covered by warranties, within a thirty (30) day period, through no fault of the Architect or Owner, the Owner may hold the Contractor in default. If the Owner finds the Contractor is in default, the Surety shall be notified. If within thirty (30) days after notification, the Surety has not corrected the non-conforming or warranty Work, through no fault of the Architect or Owner, the Owner may contract to have the nonconforming or warranty Work corrected and hold the Surety responsible for the cost including architects fees and other indirect costs. Corrections by the Owner shall be in accordance with Section 2.4. If the Surety fails to correct the nonconforming or warranty Work within the stipulated time period and fails to meet its obligation to pay the costs, the Owner may not accept bonds submitted, in the future, by the Surety.”

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

Delete all after the word “located”.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 In the second sentence, delete “Except as ... 13.2.2”

Delete Section 13.2.2.

13.3 RIGHTS AND REMEDIES

Add the following Section 13.3.3:

13.3.3 The Nineteenth Judicial Court in and for the Parish of East Baton Rouge, State of Louisiana shall have sole jurisdiction and venue in any action brought under this contract.

13.4 TESTS AND INSPECTIONS

In Section 13.4.1, delete the second sentence and substitute the following:

The Contractor shall make arrangements for such tests, inspections and approvals with the Testing Laboratory provided by the Owner, and the Owner shall bear all related costs of tests, inspections and approvals.

Delete the last two sentences of Section 13.4.1.

13.5 INTEREST

Delete Section 13.5.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

Delete Section 14.1.1.4.

In Section 14.1.3, after the word “profit,” delete the words “on Work not executed” and substitute the following: “for Work completed prior to stoppage”.

14.2 TERMINATION BY THE OWNER FOR CAUSE

Add the following Section:

14.2.1.5 failure to complete the punch list within the lien period as provided in 9.8.7.

14.2.3 Add the following sentence:

“Termination by the Owner shall not suspend assessment of liquidated damages against the Surety.”

Add the following Section:

14.2.5 If an agreed sum of liquidated damages has been established, termination by the Owner under this Article shall not relieve the Contractor and/or Surety of his obligations under the liquidated damages provisions and the Contractor and/or Surety shall be liable to the Owner for per diem liquidated damages.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

In Section 14.4.3, delete all after “incurred by reason of the termination,” and add “along with reasonable profit on the Work not executed.”

ARTICLE 15

CLAIMS AND DISPUTES

15.1 CLAIMS

Delete Section 15.1.2, **Time Limit on Claims**, (See La R.S. 38:2189, and 38:2189.1).

15.1.3.1 Add the following to the end of the paragraph:

“A Reservation of Rights and similar stipulations shall not be recognized under this contract as having any effect. A party must make a claim as defined herein within the time limits provided.”

15.1.4.2 In the first sentence of the Section, delete “Initial Decision Maker’s” and replace with “Architect’s”. In the second sentence of the Section, delete “the decision of the Initial Decision Maker” and replace with: “his/her decision”.

Delete Section 15.1.6.2 and substitute the following:

15.1.6.2 If adverse weather conditions are the basis for a claim for additional time, the Contractor shall document that weather conditions had an adverse effect on the scheduled construction. An increase in the contract time due to weather shall not be cause for an increase in the contract sum. At the end of each month, the Contractor shall make one Claim for any adverse weather days occurring within the month. The Claim must be accompanied by sufficient documentation evidencing the adverse days and the impact on construction. Failure to make such Claim within **twenty-one (21) days** from the last day of the month shall prohibit any future claims for adverse days for that month. No additional adverse weather days shall be granted after the original or extended contract completion date, except those adverse weather days associated with a National Weather Service named storm or federally declared weather related disaster directly affecting the project site.

Add the following Section:

15.1.6.3 The following are considered reasonably anticipated days of adverse weather on a monthly basis:

January	<u>11</u> days	July	<u>6</u> days
February	<u>10</u> days	August	<u>5</u> days
March	<u>8</u> days	September	<u>4</u> days
April	<u>7</u> days	October	<u>3</u> days
May	<u>5</u> days	November	<u>5</u> days
June	<u>6</u> days	December	<u>8</u> days

The Contractor shall ask for total adverse weather days. The Contractor's request shall be considered only for days over the allowable number of days stated above.

Note: Contract is on a calendar day basis.

15.2 INITIAL DECISION

15.2.1 In the second sentence, delete the word "will" and replace with: "shall always".

In the second sentence, delete the phrase: ", unless otherwise indicated in the Agreement."

In the third sentence, delete the word "mediation" and replace with: "litigation".

At the end of the third sentence, add: "arising prior to the date final payment is due".

Delete the fourth sentence.

15.2.5 In the middle of the first sentence, delete all after the phrase: "rejecting the Claim".

In the second sentence, delete the phrase: "and the Architect, if the Architect is not serving as the Initial Decision Maker,".

In the third sentence, delete all after: "binding on the parties" and add the following: "except that the Owner may reject the decision or suggest a compromise or both".

Delete Section 15.2.6.

Delete Section 15.2.6.1.

15.3 MEDIATION

Delete Section 15.3.

15.4 ARBITRATION

Delete Section 15.4.

SECTION 00900 - INSURANCE REQUIREMENTS**PART 1 - GENERAL**

1.01 INSURANCE

- A. Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:
1. Premises - operations (including X-C-U)
 2. Independent contractor's protective
 3. Product and completed operations
 4. Contractual - including specified provisions for all contractor's obligations
 5. Owned, non-owned and hire motor vehicles
 6. Broad form coverage for property damage.
- B. Limits: The insurance required shall be written for not less than the following, or greater as required by law:
1. Automobile/Vehicle Liability: Contractor's insurance shall provide coverage for "ANY AUTO". This includes but is not necessarily limited to Owned, Hired, Leased, and Non-Owned Coverage.
Limits of Liability:
Combined Single Limit Each Accident - \$1,000,000
Minimum Liability limits shall be at least \$1,000,000 combined single limit for each accident for Bodily Injury and for Property Damage.
 2. Commercial General Liability ("CGL"): Contractor's insurance shall provide CGL coverage written on ISO Concurrence Form CG 00 01 10 93 or substitute form satisfactory to the Owner and providing equivalent coverage, including as a minimum the coverages listed below:
 - a. Premises and Operation
 - b. Independent Contractors
 - c. Products and Completed Operations
 - d. Personal and Advertising Injury Liability
 - e. Broad Form Property Damage
 - f. Per Project Aggregate Endorsement
 - g. Contractual Liability insuring the obligations assumed in the Subcontract
 - h. Explosion, Collapse, and Underground Coverage**Limits of Liability:**
Per Occurrence - \$1,000,000
Products/Completed Operations Aggregate - \$2,000,000
General Annual Aggregate - \$2,000,000
Minimum liability limits for CGL coverage shall be at least \$1,000,000 Each Occurrence, \$2,000,000 Products/Completed Operations Aggregate, \$1,000,000 Personal and Advertising Injury, \$100,000 Fire Damage (any one fire), \$5,000 Medical Expense (any one person) and \$2,000,000 General Annual Aggregate. (All aggregate coverage limits shall apply separately for this Project).
 3. Commercial Umbrella:
Limits of Liability:
Minimum Limits of liability shall be at least \$1,000,000
 4. Workers Compensation and Employers Liability:

Limits of Liability:

Workers Compensation – Statutory

(Note: Contractor is required by this Agreement to obtain Workers Compensation Insurance whether or not Contractor has a statutory exemption. The above reference to “Statutory” applies only to the limits required for such coverage).

Employers’ Liability – Statutory but not less than: \$500,000 each accident for bodily injury by accident and \$500,000 each employee for injury by disease.

(Reference to “Statutory” applies to limits in same manner as for Workers’ Compensation Insurance explained above).

Subcontractor shall obtain the following if indicated as applicable:

- a. U.S. Longshoremen’s and Harbor workers Compensation Act Endorsement
- b. Marine Coverage Endorsement

The intent of these limits is to supplement the Standard Contract Terms, and requirements stated herein are in addition to those set forth in the Standard Contract Terms and Conditions. In the event of any inconsistency, ambiguity, or conflict between these limits and the Standard Contract Terms and Conditions or requirements in any other Attachment, the Contractor shall meet the requirements that afford highest limits, broadest coverage, and greatest protection to the Contractor.

- C. Furnish Certificate of Insurance specifically setting forth evidence of all coverage required. Form of Certificate shall be AIA Document G715 or similar company form. Furnish Owner copies of any endorsements subsequently issued amending coverage limits. Please see attached example for insurance certificate.

1.01 OWNER'S LIABILITY INSURANCE

- A. Contractor shall furnish such insurance to protect Owner from his contingent liability to others for damages because of bodily injury, including death which may arise from operations under this Contract and other liability for damages which the Contractor is required to insure under any provision of this Contract. Certificate of this insurance shall be filed with the Owner with the same limits as set forth above.

1.02 PROPERTY DAMAGE

- A. Contractor shall maintain property insurance upon the entire work at the Site. Coverage is limited to Work under this Contract and the contract amount. Contractor shall furnish copies of all policies before exposure to loss can occur.
- B. Insurance shall include the interests of the Owner, Contractor, subcontractors, sub-subcontractors, and material suppliers in the Work and shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss or damage including theft, vandalism, and malicious mischief.

END OF SECTION 00900

SECTION 01015 - PROJECT START WORK DATE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Designation of Project Start Work Date.
- B. Example of Notice to Proceed

1.02 DESIGNATION OF PROJECT START WORK DATE

- A. The Project Start Work Date will be fixed in a Notice to Proceed to be issued after all contracting requirements have been agreed upon and completed in full. At such time that all contracting requirements are complete the Architect shall issue a Notice to Proceed directly to the Contractor. The Contractor shall man the Project within seven (7) days after the date of the Notice to Proceed is issued, and shall man the project to allow for the continuous progress of the Work of each Bid Package.
- B. The Contractor shall not perform any work pertaining to the Project before the Notice to Proceed has been issued. Access to the site will not be granted until a Project Start Work Date has been designated.
- C. Failure by the Contractor to “Man:” the Project site after the Project Start Work Date will result in a deduction of Project Calendar Days.

1.03 EXAMPLE OF NOTICE TO PROCEED

- A. Below is a draft example of the Notice to Proceed document that will be issued to designate the Project Start Work Date.
- B.

PROJECT: Multi-Media Center Renovation for Southern University PROJECT NO: 22-022
 CONTRACTOR: CONTRACT DATE:
 OWNER: Southern University
 Baton Rouge, Louisiana

The undersigned certifies that on the following date: _____, I/ we have manned the project with an adequate work force to carry out the work for the above project.

Submitted by:
 NAME: (TYPE OR PRINT) _____
 TITLE: (TYPE OR PRINT) _____
 SIGNATURE: _____

NOTE:
 The contractor shall man the project within **seven (7) days** after a NOTICE TO PROCEED is issued. The difference after the seven (7) days and the **PROJECT START WORK DATE** will be deducted from any extension(s) of time requested by the Contractor. An adjustment of time for weather or unforeseen circumstances will be determined by the project architect.

NOTARIZED SEAL:

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01015

SECTION 01020 - ALLOWANCES

PART 1 – GENERAL

1.01 SUMMARY

- A. Types of allowances required include the following: Lump sum and unit price allowances. Procedures for submitting and handling Allowances will be as directed by the Architect. Contractor overhead and profit will NOT be affected by any variance in Allowances.

1.02 SELECTION AND PURCHASE

- A. Purchase products and systems as selected by the Architect from the designated supplier.
- B. The designated allowance is to be used only for the net purchase price of the denominated item. Any adjunct or related costs to be incurred by the contractor should be anticipated and included in the contract sum, not as part of the allowance monies.
- C. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against which the Contractor makes reasonable objection.
- D. Unless otherwise provided in the Contract Documents:
 - 1. Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
 - 2. Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances;
 - 3. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect
 - a. The difference between actual costs and the allowances
 - b. Changes in Contractor's costs

1.03 SUBMITTALS

- A. Submit proposals in the form specified for Change Orders with invoices or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

PART 2 – PRODUCTS

2.01 SCHEDULE OF ALLOWANCES

- A. Allowances are Lump Sum and include purchase, delivery and installation unless noted otherwise.

- B. Allowances are to be listed as separate line items on approved Schedule of Values.

PART 3 – EXECUTION

3.01 INSPECTION/PREPARATION

- A. Inspect products covered by an allowance promptly upon delivery for damage or defects. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related construction activities.

3.02 ALLOWANCE COST ADJUSTMENT

- A. At contract closeout, all monies remaining (or due) in the Allowances shall be adjusted by Change Order.

END OF SECTION 01020

SECTION 01023 - PROJECT START-UP

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section shall include activities and requirements following the receipt of bids thru issuing the Notice-to-Proceed.

1.02 BID TABULATION

- A. The Architect shall prepare and certify a tabulation of the bids received. A copy shall be mailed or faxed to all interested parties.

1.03 NOTICE OF AWARD

- A. The Owner shall consider the received bids and the Architect's recommendation(s) and determine the parameters of Award, if any. If the Owner elects to proceed, the Architect shall prepare a Notice of Award for the Contractor's acceptance conforming to his bid and bid bond.
- B. The Architect shall furnish the Contractor the Construction Contract (see Section 00500 - Contract) for his review along with three (3) signature pages execution. A ten (10) day time period will be allowed for the return of the executed items as follows:
 - 1. AIA A101 - Owner/Contractor Agreement 3 Signature pages
 - 2. Performance Bond incl Power of Attorney 1 Original, 2 copies
 - 3. Payment Bond incl Power of Attorney 1 Original, 2 copies
 - 4. Certificate of Insurance 1 Original, 2 copies
- C. The following may also be submitted with the above.
 - 1. Schedule of Values
 - 2. List of subcontractors
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. Estimated amounts of monthly Applications for Payment (Draws).
- D. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule. Submit the Schedule of Values to the Architect at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment. Format and Content: See Section 01027 - Applications for Payment.

1.04 NOTICE TO PROCEED

- A. Upon the receipt of the above and all appears to be in order; the Architect shall issue a Notice-to-Proceed to the Contractor for the initiation of the Work.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01023

SECTION 01100 – SUMMARY OF WORK**PART 1 – GENERAL**

1.01 PROJECT AND THE WORK

- A. Project Name: Multi-Media Center Renovation for Southern University
- B. Owner's Name: Southern University
- C. Architect's Name: M3A Architecture, PLLC / William L. McElroy, AIA, NCARB
- D. The Project consists of the construction of the Work defined as:
 “The Construction of the Project as required by the Contract Documents.”
 The Work shall include all labor, materials, equipment, services, and related activities and procedures necessary to produce the completed construction as shown on the Drawings and required by the Specifications.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: The Work will be constructed by an Owner Awarded Contractor from qualified respondents. The General Contractor will be selected based on an open bid process. The Work shall be completed under a single “lump sum” contracts, guaranteed maximum price (GMP).

1.03 WORKS BY OWNER

- A. Items that will be supplied by the Owner before Substantial Completion and installed by the Contractor covering the scope of Work.

1.04 OWNER OCCUPANCY

- A. The Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Southern University to minimize conflict and to facilitate District operations.
- C. Schedule the Work to accommodate Southern University occupancy.

1.05 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Arrange use of site and premises to allow:
 - 1. Work by Others.
 - 2. Work by Southern University
- C. Provide access to and from site as required by law and by Southern University:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.
- D. Time Restrictions:
 - 1. Limit conduct of especially noisy exterior work to the hours of 7:00 a.m. – 5:00 p.m.
 - 2. Limit conduct of especially noisy interior work to the hours of 7:00 a.m. – 5:00 p.m.

- E. Utility Outages and Shutdown:
 - 1. Limit shutdown of utility services to 7:00 a.m. – 5:00 p.m. hours at a time, arranged at least 24 hours in advance with Southern University.
 - 2. Prevent accidental disruption of utility services to other facilities.

1.06 WORK SEQUENCE

- A. Coordinate construction schedule and operations with Southern University.
- B. Coordinate construction schedule and operations with M3A Architecture, PLLC.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01100

SECTION 01200 - PRICE AND PAYMENT PROCEDURES**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Sum and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

1.02 RELATED SECTIONS

- A. Document 00500 - Agreement: Contract Sum, retainages, payment period, monetary values of unit prices.
- B. Document 00700 - General Conditions and Document 00800 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.
- C. Document 00800 - Supplementary Conditions: Percentage allowances for overhead and profit.

1.03 SCHEDULE OF VALUES

- A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to M3A Architecture, PLLC. for approval.
- B. Forms filled out by hand will not be accepted.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization. Include with breakdown separate line items for materials and labor.
- D. Include separately from each line item, a direct proportional amount of overhead and profit.
- E. Revise schedule to list approved Change Orders, with each Application for Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to M3A Architecture, PLLC. for approval.
- C. Forms filled out by hand will not be accepted.
- D. For each item, provide a column for listing each of the following:
 - 1. Item Number.
 - 2. Description of work.
 - 3. Scheduled Values.

4. Previous Applications.
 5. Work in Place and Stored Materials under this Application.
 6. Authorized Change Orders.
 7. Total Completed and Stored to Date of Application.
 8. Percentage of Completion.
 9. Balance to Finish.
 10. Retainage.
- E. Execute certification by signature of authorized officer.
- F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.
- H. Submit three (3) copies of each Application for Payment.
- I. Include the following with the application:
 1. Transmittal letter as specified for Submittals in Section 01300.
 2. Construction progress schedule, revised and current as specified in Section 01300.
 3. Current construction photographs specified in Section 01300.
 4. Partial release of liens from major Subcontractors and vendors.
 5. Affidavits attesting to off-site stored products.
- J. When M3A Architecture, PLLC. requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, M3A Architecture, PLLC. will issue instructions directly to the Contractor.
- B. For other required changes, M3A Architecture, PLLC. will issue a document signed by the Owner instructing to proceed with the change, for subsequent inclusion in a Change Order.
 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, M3A Architecture, PLLC. will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. The Contractor shall prepare and submit a fixed price quotation within fourteen (14) days.
- D. The Contractor may propose a change by submitting a request for change to M3A Architecture, PLLC., describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full

documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.

- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
1. For a change requested by M3A Architecture, PLLC. for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
 2. For change requested by the Contractor, the amount will be based on the Contractor's request for a Change Order as approved by M3A Architecture, PLLC..
 3. For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.
 4. For changes ordered by M3A Architecture, PLLC. without a quotation from the Contractor, the amount will be determined by M3A Architecture, PLLC. based on the Contractor's substantiation of costs as specified for Time and Material work.
- F. Substantiation of Costs: Provide full information required for evaluation.
1. On request, provide following data:
 - a. Quantities of products, labor, and equipment.
 - b. Taxes, insurance, and bonds.
 - c. Overhead and profit.
 - d. Justification for any change in Contract Time.
 - e. Credit for deletions from Contract, similarly documented.
 2. Support each claim for additional costs with additional information:
 - a. Origin and date of claim.
 - b. Dates and times work was performed, and by whom.
 - c. Time records and wage rates paid.
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- G. Execution of Change Orders: M3A Architecture, PLLC. will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- J. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following

have been accomplished:

1. All closeout procedures specified in Section 01800.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01200

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Site mobilization meeting.
- C. Progress meetings.
- D. Construction progress schedule.
- E. Progress photographs.
- F. Coordination drawings.
- G. Submittals for review, information, and project closeout.
- H. Number of copies of submittals.
- I. Submittal procedures.
- J. Project Closeout Conference

1.02 RELATED SECTIONS

- A. Document 00700 - General Conditions: Dates for applications for payment.
- B. Section 01325 - Construction Progress Schedule: Form, content, and administration of schedules.
- C. Section 01700 - Execution Requirements: Additional coordination requirements.
- D. Section 01780 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

- A. Project Coordinator: defined as an Owner employed Construction Administrator
- B. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for vehicular access, traffic, and parking facilities.
- C. During construction, coordinate use of site and facilities through the Project Coordinator.
- D. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- E. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.
- F. Coordinate field engineering and layout work under instructions of the Project Coordinator.
- G. Make the following types of submittals to M3A Architecture, PLLC.

1. Requests for interpretation.
2. Requests for substitution.
3. Shop drawings, product data, and samples.
4. Test and inspection reports.
5. Manufacturer's instructions and field reports.
6. Applications for payment and change order requests.
7. Progress schedules.
8. Coordination drawings.
9. Closeout submittals.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 PRECONSTRUCTION MEETING

- A. M3A Architecture, PLLC. will schedule a meeting after Notice of Award.
- B. Attendance Required:
 1. Southern University - Owner
 2. M3A Architecture, PLLC / William L. McElroy, AIA, NCARB – Project Architect
 4. – Project Electrical/ Mechanical/ Plumbing/ Structural Engineer
 5. All Project Contractors and Sub Contractors.
- C. Agenda:
 1. Execution of Southern University- Agreement.
 2. Submission of executed bonds and insurance certificates.
 3. Distribution of Contract Documents.
 4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
 5. Designation of personnel representing the parties to Contract and M3A Architecture, PLLC / William . L. McElroy, AIA, NCARB.
 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 7. Scheduling.
- D. M3A will record minutes and distribute copies within two days after meeting to participants, with copies to Southern University, participants, and those affected by decisions made.

3.02 SITE MOBILIZATION MEETING

- A. General Contractor will schedule a meeting at the Project site prior to occupancy.
- B. Attendance Required:
 1. Southern University - Owner
 2. M3A Architecture, PLLC / William L. McElroy, AIA, NCARB – Project Architect
 4. – Project Electrical/ Mechanical/ Plumbing/ Structural Engineer
 5. All Project Contractors and Sub Contractors.
- C. Agenda:
 1. Use of premises by Southern University and.
 2. Southern University requirements and occupancy prior to completion.
 3. Construction facilities and controls provided by General

Contractor

4. Temporary utilities provided by General Contractor.
 5. Survey and building layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Application for payment procedures.
 9. Procedures for testing.
 10. Procedures for maintaining record documents.
 11. Requirements for start-up of equipment.
 12. Inspection and acceptance of equipment put into service during construction period.
- D. General Contractor will record minutes and distribute copies within two days after meeting to participants, with copies to Southern University District, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

- A. General Contractor will schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. General Contractor will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
1. Job superintendent, major Subcontractors and suppliers,
 2. Southern University - Owner
 3. M3A Architecture, PLLC / William L. McElroy, AIA, NCARB – Project Architect
 5. – Project Mechanical/Electrical/Plumbing/Structural Engineer
 6. All Project Contractors and Sub Contractors.
- D. Agenda:
1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems that impede, or will impede, planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. General Contractor will record minutes and distribute copies within two days after meeting to participants, with copies to Southern University, participants, and those affected by decisions made.

3.04 CONSTRUCTION PROGRESS SCHEDULE

- A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
 - C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
 - D. Within 10 days after joint review, submit complete schedule.
 - E. Submit updated schedule with each Application for Payment.
- 3.05 PROGRESS PHOTOGRAPHS
- A. General Contractor shall be responsible for photo documentation of entire Project.
- 3.06 COORDINATION DRAWINGS
- A. Provide information required by Trade Contractors for preparation of coordination drawings.
 - B. Review drawings prior to submission to M3A Architecture, PLLC.
 - C. Coordination drawing cost shall be by individual trade contractors.
- 3.07 SUBMITTALS FOR REVIEW
- A. When the following are specified in individual sections, submit them for review:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples for selection.
 - 4. Samples for verification.
 - B. Submit to M3A Architecture, PLLC. for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - C. Samples will be reviewed only for aesthetic, color, or finish selection.
 - D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01780 - CLOSEOUT SUBMITTALS.
- 3.08 SUBMITTALS FOR INFORMATION
- A. When the following are specified in individual sections, submit them for information:
 - 1. Design data.
 - 2. Certificates.
 - 3. Test reports.
 - 4. Inspection reports.
 - 5. Manufacturer's instructions.
 - 6. Manufacturer's field reports.
 - 7. Other types indicated.
 - B. Submit for M3A Architecture, PLLC.'s knowledge as contract administrator or for Southern University. No action will be taken.
- 3.09 SUBMITTALS FOR PROJECT CLOSEOUT

- A. When the following are specified in individual sections, submit them at project closeout:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.
- B. Submit for Southern University's benefit during and after project completion.

3.10 NUMBER OF COPIES OF SUBMITTALS

- A. Documents for Review:
 - 1. Small Size Sheets, Not Larger than 8-1/2 x 11 inches: Submit the number of copies required, plus two copies that will be retained by M3A Architecture, PLLC.
- B. Documents for Information: Submit the number of copies required, plus two copies that will be retained by M3A Architecture, PLLC.
- C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.
- D. Samples: Submit the number specified in individual specification sections; one of which will be retained by M3A Architecture, PLLC..
 - 1. After review, produce duplicates.
 - 2. Retained samples will not be returned to unless specifically so stated.
- E. Minimum number of submittals required shall be **FIVE (5)**.

3.11 SUBMITTAL PROCEDURES

- A. Transmit each submittal with AIA Form G810.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
- C. Identify Project, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Deliver submittals to M3A Architecture PLLC.
- F. Schedule submittals to expedite the Project, and coordinate submission of related items.
- G. For each submittal for review, allow 15 days excluding delivery time to and from the professionals.
- H. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- I. Provide space for Consulting Engineers and M3A Architecture, PLLC. review stamps.

- J. When revised for resubmission, identify all changes made since previous submission.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- L. Submittals not requested will not be recognized or processed.

3.01 PROJECT CLOSEOUT CONFERENCE

- A. M3A Architecture, PLLC. Will schedule and administer a Project Closeout Conference once Final Acceptance has been achieved.
- B. Attendance Required:
 - 1. Southern University - Owner
 - 2. M3A Architecture, PLLC / William L. McElroy, AIA, NCARB – Project Architect
 - 4. – Project Mechanical/Electrical/Plumbing/Structural Engineer
 - 7. All Project Contractors and Sub Contractors.
- C. Agenda:
 - 1. Project record documents.
 - 2. Operation and maintenance data.
 - 3. Warranties.
 - 4. Bonds.
 - 5. Other types as indicated.
 - 6. Coordination of Owner Training
- D. M3A will record minutes and distribute copies within two days after meeting to participants, with copies to Southern University, participants, and those affected by decisions made.

END OF SECTION 01300

SECTION 01325 - CONSTRUCTION PROGRESS SCHEDULE

PART 1 – GENERAL

- 1.01 SECTION INCLUDES
 - A. Preliminary schedule.
 - B. Construction progress schedule, bar chart type.
- 1.02 RELATED SECTIONS
 - A. Section 01100 - Summary: Work sequence.
- 1.03 REFERENCES
 - A. AGC (CPSM) - Construction Planning and Scheduling Manual; Associated General Contractors of America; 2004.
 - B. M-H (CPM) - CPM in Construction Management - Project Management with CPM, O'Brien, McGraw-Hill Book Company; 2006.
- 1.04 SUBMITTALS
 - A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.
 - B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
 - C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
 - 1. Include written certification that major contractors have reviewed and accepted proposed schedule.
 - D. Within 10 days after joint review, submit complete schedule.
 - E. Submit updated schedule with each Application for Payment.
 - F. Submit the number of opaque reproductions that requires, plus two copies that will be retained by M3A Architecture, PLLC.
- 1.05 QUALITY ASSURANCE
 - A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.
 - B. Contractor's Administrative Personnel: Five (5) years minimum experience in using and monitoring CPM schedules on comparable projects.
- 1.06 SCHEDULE FORMAT
 - A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
 - B. Diagram Sheet Size: Maximum 22 x 17 inches or width required.
 - C. Sheet Size: Multiples of 8-1/2 x 11 inches.

- D. Scale and Spacing: To allow for notations and revisions.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by specification section number.
- C. Identify work of separate stages and other logically grouped activities.
- D. Provide sub-schedules for each stage of Work identified in Section 01100.
- E. Provide sub-schedules to define critical portions of the entire schedule.
- F. Include conferences and meetings in schedule.
- G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
- H. Coordinate content with schedule of values specified in Section 01200.
- I. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.04 REVIEW AND EVALUATION OF SCHEDULE

- A. Participate in joint review and evaluation of schedule with M3A Architecture, PLLC at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.05 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.

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- G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect including the effects of changes on schedules of separate contractors.

3.06 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, M3A Architecture, PLLC, Southern University, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION 01325

SECTION 01400 - QUALITY REQUIREMENTS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. References and standards.
- B. Quality assurance submittals.
- C. Mock-ups.
- D. Control of installation.
- E. Tolerances.
- F. Testing and inspection services.
- G. Manufacturers' field services.

1.02 RELATED SECTIONS

- A. Document 00300 - Information Available to Bidders: Soil investigation data.
- B. Document 00700 - General Conditions: Inspections and approvals required by public authorities.
- C. Section 01300 - Administrative Requirements: Submittal procedures.
- D. Section 01422 - Definitions.
- E. Section 01600 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCES

- A. ASTM C 1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2001.
- B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2006a.
- C. ASTM C 1093 - Standard Practice for Accreditation of Testing Agencies for Unit Masonry; 2006.
- D. ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2004a.
- E. ASTM E 329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing; 2007.
- F. ASTM E 543 - Standard Specification for Agencies Performing Nondestructive Testing; 2006.

1.04 SUBMITTALS

- A. Certificates: When specified in individual specification sections, submit certification by the manufacturer and or installation/application subcontractor to M3A Architecture, PLLC., in quantities specified for Product Data.
 - 1. Indicate material or product conforms to or exceeds specified

requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

2. Certificates may be recent or previous test results on material or product, but must be acceptable to M3A Architecture, PLLC..
- B. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Manufacturer's Field Reports: Submit reports for M3A Architecture, PLLC.'s benefit as contract administrator.
1. Submit report in duplicate within 30 days of observation to M3A Architecture, PLLC. for information.
 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- D. Erection Drawings: Submit drawings for M3A Architecture, PLLC.'s benefit as contract administrator.
1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
 2. Data indicating inappropriate or unacceptable Work may be subject to action by M3A Architecture, PLLC. or Owner.

1.05 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from M3A Architecture, PLLC. before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of M3A Architecture, PLLC. shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from M3A Architecture, PLLC. before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by M3A Architecture, PLLC. and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

3.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from M3A Architecture, PLLC. before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of M3A Architecture, PLLC. it is not practical to remove and replace the Work, M3A Architecture, PLLC. will direct an appropriate remedy or adjust payment.

END OF SECTION 01400

SECTION 01405 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work and/or to:
 - 1. Make its several parts fit together properly.
 - 2. Uncover portions of the Work to provide for installation of ill timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to the requirements of the Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
- C. Existing Conditions: Do not disturb existing structures, construction, materials, or equipment unless required by the contract.
- D. Do not cut or alter the work of another Contractor without his consent.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect and whose installed performance will equal/surpass the existing materials.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- B. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- C. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
 - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
 - 4. Comply with requirements of applicable Sections of Division-2 where cutting and patching requires excavating and backfilling.
- D. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.
 - 4. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
 - 5. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items

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of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

SECTION 01410 - TESTING LABORATORY SERVICES**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Procedures and responsibilities for providing and using Testing Laboratory.

1.02 REFERENCES

- A. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.03 SELECTION AND PAYMENT

- A. The Owner shall employ and pay for services of an independent Testing Laboratory to perform specified inspections and/or sampling and testing. Employment of Testing Laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.
- B. Owner will be responsible for basic testing requirements as specified in the Project Manual. Payment for additional testing required due to defective work, failed initial testing, or testing lab fees for site visit when work to be tested is not ready to be tested shall be incurred by the Contractor.

1.04 QUALITY ASSURANCE

- A. Meet "Recommended Requirements for Independent Laboratory Qualifications", published by American Council of Independent Laboratories.
- B. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- C. Laboratory: Legally authorized to operate in the State of Louisiana.
- D. Laboratory Staff: Thoroughly trained and experienced in the types of testing required for the Project and with a full-time registered Engineer on staff to monitor and review services, analyze and interpret tests.
- E. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to either National Bureau of Standards (NBS) or accepted values of natural physical constants.

1.05 OWNER SUBMITTALS

- A. Prior to start of Work, Owner shall submit testing laboratory name, address, and telephone number, and names of full time registered Engineer and responsible officer.
- B. Submit qualifications of technicians, inspections and engineers to perform services for Project. Submit copy of report of laboratory facilities inspection

made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.06 COORDINATION

- A. Coordinate work under provisions of Sections 01400.

1.07 LABORATORY RESPONSIBILITIES

- A. Provide qualified personnel (with minimum two years experience with selected testing agency) at site. Cooperate with Architect and Contractor in performance of services.
- B. Perform specified inspection, sampling, and testing of Products and design mixes in accordance with specified standards. Refer to individual Specifications Sections for required standards, types and frequency of Field Testing.
- C. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 1. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or Products.
 - 2. Perform additional inspections and tests required by Architect.
 - 3. Attend preconstruction conferences and progress meetings (which occur during periods of work requiring testing).

1.08 LABORATORY REPORTS

- A. After each inspection and test, promptly submit two (2) copies of laboratory report to Owner, Architect, Engineer and Contractor.
- B. Laboratory reports shall include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specifications Section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- C. When requested by Architect, provide interpretation of test results.

1.09 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the Work.

- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Coordinate delivery by testing lab, to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work and to manufacturer's facilities.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify Architect/Engineer and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- E. Perform no work which requires laboratory inspection services unless laboratory representative is on site observing work.

1.11 SCHEDULE OF INSPECTIONS AND TESTS

- A. Refer to individual Specifications Sections.
- B. To be determined jointly by Architect and Contractor with respect to the requirements of the governing agencies.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01410

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

- 1.01 SECTION INCLUDES
 - A. Temporary utilities.
 - B. Temporary telecommunications services.
 - C. Temporary sanitary facilities.
 - D. Temporary Controls: Barriers, enclosures, and fencing.
 - E. Security requirements.
 - F. Vehicular access and parking.
 - G. Waste removal facilities and services.
 - H. Project identification sign.
 - I. Field offices.
- 1.02 RELATED SECTIONS
 - A. Section 01510 - Temporary Utilities.
 - B. Section 01525 - Field Offices.
 - C. Section 01550 - Vehicular Access and Parking.
 - D. Section 01565 - Security Measures.
 - E. Section 01585 - Project Signs.
- 1.03 TEMPORARY UTILITIES - See Section 01510
 - A. Contractor to provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.
 - B. Use trigger-operated nozzles for water hoses, to avoid waste of water.
- 1.04 TELECOMMUNICATIONS SERVICES
 - A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
 - B. Telecommunications services shall include:
 - 1. Telephone Land Lines: One line, minimum; one handset per line.
- 1.05 TEMPORARY SANITARY FACILITIES
 - A. Contractor to provide and maintain required facilities and enclosures. Provide at time of project mobilization.

- B. Contractor to maintain in clean and sanitary condition.

1.06 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection for plants designated to remain. Replace damaged plants.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 EXTERIOR ENCLOSURES

- A. Contractor to provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.08 INTERIOR ENCLOSURES

- A. Contractor to provide temporary partitions and ceilings as indicated to separate work areas, to prevent penetration of dust and moisture, and to prevent damage to installed materials and equipment.
- B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:
 1. Insulated to R 19.
 2. STC rating of 35 in accordance with ASTM E 90.
 3. Maximum flame spread rating of 75 in accordance with ASTM E 84.

1.09 SECURITY - See Section 01565

- A. Contractor to provide security and facilities to protect Work, and Monroe City School District operations from unauthorized entry, vandalism, or theft.

1.10 VEHICULAR ACCESS AND PARKING - See Section 01550

- A. Coordinate access and haul routes with governing authorities.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Provide temporary parking areas to accommodate construction personnel as directed by Architect. When site space is not adequate, provide additional off-site parking.

1.11 WASTE REMOVAL

- A. See Section 01732 - Waste Management, for additional requirements.
- B. Contractor to provide waste removal facilities and services as required maintaining the site in clean and orderly condition.
- C. Provide containers with lids. Remove trash from site periodically.
- D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.12 PROJECT IDENTIFICATION

- A. Contractor to provide project identification sign of design and construction indicated by M3A Architecture, PLLC.
- B. Erect on site at location established by M3A Architecture, PLLC.
- C. No other signs are allowed without Owner/Architect permission except those required by law.

1.13 FIELD OFFICES - See Section 01525

- A. Contractor Office: Weather tight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.
- B. Provide space for Project meetings, with table and chairs to accommodate 6 persons minimum.
- C. Locate offices a minimum distance of 30 feet from existing and new structures.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Contractor to remove temporary utilities, equipment, facilities, materials, after Final Acceptance inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore new permanent facilities used during construction to specified condition.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01500

SECTION 01510 - TEMPORARY UTILITIES

PART 1 – GENERAL

- 1.01 SECTION INCLUDES
 - A. Temporary Utilities: Electricity, lighting, heat, ventilation, and water.
- 1.02 RELATED SECTIONS
 - A. Section 01500 - Temporary Facilities and Controls:
 - 1. Temporary telecommunications services for administrative purposes.
 - 2. Temporary sanitary facilities required by law.
- 1.03 TEMPORARY ELECTRICITY
 - A. Cost: By Contractor
 - B. Provided By: Contractor
 - C. Provide power service required from utility source.
 - D. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
 - E. Provide main service disconnect and over-current protection at convenient location and meter.
 - F. Permanent convenience receptacles may be utilized during construction.
 - G. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
 - 1. Provide 20 ampere duplex outlets, single phase circuits for power tools
 - 2. Provide 20 ampere, single phase branch circuits for lighting.
- 1.04 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES
 - A. Contractor to provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft.
 - B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
 - C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.
 - D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
 - E. Maintain lighting and provide routine repairs.
 - F. Permanent building lighting may be utilized during construction.
- 1.05 TEMPORARY HEATING
 - A. Cost of Energy: By Contractor
 - B. Provided by: Contractor
 - C. Provide heating devices and heat as needed to maintain specified

conditions for construction operations.

- D. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.
- E. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.06 TEMPORARY COOLING

- A. Cost of Energy: By Contractor
- B. Provided by: Contractor
- C. Provide cooling devices and cooling as needed to maintain specified conditions for construction operations.
- D. Maintain maximum ambient temperature of 80 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.
- E. Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.07 TEMPORARY WATER SERVICE

- A. Cost of Water Used: By Contractor
- B. Provided by: Contractor
- C. Provide and maintain suitable quality water service for construction operations at time of project mobilization.
- D. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01510

SECTION 01550 - VEHICULAR ACCESS AND PARKING**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Access roads.
- B. Parking.
- C. Permanent pavements and parking facilities.
- D. Construction parking controls.
- E. Flag persons.
- F. Flares and lights.
- G. Haul routes.
- H. Traffic signs and signals.
- I. Maintenance.
- J. Removal, repair.
- K. Mud from site vehicles.

1.02 RELATED SECTIONS

- A. Section 01100 – Summary of Work: access to site, work sequence, and occupancy.
- B. Section 02310 – Earthwork and Site Grading: Specifications for earthwork and paving bases.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Temporary Construction: By Contractor.
- B. Materials for Permanent Construction: As specified in product specification sections, including earthwork, paving base, and topping.

2.02 SIGNS, SIGNALS, AND DEVICES

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs: Specified in Section 01585.
- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- C. Flag Person Equipment: As required by local jurisdictions.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS ROADS

- A. Use of designated existing on-site streets and driveways for construction

traffic is permitted.

- B. Tracked vehicles not allowed on paved areas.
- C. Construct new temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load bearing capacity to provide unimpeded traffic for construction purposes.
- D. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.
- E. Extend and relocate as Work progress requires, provide detours as necessary for unimpeded traffic flow.
- F. Provide unimpeded access for emergency vehicles. Maintain 20 foot width driveways with turning space between and around combustible materials.
- G. Provide and maintain access to fire hydrants free of obstructions.

3.03 PARKING

- A. Use of new parking facilities by construction personnel is not permitted.
- B. Do not allow heavy vehicles or construction equipment in parking areas.
- C. Arrange for temporary parking areas to accommodate use of construction personnel.
- D. When site space is not adequate, provide additional off-site parking.

3.04 NEW PERMANENT PAVEMENTS

- A. Prior to Substantial Completion the base for permanent roads and parking areas may be used for construction traffic.
- B. Avoid traffic loading beyond paving design capacity. Tracked vehicles not allowed.

3.05 CONSTRUCTION PARKING CONTROL (GRAVEL PARKING AREA)

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.06 FLAG PERSONS

- A. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.07 FLARES AND LIGHTS

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.08 HAUL ROUTES

- A. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.

- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.09 TRAFFIC SIGNS AND SIGNALS

- A. At approaches to site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

3.10 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.11 REMOVAL, REPAIR

- A. Remove temporary roads when permanent paving is usable.
- B. Remove underground work and compacted materials to a depth of 2 feet; fill and grade site as specified.
- C. Repair existing facilities damaged by use, to original condition.
- D. Remove equipment and devices when no longer required.
- E. Repair damage caused by installation.
- F. Remove post settings to a depth of 2 feet.

3.12 MUD FROM SITE VEHICLES

- A. Provide means of removing mud from vehicle wheels before entering streets.

END OF SECTION 01550

SECTION 01565 - SECURITY MEASURES**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Security measures including formal security program, entry control, personnel identification, guard service, and miscellaneous restrictions.

1.02 RELATED SECTIONS

- A. Section 01100 – Summary of Work: use of premises and occupancy.
- B. Section 01500 - Temporary Facilities and Controls: Temporary lighting.

1.03 SECURITY PROGRAM

- A. Protect Work and Owner's operations from theft, vandalism, and unauthorized entry.
- B. Initiate program at project mobilization.
- C. Maintain program throughout construction period until Owner occupancy.

1.04 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into Project site.
- B. Allow entrance only to authorized persons with proper identification.
- C. Maintain log of workers and visitors, make available to Owner/Architect on request.
- D. Contractor to provide six (6) foot tall fence around entire perimeter of construction site with double gate sized to permit construction traffic located at the termination of Construction Site Entrance. Architect will advise as to exact location of control fence.

1.05 RESTRICTIONS

- A. Do not allow cameras on site or photographs taken except by written approval of Owner/Architect.
- B. Do no work on Sundays.

PART 2 – PRODUCTS (NOT APPLICABLE)**PART 3 – EXECUTION (NOT APPLICABLE)****END OF SECTION 01565**

SECTION 01575 - TEMPORARY EROSION AND SEDIMENTATION CONTROL**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Prevention of erosion due to construction activities.
- B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- C. Restoration of areas eroded due to insufficient preventive measures.
- D. Performance bond.
- E. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by.
- F. Erosion Control Measures to be installed and maintained as part of Contractors scope of Work.

1.02 RELATED SECTIONS

- A. Section 02230 - Site Clearing: Limits on clearing; disposition of vegetative clearing debris.
- B. Section 02310 – Earthwork and Site Grading: Temporary and permanent grade changes for erosion control.
- C. Section 02373 - Riprap: Temporary and permanent stabilization using riprap.
- D. Section 02710 - Base Course - Granular: Temporary and permanent roadways.
- E. Section 02936 – Seeding and Sodding: Permanent turf for erosion control.
- F. Section 03300 - Cast-in-Place Concrete: Concrete for temporary and permanent erosion control structures indicated on drawings.

1.03 REFERENCES

- A. ASTM D 4355 - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus; 2005.
- B. ASTM D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a (Reapproved 2004).
- C. ASTM D 4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2004.
- D. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 1991 (Reapproved 2003).
- E. ASTM D 4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2004.
- F. ASTM D 4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples; 2002.
- G. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; current edition;

- H. FHWA FLP-94-005 - Best Management Practices for Erosion and Sediment Control; Federal Highway Administration; 1995.
- I. USDA TR-55 - Urban Hydrology for Small Watersheds; USDA Natural Resources Conservation Service; 1986.

1.04 PERFORMANCE REQUIREMENTS

- A. Comply with all requirements of U.S. Environmental Protection Agency for erosion and sedimentation control, as specified for the National Pollutant Discharge Elimination System (NPDES), Phases I and II, under requirements for the 2003 Construction General Permit (CGP), whether the project is required by law to comply or not.
- B. Also comply with all more stringent requirements of State of Louisiana Erosion and Sedimentation Control Manual.
- C. Runoff Calculation Standard for Urban Areas: USDA NRCS TR-55, Urban Hydrology for Small Watersheds.
- D. Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.
- E. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.
 - 1. Obtain and pay for permits and provide security required by authority having jurisdiction.
- F. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.
- G. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
 - 1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
 - 2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.
- H. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
 - 1. Control movement of sediment and soil from temporary stockpiles of soil.
 - 2. Prevent development of ruts due to equipment and vehicular traffic.
 - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- I. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
 - 1. Prevent windblown soil from leaving the project site.
 - 2. Prevent tracking of mud onto public roads outside site.
 - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.
 - 4. If erosion occurs due to non-compliance with these requirements,

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restore eroded areas at no cost to Owner.

- J. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 - 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
 - 2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.
- K. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
 - 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- L. Open Water: Prevent standing water that could become stagnant.
- M. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Erosion and Sedimentation Control Plan:
 - 1. Submit within 2 weeks after Notice to Proceed.
 - 2. Include:
 - a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
 - b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.
 - c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
 - d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
 - e. Other information required by law.
 - f. Format required by law is acceptable, provided any additional information specified is also included.
 - 3. Obtain the approval of the Plan by authorities having jurisdiction.
 - 4. Obtain the approval of the Plan from Project Civil Engineer before submitting to authority having jurisdiction.
- C. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.
- D. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

- E. Maintenance Instructions: Provide instructions covering inspection and maintenance for temporary measures that must remain after Substantial Completion.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Mulch: Use one of the following:
1. Straw or hay.
 2. Wood waste, chips, or bark.
 3. Erosion control matting or netting.
- B. Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.
- C. Bales: Air dry, rectangular straw bales.
1. Cross Section: 14 by 18 inches, minimum.
 2. Bindings: Wire or string, around long dimension.
- D. Bale Stakes: One of the following, minimum 3 feet long:
1. Steel U- or T-section, with minimum mass of 1.33 lb per linear foot.
 2. Wood, 2 by 2 inches in cross section.
- E. Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:
1. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested in accordance with ASTM D 4751.
 2. Permittivity: 0.05 sec^{-1} , minimum, when tested in accordance with ASTM D 4491.
 3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D 4355 after 500 hours exposure.
 4. Tensile Strength: 100 lb-f, minimum, in cross-machine direction; 124 lb-f, minimum, in machine direction; when tested in accordance with ASTM D 4632.
 5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D 4632.
 6. Tear Strength: 55 lb-f, minimum, when tested in accordance with ASTM D 4533.
 7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.
- F. Silt Fence Posts: One of the following, minimum 5 feet long:
1. Softwood, 4 by 4 inches in cross section.
 2. Hardwood, 2 by 2 inches in cross section.
- G. Gravel: See Division 02.
- H. Riprap: See Division 02.
- I. Concrete: See Division 03.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.02 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.03 SCOPE OF PREVENTIVE MEASURES

- A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.
- B. Construction Entrances: Traffic-bearing aggregate surface.
 - 1. Width: As required; 20 feet, minimum.
 - 2. Length: 50 feet, minimum.
 - 3. Provide at each construction entrance from public right-of-way.
 - 4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- C. Linear Sediment Barriers: Made of silt fences.
 - 1. Provide linear sediment barriers:
 - a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
 - b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
 - c. Along the toe of cut slopes and fill slopes.
 - d. Perpendicular to flow across the bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200 feet apart.
 - e. Across the entrances to culverts that receive runoff from disturbed areas.
 - 2. Space sediment barriers with the following maximum slope length upslope from barrier:
 - a. Slope of Less Than 2 Percent: 100 feet.
 - b. Slope Between 2 and 5 Percent: 75 feet.
 - c. Slope Between 5 and 10 Percent: 50 feet.
 - d. Slope Between 10 and 20 Percent: 25 feet.
 - e. Slope Over 20 Percent: 15 feet.
- D. Storm Drain Curb Inlet Sediment Trap: Protect each curb inlet using one of the following measures:
 - 1. Filter fabric wrapped around hollow concrete blocks blocking entire inlet face area; use one piece of fabric wrapped at least 1-1/2 times around concrete blocks and secured to prevent dislodging; orient cores of blocks so runoff passes into inlet.
 - 2. Straw bale row blocking entire inlet face area; anchor into pavement.
- E. Storm Drain Drop Inlet Sediment Traps: As detailed on drawings.
- F. Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.
- G. Soil Stockpiles: Protect using one of the following measures:

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1. Cover with polyethylene film, secured by placing soil on outer edges.
 2. Cover with mulch at least 4 inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches of straw or hay.
- H. Mulching: Use only for areas that may be subjected to erosion for less than 6 months.
1. Wood Waste: Use only on slopes 3:1 or flatter; no anchoring required.
 2. Asphalt: Use only where no traffic, either vehicular or pedestrian, is anticipated.
- I. Temporary Seeding: Use where temporary vegetated cover is required.

3.04 INSTALLATION

- A. Traffic-Bearing Aggregate Surface:
1. Excavate minimum of 6 inches.
 2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.
 3. Place and compact at least 6 inches of 1.5 to 3.5 inch diameter stone.
- B. Silt Fences:
1. Store and handle fabric in accordance with ASTM D 4873.
 2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
 3. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.
 4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.
 5. Install with top of fabric at nominal height and embedment as specified.
 6. Embed bottom of fabric in a trench on the upslope side of fence, with 2 inches of fabric laid flat on bottom of trench facing upslope; backfill trench and compact.
 7. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
 8. Fasten fabric to wood posts using one of the following:
 - a. Four 3/4 inch diameter, 1 inch long, 14 gage nails.
 - b. Five 17-gage staples with 3/4 inch wide crown and 1/2 inch legs.
 9. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.
- C. Straw Bale Rows:
1. Install bales in continuous rows with ends butting tightly, with one bale at each end of row turned uphill.
 2. Install bales so that bindings are not in contact with the ground.
 3. Embed bales at least 4 inches in the ground.
 4. Anchor bales with at least two stakes per bale, driven at least 18 inches

into the ground; drive first stake in each bale toward the previously placed bale to force bales together.

5. Fill gaps between ends of bales with loose straw wedged tightly.
6. Place soil excavated for trench against bales on the upslope side of the row, compacted.

D. Mulching Over Large Areas:

1. Dry Straw and Hay: Apply 2-1/2 tons per acre; anchor using dull disc harrow or emulsified asphalt applied using same spraying machine at 100 gallons of water per ton of mulch.
2. Wood Waste: Apply 6 to 9 tons per acre.
3. Asphalt: Apply at 1200 gallons per acre.
4. Erosion Control Matting: Comply with manufacturer's instructions.

E. Mulching Over Small and Medium Areas:

1. Dry Straw and Hay: Apply 4 to 6 inches depth.
2. Wood Waste: Apply 2 to 3 inches depth.
3. Pine Needles: Apply 2 to 3 inches depth.
4. Asphalt: Apply 1/4 gallon per square yard.
5. Erosion Control Matting: Comply with manufacturer's instructions.

F. Temporary Seeding:

1. When hydraulic seeder is used, seedbed preparation is not required.
2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
3. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq ft.
4. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq ft.
5. Incorporate fertilizer into soil before seeding.
6. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch deep.
7. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
8. Repeat irrigation as required until grass is established.

3.05 MAINTENANCE

- A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
- B. Repair deficiencies immediately.
- C. Silt Fences:
 1. Promptly replace fabric that deteriorates unless need for fence has passed.
 2. Remove silt deposits that exceed one-third of the height of the fence.
 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- D. Straw Bale Rows:
 1. Promptly replace bales that fall apart or otherwise deteriorate unless need has passed.

2. Remove silt deposits that exceed one-half of the height of the bales.
 3. Repair bale rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.
- E. Clean out temporary sediment control structures weekly and relocate soil on site.
- F. Place sediment in appropriate locations on site; do not remove from site.
- 3.06 CLEAN UP
- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by M3A Architecture, PLLC.
 - B. Clean out temporary sediment control structures that are to remain as permanent measures.
 - C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION 01575

SECTION 01585 - PROJECT SIGNS

PART 1 – GENERAL

- 1.01 SECTION INCLUDES
 - A. Project signs provided by General Contractor.
- 1.02 RELATED SECTIONS
 - A. Section 01100 – Summary of Work: Responsibility to provide signs.
- 1.03 REFERENCES
 - A. FHWA (SHS) - Standard Highway Signs; Federal Highway Administration, U.S. Department of Transportation; 2004.
- 1.04 QUALITY ASSURANCE
 - A. Design sign and structure to withstand 50 miles/hr wind velocity.
 - B. Sign Painter: Experienced as a professional sign painter for minimum three years.
 - C. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.
- 1.05 SUBMITTALS
 - A. See Section 01300 - Administrative Requirements for submittal procedures.
 - B. Shop Drawing: Show content, layout, lettering, color, foundation, structure, sizes and grades of members.

PART 2 – PRODUCTS

- 2.01 SIGN MATERIALS
 - A. Structure and Framing: New, wood, structurally adequate.
 - B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inch thick, standard large sizes to minimize joints.
 - C. Rough Hardware: Galvanized.
 - D. Paint and Primers: Exterior quality, two coats; sign background of color as chosen by M3A Architecture, PLLC.
 - E. Lettering: Exterior quality paint, contrasting colors.
- 2.02 PROJECT IDENTIFICATION SIGN
 - A. One painted sign, 32 sq ft area, and bottom four (4) feet above ground.
 - B. Content:
 - 1. Project number, title, logo, project 3d image and name of Owner as indicated on Contract Document
 - 2. Names and titles of authorities.
 - 3. Names and titles of Professionals.
 - 4. Name of Prime and major Subcontractors.
 - C. Graphic Design, Colors, Style of Lettering: Designated by M3A Architecture, PLLC.

- D. Lettering: Designated by M3A Architecture, PLLC.

2.03 PROJECT INFORMATIONAL SIGNS

- A. Painted informational signs of same colors and lettering as Project Identification sign, or standard products; size lettering to provide legibility at 100 foot distance.
- B. Provide at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as Work progress requires.
- C. Provide municipal traffic agency directional traffic signs to and within site.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install project identification sign within 15 days after date fixed by Notice to Proceed.
- B. Erect at location of high public visibility adjacent to main entrance to site.
- C. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
- D. Install sign surface plumb and level, with butt joints. Anchor securely.
- E. Paint exposed surfaces of sign, supports, and framing.

3.02 MAINTENANCE

- A. Maintain signs and supports clean, repair deterioration and damage.

3.03 REMOVAL

- A. Remove signs, framing, supports, and foundations at completion of Project and restore the area.

END OF SECTION 01585

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations and procedures.
- E. Spare parts and maintenance materials.

1.02 RELATED SECTIONS

- A. Document 00200 - Instructions to Bidders: Product options and substitution procedures prior to bid date.
- B. Section 01100 – Summary of Work: Lists of products to be removed from existing building.
- C. Section 01400 - Quality Requirements: Product quality monitoring.
- D. Section 01732 - Waste Management: Waste disposal requirements potentially affecting packaging and substitutions.

1.03 REFERENCES

- A. 16 CFR 260 - Guides for the Use of Environmental Marketing Claims; Federal Trade Commission; current edition.
- B. CAN/CSA Z809 - National Standard for Sustainable Forest Management; CSA International Inc.; 2002.
- C. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.; 2000.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association; 2008.
- E. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.04 SUBMITTALS

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
 - 1. Submit within 15 days after date of Agreement.
 - 2. For products specified only by reference standards, list applicable reference standards.
- B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and

appliances.

- D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 – PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
1. Made outside the United States, its territories, Canada, or Mexico.
 2. Made using or containing CFC's or HCFC's.
- C. Where all other criteria are met, shall give preference to products that:
1. Are extracted, harvested, and/or manufactured closer to the location of the project.
 2. Have longer documented life span under normal use.
 3. Result in less construction waste.
 4. Are made of vegetable materials that are rapidly renewable.
- D. Sustainably Harvested Wood:
1. Definition: Wood-based materials include but are not limited to structural framing, dimension lumber, flooring, wood doors, finishes, and furnishings that are permanently installed in the project. Wood and wood-based products not permanently installed in the project are not included in the definition.
 2. Specific Wood-Based Fabrications: Fabricate of sustainably harvested wood when so specified elsewhere.
 3. Certification: Provide wood certified or labeled by an organization accredited by one of the following:
 - a. The Forest Stewardship Council, The Principles for Natural Forest Management; for Canada visit <http://www.fscanada.org>, for the USA visit <http://www.fscus.org>.
- E. Urea-Formaldehyde Prohibition:
1. Overall Project Requirement: Provide composite wood and agrifiber products having no added urea-formaldehyde resins.
 - a. Require each installer to certify compliance and submit product data showing product content.
 2. Specific Product Categories: Comply with limitations specified elsewhere.
- F. Adhesives and Joint Sealants:
1. Definition: This provision applies to gunnable, trowelable, and liquid-applied adhesives, sealants, and sealant primers used anywhere on the interior of the building inside the weather barrier, including duct sealers.
 2. Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.
 - a. Require each installer to certify compliance and submit

- product data showing product content.
- 3. Specific Product Categories: Comply with limitations specified elsewhere.
- G. Aerosol Adhesives:
 - 1. Provide only products having lower volatile organic compound (VOC) content than required by GreenSeal GS-36.
 - a. Require each installer to certify compliance and submit product data showing product content.
 - 2. Specific Product Categories: Comply with limitations specified elsewhere.
- H. Provide interchangeable components of the same manufacture for components being replaced.
- I. Motors: Refer to Section 15065, NEMA MG 1 Type. Specific motor type is specified in individual specification sections.
- J. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.
- K. Cord and Plug: Provide minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, Submit a request for substitution for any manufacturer not named after award of contract.

2.03 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 – EXECUTION

3.01 SUBSTITUTION PROCEDURES

- A. Substitution of products is permitted during the bidding process. If products are not directly specified bidders may submit request for clarification.
- B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- C. A request for substitution constitutes a representation that the submitter:
 - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
 - 2. Will provide the same warranty for the substitution as for the specified product.
 - 3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional

- cost to Owner.
4. Waives claims for additional costs or time extension that may subsequently become apparent.
- D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- E. Substitution Submittal Procedure:
1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
 2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
 3. The M3A Architecture, PLLC. will notify in writing of decision to accept or reject request.
- 3.02 TRANSPORTATION AND HANDLING
- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
 - B. Transport and handle products in accordance with manufacturer's instructions.
 - C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
 - D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
 - E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
 - F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.
- 3.03 STORAGE AND PROTECTION
- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
 - B. Store and protect products in accordance with manufacturers' instructions.
 - C. Store with seals and labels intact and legible.
 - D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
 - E. For exterior storage of fabricated products, place on sloped supports above ground.
 - F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
 - G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
 - H. Store loose granular materials on solid flat surfaces in a well-drained area.

Prevent mixing with foreign matter.

- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION 01600

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Pre-installation meetings.
- C. Cutting and patching.
- D. Surveying for laying out the work.
- E. Cleaning and protection.
- F. Starting of systems and equipment.
- G. Demonstration and instruction of Owner personnel.
- H. Closeout procedures, except payment procedures.

1.02 RELATED SECTIONS

- A. Section 01100 – Summary of Work: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01300 - Administrative Requirements: Submittals procedures.
- C. Section 01400 - Quality Requirements: Testing and inspection procedures.
- D. Section 01500 - Temporary Facilities and Controls: Temporary exterior enclosures.
- E. Section 01500 - Temporary Facilities and Controls: Temporary interior partitions.
- F. Section 01510 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.
- G. Section 01575 - Temporary Erosion and Sedimentation Control: Additional erosion and sedimentation control requirements.
- H. Section 01732 - Waste Management: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
- I. Section 01780 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.
- J. Section 07840 - Firestopping.
- K. Individual Product Specification Sections:
 - 1. Advance notification to other sections of openings required in work of those sections.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.
 2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
 3. Submit surveys and survey logs for the project record.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
1. Structural integrity of any element of Project.
 2. Integrity of weather exposed or moisture resistant element.
 3. Efficiency, maintenance, or safety of any operational element.
 4. Visual qualities of sight exposed elements.
 5. Work of Owner or separate Contractor.
 6. Include in request:
 - a. Identification of Project.
 - b. Location and description of affected work.
 - c. Necessity for cutting or alteration.
 - d. Description of proposed work and products to be used.
 - e. Alternatives to cutting and patching.
 - f. Effect on work of Owner or separate Contractor.
 - g. Written permission of affected separate Contractor.
 - h. Date and time work will be executed.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 QUALIFICATIONS

- A. For survey work, employ a land surveyor registered in Louisiana and acceptable to M3A Architecture, PLLC. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.05 PROJECT CONDITIONS

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
- E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
1. Minimize amount of bare soil exposed at one time.
 2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
 3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
 4. Periodically inspect earthwork to detect evidence of erosion and

sedimentation; promptly apply corrective measures.

- F. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
- G. Pest Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- H. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.
- I. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

1.06 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 – PRODUCTS

2.01 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01600.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

- A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify M3A Architecture, PLLC. four days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
 - 1. Review conditions of examination, preparation and installation procedures.
 - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to M3A Architecture, PLLC., Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

- A. Verify locations of survey control points as initially established by Owner prior to starting work.
- B. Promptly notify M3A Architecture, PLLC. of any discrepancies discovered.
- C. Control datum for survey is that indicated on Drawings.
- D. Protect survey control points prior to starting site work; preserve permanent reference points during construction. All trades to maintain and replace if disturbed.

- E. Promptly report to M3A Architecture, PLLC. the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- F. All traded are to replace dislocated survey control points based on original survey control. Make no changes without prior written notice to M3A Architecture, PLLC..
- G. Utilize recognized engineering survey practices.
- H. Owner will establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- I. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.
- J. Periodically verify layouts by same means.
- K. Maintain a complete and accurate log of control and survey work as it progresses.
- L. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

3.05 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 CUTTING AND PATCHING

- A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.
- B. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing

work, minimize damage and restore to original condition.

- C. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- E. Restore work with new products in accordance with requirements of Contract Documents.
- F. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07840, to full thickness of the penetrated element.
- H. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- I. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.
- J. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.07 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.08 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Prohibit traffic from landscaped areas.
- H. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.09 SYSTEMS STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify M3A Architecture, PLLC. and Owner seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.10 DEMONSTRATION AND INSTRUCTION

- A. See Section 01820 - Demonstration and Training.

3.11 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Testing, adjusting, and balancing HVAC systems: See Section 15950.

3.12 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.

- F. Clean debris from roofs, gutters, downspouts, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
 - 1. Provide copies to M3A Architecture, PLLC. and Owner.
- B. Accompany Architect on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.
- C. Notify M3A Architecture, PLLC. when work is considered ready for Substantial Completion.
- D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for M3A Architecture, PLLC.'s review.
- E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.
- F. Accompany Architect on preliminary final inspection.
- G. Notify M3A Architecture, PLLC. when work is considered finally complete.
- H. Complete items of work determined by M3A Architecture, PLLC.'s final inspection.

3.14 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections for one (1) year from date of Substantial Completion.
- B. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- D. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

END OF SECTION 01700

SECTION 01710 – CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work included shown on Drawings and specified below.

1.02 CLEANING DURING CONSTRUCTION

- A. **ALL CONTRACTORS** execute cleaning to ensure that building, grounds and public properties are maintained free from accumulating of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals during progress of Work, clean site and public properties and dispose of waste materials, debris and rubbish.
- D. Contractor to provide on-site containers for collection of waste materials, debris and rubbish.
- E. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
- F. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.

1.03 FINAL CLEANING

- A. Contractor to employ experienced workmen or professional cleaners for final cleaning.
- B. In preparation for substantial completion or occupancy conduct final inspection of site exposed exterior surfaces.
- C. Remove grease, dust, dirt, stains, labels, finger-prints, and other foreign materials from sight exposed interior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up marred surfaces to specified finish to match adjacent surfaces.
- E. Owner will assume responsibility for cleaning upon Final Acceptance.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Work Included: Maintaining and keeping up-to-date submission procedures and requirements for project record documents.
- B. Refer to related Work:
 - 1. Section 01600 – Product Requirements
 - 2. Section 01700 - Project Closeout

1.02 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site two (2) copies of all:
 - 1. Contract Drawings
 - 2. Project Manual
 - 3. Addenda
 - 4. Change Orders
 - 5. Reviewed Shop Drawings
 - 6. Reviewed Submittals
 - 7. Field and Laboratory Test Records
 - 8. Other modifications to Contract
- B. Store record documents apart from documents used for construction. Provide files and racks for storage of documents. File documents in accordance with Project Filing Format of Uniform Construction Index.
- C. Maintain documents in clean, dry, legible condition. Do not use Record Documents for construction purposes.
- D. Provide availability of Record Documents at all times for inspection by Architect and Owner.

1.03 RECORDING

- A. Label each document "Project Record" in 2" high printed letters. Keep Record Documents current. Do not permanently conceal any work until required information has been recorded.
- B. Contract Drawings: Legibly mark to record actual construction:
 - 1. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - 2. Field changes of dimensions and details.
 - 3. Changes made by Change Order or Field Order.
 - 4. Details not on original Contract Drawings.
- C. Project Manual and Addenda: Legibly mark up each Section to record:
 - 1. Manufacturer, trade name, catalog number and suppliers of each product and item of equipment actually installed.
 - 2. Changes made by Change Order or Field Order.
 - 3. Other matters not originally specified.

- D. Shop Drawings: Maintain as Record Documents legibly marked drawings to record changes made after review.

1.05 SUBMITTAL

- A. At completion of project deliver record documents to Architect. Accompany submittal with transmittal letter in duplicate containing:
 - 1. Date
 - 2. Project Title and Number
 - 3. Contractor's Name and Address
 - 4. Title and number of each Record Document
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor or his authorized representative.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 01720

SECTION 01780 - CLOSEOUT SUBMITTALS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED SECTIONS

- A. Section 00700 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01300 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Section 01700 - Execution Requirements: Contract closeout procedures.
- D. Individual Product Sections: Specific requirements for operation and maintenance data.
- E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to M3A Architecture, PLLC. prior to claim for Substantial Completion Inspection.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with M3A Architecture, PLLC. comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 – PRODUCTS (NOT APPLICABLE)**PART 3 – EXECUTION**

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual

revisions to the Work:

1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed shop drawings, product data, and samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates utilized.
 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
1. Product data, with catalog number, size, composition, and color and texture designations.
 2. Information for re-ordering custom manufactured products.

- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- C. Include color coded wiring diagrams as installed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.
- K. Provide coordination drawings, with color coded piping diagrams as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Include test and balancing reports.

- O. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- H. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.
- I. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of M3A Architecture, PLLC., Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.
- J. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.
- K. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of M3A Architecture, PLLC., Consultants, and with name of responsible parties; schedule of products and systems, indexed to

content of the volume.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.
- E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

3.07 EXTRA MATERIALS

- A. Extra Materials: Deliver to the Owner items required by individual specifications sections, including but not to: spare parts, special tools, extra stock, and other similar items.
- B. Attic Stock: Deliver to the Owner a minimum of five (5%) percent extra attic stock of all installed finish materials.
- C. Maintenance Materials: Deliver to Owner a minimum of one (1) years amount of maintenance materials for all installed finishes requiring routine maintenance.

END OF SECTION 01780

SECTION 01800 – PROJECT CLOSEOUT**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Related Sections:
1. Section 01300 – Administrative Requirements. Closeout Conference.
 2. Section 01500 - Temporary Facilities and Controls: Temporary facilities and use of permanent systems prior to Substantial Completion.
 3. Section 01780 - Closeout Submittals: Requirements for submittals at closeout.
 4. Section 01720 – Project Record Documents.
 5. Section 01820 – Demonstration and Training: Starting of systems, testing and balancing, demonstrations, and instruction of Owner’s personnel.
 6. Section 01710 - Cleaning

1.02 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Complete items in following paragraphs before requesting Certification of Substantial Completion, either for entire Work or for portions of Work.
- B. Submit maintenance manuals, project record documents, negatives of construction photographs, and other similar final record data in compliance with Section 01780.
- C. Complete facility startup, testing, adjusting, and balancing of systems and equipment, demonstrations, and instructions to Owner’s operating and maintenance personnel as specified in Section 01820.
- D. Conduct inspection to substantiate basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or non-conforming work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
- E. Submit statement showing accounting of changes to Contract Sum.
- F. Advise Owner of pending insurance change-over requirements at final payment.
- G. Obtain and submit releases enabling Owner’s full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
- H. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.

- I. Make final change-over of locks eliminating construction master key system and transmit keys directly to Owner. Advise Owner's personnel of change-over in security provisions.
- J. Comply with requirements of Section 01500 for restoring permanent systems operated prior to Substantial Completion.
- K. Discontinue or change over and remove temporary facilities and services from Project site, along with construction tools, mock-ups, and similar elements.
- L. Perform final cleaning in accordance with Section 01710.
- M. Touch-up and otherwise repair and restore marred exposed finishes.

1.03 SUBSTANTIAL COMPLETION INSPECTION

- A. When Contractor considers Work to be substantially complete, submit to Architect:
 - 1. Written notice that Work, or designated portion, is substantially complete.
 - 2. List of items to be completed or corrected (initial punch list).
- B. Within ten (10) days after receipt of request for Substantial Completion, Architect will make inspection to determine whether Work or designated portion is substantially complete following procedures indicated in Conditions of the Contract.
- C. Should Architect determine that Work is not substantially complete:
 - 1. Architect will promptly notify Contractor in writing, stating reasons for its opinion.
 - 2. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Architect.
 - 3. Architect will reinspect Work.
- D. When Architect finds that Work is substantially complete, Architect will:
 - 1. Prepare Certificate of Substantial Completion and amended by Architect and Owner (final punch list).
 - 2. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate.
- E. After Work is substantially complete, Contractor shall:
 - 1. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - 2. Complete work listed for completion or correction within time period stipulated.

1.04 PREREQUISITES FOR FINAL COMPLETION

- A. Complete items in following paragraphs before requesting final acceptance and final payment. List known exceptions, if any, in request.
- B. When Contractor considers Work to be complete, submit written certification that:

1. Contract Documents have been reviewed.
 2. Work has been examined for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Work is completed and ready for final inspection.
- C. Submittals: Submit following:
1. Final punch list indicating all items have been completed or corrected.
 2. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 3. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 4. Updated accounting statement for final changes to Contract Sum.
 5. Consent of surety to final payment.
- D. Perform final cleaning for Contractor soiled areas in accordance with Section 01710.

1.05 FINAL COMPLETION INSPECTION

- A. Within ten (10) days after receipt of request for final inspection, Architect will make inspection to determine whether Work or designated portion is complete following procedures indicated in Conditions of the Contract.
- B. In the event Architect considers Work to be incomplete or defective:
1. Architect will promptly notify Contractor, in writing, listing incomplete or defective work.
 2. Contractor shall take immediate steps to remedy stated deficiencies and send second written request to Architect that Work is complete.
 3. Architect will reinspect Work.

1.06 REINSPECTIONS

- A. Should Architect have to perform reinspections due to failure of Work to comply with claims of completion made by Contractor, Owner will reimburse Architect for such additional services and will deduct amount of compensation from final payment to Contractor.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01800

SECTION 01820 - DEMONSTRATION AND TRAINING**PART 1 – GENERAL**

1.01 SUMMARY

- A. Demonstration of products and systems where indicated in specific specification sections.
- B. Training of Owner personnel in operation and maintenance is required for:
 - 1. All software-operated systems.
 - 2. HVAC systems and equipment.
 - 3. Plumbing equipment.
 - 4. Electrical systems and equipment.
 - 5. Security systems and equipment.
 - 6. Items specified in individual product Sections.
- C. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
 - 1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
 - 2. Finishes, including flooring, wall finishes, ceiling finishes.
 - 3. Fixtures and fittings.
 - 4. Items specified in individual product Sections.

1.02 RELATED SECTIONS

- A. Section 01780 - Closeout Submittals: Operation and maintenance manuals.
- B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Training Plan: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
 - 1. Submit to M3A Architecture, PLLC. for transmittal to Owner.
 - 2. Submit not less than four weeks prior to start of training.
 - 3. Revise and resubmit until acceptable.
 - 4. Provide an overall schedule showing all training sessions.
 - 5. Include at least the following for each training session:
 - a. Identification, date, time, and duration.
 - b. Description of products and/or systems to be covered.
 - c. Name of firm and person conducting training; include qualifications.
 - d. Intended audience, such as job description.
 - e. Objectives of training and suggested methods of ensuring adequate training.
 - f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
 - g. Media to be used, such as slides, hand-outs, etc.
 - h. Training equipment required, such as projector, projection screen, etc., to be provided by.

- C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
 - 1. Include applicable portion of O&M manuals.
 - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
 - 3. Provide one extra copy of each training manual to be included with operation and maintenance data.
- D. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.
 - 1. Format: DVD Disc.
 - 2. Label each disc and container with session identification and date.

1.04 QUALITY ASSURANCE

- A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
 - 1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
 - 2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 DEMONSTRATION - GENERAL

- A. Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
- B. Demonstration may be combined with Owner personnel training if applicable.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
 - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.
 - 2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
 - 1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.02 TRAINING - GENERAL

- A. Conduct training on-site unless otherwise indicated.
- B. Owner will provide classroom and seating at no cost to.
- C. Provide training in minimum two hour segments.

- D. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge for personnel "show-up" time.
- E. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
1. The location of the O&M manuals and procedures for use and preservation; backup copies.
 2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
 3. Typical uses of the O&M manuals.
- F. Product- and System-Specific Training:
1. Review the applicable O&M manuals.
 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
 3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
 4. Provide hands-on training on all operational modes possible and preventive maintenance.
 5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
 6. Discuss common troubleshooting problems and solutions.
 7. Discuss any peculiarities of equipment installation or operation.
 8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
 9. Review recommended tools and spare parts inventory suggestions of manufacturers.
 10. Review spare parts and tools required to be furnished by.
 11. Review spare parts suppliers and sources and procurement procedures.
- G. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION 01820

SECTION 02225 - SELECTIVE DEMOLITION**PART 1 – GENERAL**

1.01 DESCRIPTION

- A. This Section requires the selective removal and subsequent offsite disposal of the following:
 - 1. Portions of existing building indicated on drawings and as required to accommodate new construction.
- B. Related work specified elsewhere:
 - 1. Remodeling construction work and patching are included within the respective sections of specifications, including materials for reuse and incorporation into remodeling or new construction.
 - 2. Relocation of pipes, conduits, ducts, and other mechanical and electrical work is specified in other Divisions.

1.02 SUBMITTALS

- A. Schedule indicating proposed sequence of operations for selective demolition work to Architect for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
- B. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Architect prior to start of work.

1.03 JOB CONDITIONS

- A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.
- B. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses.
- C. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.
 - 1. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
- D. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- E. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

- F. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- G. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- H. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
- I. Maintain fire protection services during selective demolition operations.
- J. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
- K. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 PREPARATION

- A. Cease operations and notify Architect immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- B. Provide weatherproof closures for exterior openings resulting from demolition work.
- C. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

3.02 DEMOLITION

- A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

- A. All materials removed from the building, in good or fair condition, may be required to be salvaged and stored at the discretion of the owner.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Place trash DUMPSTER as directed by the Owner. Container shall be removed from Site and replaced as necessary. Trash shall not be stacked above top of side walls of the dumpster.
- B. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
- C. Burning of removed materials is not permitted on project site.

3.05 CLEANUP AND REPAIR

- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
- B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 02225

SECTION 04050 – BASIC MASONRY MATERIALS AND METHODS**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Mortar for masonry.
- B. Grout for masonry.
- C. Accessories for masonry.

1.02 RELATED SECTIONS

- A. Section 04065 – Mortar and Masonry Grout
- B. Section 04810 – Unit Masonry Assemblies
- C. Section 04820 – Reinforced Unit Masonry Assemblies

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit the following:
 - 1. Masonry and pointing mortars including materials and mixes.
 - 2. Masonry grout including materials and mixes
 - 3. Anchors
 - 4. Reinforcing
 - 5. Each type of masonry accessories
 - 6. Masonry cleaning agents
 - 7. Other proprietary products
- C. Mix Designs, Mortars and Grouts: Submit mix designs showing compliance with referenced standards for strengths specified.
- D. Samples: Submit following:
 - 1. Mortar: Identify samples with mortar strength, type of mortar, and identifying name or model number. Submit with mix design, including amount and type of pigment or colorant.
- E. Informational Submittals: Submit the following packaged separately from other submittals:
 - 1. Test Reports:
 - a. Test reports for each type of mortar and grout, from independent testing laboratory certifying that materials meet or exceed specified requirements.
- F. Manufacturer's Instructions: Submit packaged dry mortar manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

- A. Single Source Responsibility: Obtain mortar ingredients from one manufacturer for each cementitious component and from one source and producer for aggregate.

- B. Regulatory Requirements: Ensure that mortar and grout components comply with applicable portions of local, state, and federal codes, laws and ordinances for flame spread and smoke developed indices.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Section 01600
- B. Mortar and Grout Materials: Store, handle and protect packaged products against contamination and moisture.
 - 1. Stockpile and handle aggregates to prevent contamination from foreign materials.
 - 2. Store admixtures to prevent contamination or damage from excessive temperature changes.
 - 3. Keep water free from harmful materials.
- C. Accessories: Protect from damage, moisture, weather, distortion, corrosion and from being coated with foreign materials.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products related to this section that may be incorporated into the Work are not limited

2.02 ACCESSORIES

- A. Horizontal Joint Reinforcing: Standard ladder design, fabricated from ASTM A82 cold drawn steel wire.
 - 1. Side Rods: Typically two continuous nine (9) gauge deformed side rods at CMU, butt welded in same plane to continuous perpendicular nine (9) gauge plain cross rod at sixteen (16) inches on center maximum spacing.
 - 2. Size: Standard length ten (10) to twenty (20) feet; side rods spaced approximately two (2) inches less than width of partition or wall in which placed.
 - 3. Finish: Exterior walls; ASTM A153, Class B-2, (minimum 1.5 OZ/SQ FT zinc coating) hot dip galvanized.
 - 4. Provide prefabricated tee and corner units.
- B. Flexible Anchors Masonry to Steel: Two piece adjustable type.
 - 1. Size: Nine (9) inches long plain one quarter (1/4) inch diameter steel wire or three quarter (3/4) inch wide by twelve (12) gauge by nine (9) inches long steel weld on anchor rod with three eighths (3/8) inch offset and four (4) inches vertical adjustment, to accept triangular or rectangular shaped three sixteenth (3/16) inch diameter galvanized wire ties of appropriate lengths.
 - 2. Finish: ASTM A153, Class B-2, minimum 1.5 OZ/SQ FT zinc coating
- C. Clip-on Column Flange Anchors: Clip-on for use between steel column and adjoining masonry
 - 1. Size: one eighth (1/8) thick by one and one quarter (1-1/4) inch

wide by length required to extend to center core of masonry unit.

2. Finish: ASTM A153, Class B-2, minimum 1.5 OZ/SQ FT zinc coating
- D. Zee Strap Anchors: Zee shaped bent hot rolled steel.
1. Size: one (1) inch wide by one quarter (1/4) inch by two (2) inches long with ends turned three (3) inches minimum.
 2. Finish: ASTM A153, Class B-2, minimum 1.5 OZ/SQ FT zinc coating
- E. Veneer Anchor Assembly shall consist of:
Co-polymer coated, one-piece carbon steel screw factory assembled to a type 304 stainless steel barrel with a plastic wing nut and a stainless steel metal backed neoprene washer. The anchor overall length to suit wall construction.
- F. Veneer Wire Assembly shall consist of:
Wire Tie to be made of 3/16" diameter wire Hot dip Galvanized conforming to ASTM A 153 Class B-2, Embed wire ties a minimum of 1-1/2" into the veneer masonry wall mortar bed, with at least 5/8" mortar or grout cover to the outside face.
- G. Reinforcing Bars: As per Structural drawings.
1. Maximize use of recycled scrap steel with minimum of 60 percent.
- H. Vertical Control Joint Fillers: Closed cell neoprene, ASTM D1056, Class 2A1
1. Compatible with sealant
 2. Size: Thickness to suit joint size, depth to allow sealant and backer material application
 3. Locations:
 - a. In long, straight walls at a minimum of twenty (20) feet o.c.
 - b. At abrupt changes in wall thickness or height
 - c. At chases for pipes, fixtures, etc.
 - d. On one or both sides of wall openings
 - e. At bond beam breaks
 - f. At abutment of walls and columns or pilasters
 - g. At wall intersections in main walls or partitions
 - h. At construction joints in foundations, roofs or floors
 - i. At return angles in "L," "T" or "U"-shaped structures
 - j. When brick or stone veneer is applied to block
- I. Horizontal Expansion Joint Fillers: Closed cell neoprene, ASTM D1056, Class 2A1
1. Compatible with sealant
 2. Self adhering on one side
 3. Size: Thickness to suit joint size, depth to allow sealant and backer material application

4. Locations:
 - a. In long, straight walls at a minimum of twenty (20) feet o.c.
 - b. At abrupt changes in wall thickness or height
 - c. At chases for pipes, fixtures, etc.
 - d. On one or both sides of wall openings
 - e. At bond beam breaks
 - f. At abutment of walls and columns or pilasters
 - g. At wall intersections in main walls or partitions
 - h. At construction joints in foundations, roofs or floors
 - i. At return angles in "L," "T" or "U"-shaped structures
 - j. When brick or stone veneer is applied to block
 - k. Horizontal expansion or deflection joints at head of masonry terminating below shelf angles, beams, or slabs; other locations as detailed BY Structural Engineer

 - J. CMU Control Joint Strips: Preformed rubber compound to fit standard sash block
 1. ASTM D2000, Designation 2AA-805
 2. Hardness: 80

 - K. Masonry Cleaning Agents: Non acidic cleaning solution formulated to avoid damage to masonry, mortar, mortar color, and adjacent surfaces.
 1. Material and application must be acceptable to masonry and mortar color manufacturer.

 - L. Dampproofing: See section 07110

 - M. Concealed Masonry Lintel System: Fabricated of hot dipped galvanized steel plates, channels, rods, and anchors. Provide fasteners of size, spacing, and type as recommended by system manufacturer for conditions encountered.
- 2.03 MASONRY FLASHING MATERIALS
- A. Flashing Accessories:
 1. Masonry Flashing Mastic: Compatible with flashing and with masonry materials to form watertight bond.
 2. Provide solders, sealants, and mastics as required by flashing manufacturer to maintain flashing joints and endams watertight.
- 2.04 MORTAR AND GROUT MATERIALS
- A. Mortar: Limit cementitious materials to Portland cement and hydrated lime
 1. ASTM C270 using Proportion Method or BIA M1 Proportion Method
 2. Use Type M for masonry below grade and in contact with soils, and where indicated
 3. Use Type S mortar for load bearing structural walls
 4. Use Type N for all other locations, unless noted otherwise

 - B. Mortar Mixing: Add only enough water to dry mix ingredients to produce damp, workable mix. Keep mortar in dampened condition for no longer

than one (1) to two (2) hours. Do not retemper mortar.

1. Mix mortar and grout properly using specified materials to achieve strengths specified.
- C. Site Mixed Mortar: Combine and thoroughly mix cement, aggregates, admixtures, and water in mechanical batch mixer. Use proportion measuring method to ensure accuracy and consistency; shovel method is not acceptable.
- D. Mix admixtures in accordance with methods and proportions indicated by manufacturer's instructions that will not reduce mortar strength.
- E. Masonry Grout: Do not add admixtures such as coloring pigments, air entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 1. ASTM C476, fine aggregate in spaces less than two (2) inches
 2. Proportion to produce specified compressive strength in twenty eight (28) days with specified slump when placed.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine conditions and proceed with work in accordance to Section 01400
 1. Verify items provided by other Sections of work are properly sized and located
 2. Examine supporting members to ensure surfaces are at proper elevation and are free from dirt or other deleterious matter

3.02 PREPERATION

- A. Dovetail Anchor Slots: Supply to other trades for installation. Coordinate placement

3.03 INSTALLATION

- A. General: See other Division 4 Sections

END OF SECTION 04050

SECTION 04065 - MORTAR AND MASONRY GROUT

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Mortar for masonry.
- B. Grout for masonry.

1.02 RELATED SECTIONS

- A. Section 04900 - Masonry Restoration and Cleaning: Bedding and pointing mortar for masonry restoration work.
- B. Section 04810 - Unit Masonry Assemblies: Installation of mortar and grout.
- C. Section 04811 - Single-Wythe Unit Masonry: Installation of mortar and grout.
- D. Section 04820 - Reinforced Unit Masonry Assemblies: Installation of mortar and grout.
- E. Section 08110 - Steel Doors and Frames: Products and execution for grouting steel door frames installed in masonry.
- F. Section 02640 - Manholes and Covers: Installation of mortar and grout.

1.03 REFERENCES

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements For Masonry Structures; American Concrete Institute International; 2005.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; American Concrete Institute International; 2005.
- C. ASTM C 5 - Standard Specification for Quicklime for Structural Purposes; 2003.
- D. ASTM C 91 - Standard Specification for Masonry Cement; 2005.
- E. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.
- F. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
- G. ASTM C 150 - Standard Specification for Portland Cement; 2005.
- H. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
- I. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2007.
- J. ASTM C 387/C 387M - Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete; 2006a.
- K. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2006.
- L. ASTM C 476 - Standard Specification for Grout for Masonry; 2002.

- M. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2006a.
- N. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete; 2005.
- O. ASTM C 1019 - Standard Test Method for Sampling and Testing Grout; 2005.
- P. ASTM C 1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2006.
- Q. ASTM C 1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995 (Reapproved 2001).
- R. ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2003b.
- S. ASTM E 518 - Standard Test Methods for Flexural Bond Strength of Masonry; 2003.
- T. IMIAWC (CW) - Recommended Practices & Guide Specifications for Cold Weather Masonry Construction; International Masonry Industry All-Weather Council; 1993.
- U. IMIAWC (HW) - Recommended Practices & Guide Specifications for Hot Weather Masonry Construction; International Masonry Industry All-Weather Council; current edition.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C 270 is to be used. Also include required environmental conditions and admixture limitations.
- C. Reports: Submit reports on mortar indicating conformance of mortar to property requirements of ASTM C 270 and test and evaluation reports per ASTM C 780.
- D. Reports: Submit reports on grout indicating conformance of component grout materials to requirements of ASTM C 476 and test and evaluation reports to requirements of ASTM C 1019.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Manufacturer's Instructions: Submit packaged dry mortar manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.
 - 1. Maintain one copy of each document on project site.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Maintain packaged materials clean, dry, and protected against dampness,

freezing, and foreign matter.

1.07 FIELD CONDITIONS

- A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Typical Masonry Cement: ASTM C 91, Type N.
- B. Typical Portland Cement: ASTM C 150, Type I - Normal; color as required to produce approved color sample.
- C. Typical Packaged Dry Mortar: ASTM C 387/C 387M, Type N, using gray color cement.
- D. Hydrated Lime: ASTM C 207, Type S.
- E. Quicklime: ASTM C 5, non-hydraulic type.
- F. Mortar Aggregate: ASTM C 144.
- G. Grout Aggregate: ASTM C 404.
- H. Water: Clean and potable.
- I. Accelerating Admixture: Nonchloride type for use in cold weather.
- J. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

2.02 MORTAR MIXES

- A. Ready Mixed Mortar: ASTM C 1142, Type RM.
- B. Mortar for Unit Masonry: ASTM C 270, Property Specification.
 - 1. Masonry below grade and in contact with earth: Type M.
 - 2. Exterior, load bearing masonry: Type S.
 - 3. Exterior, non-load bearing masonry: Type N.
 - 4. Interior, load bearing masonry: Type S.
 - 5. Interior, non-load bearing masonry: Type N.
 - 6. Pointing mortar: Type N with maximum 2 percent ammonium stearate or calcium stearate per cement weight.

2.03 MORTAR MIXING

- A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C 270 and in quantities needed for immediate use.
- B. Maintain sand uniformly damp immediately before the mixing process.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, re-temper only within two hours of mixing.

2.04 GROUT MIXES

- A. Bond Beams and Lintels: As per Structural Drawings.

1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
 2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
- B. Engineered Masonry: As per Structural drawings.
1. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
 2. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
- 2.05 GROUT MIXING
- A. Mix grout in accordance with ASTM C 94/C 94M.
 - B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C 476 for fine and coarse grout.
 - C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.
 - D. Do not use anti-freeze compounds to lower the freezing point of grout.
- 2.06 PRECONSTRUCTION TESTING
- A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01410.
 - B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C 780 recommendations for preconstruction testing.
 1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.
 - C. Grout Mixes: Test grout batches in accordance with ASTM C 1019 procedures.
 1. Test results will be used to establish optimum grout proportions and establish quality control values for construction testing.

PART 3 – EXECUTION

- 3.01 PREPARATION
- A. Apply bonding agent to existing concrete surfaces.
 - B. Plug clean-out holes for grouted masonry with brick masonry units. Brace masonry to resist wet grout pressure.
- 3.02 INSTALLATION
- A. Install mortar and grout to requirements of Structural Drawings.
 - B. Work grout into masonry cores and cavities to eliminate voids.
 - C. Do not displace reinforcement while placing grout.
 - D. Remove excess mortar from grout spaces.
- 3.03 GROUTING
- A. Use either high-lift or low-lift grouting techniques, subject to other limitations of Structural Drawings.
- 3.04 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field tests, in accordance with provisions of Section 01410.
- B. Test and evaluate mortar in accordance with ASTM C 780 procedures.
 - 1. Test with same frequency as specified for masonry units.
- C. Test and evaluate grout in accordance with ASTM C 1019 procedures.
 - 1. Test with same frequency as specified for masonry units.
- D. Prism Tests: Test masonry and mortar panels for compressive strength in accordance with ASTM C 1314, and for flexural bond strength in accordance with ASTM C 1072 or ASTM E 518; perform tests and evaluate results as specified in individual masonry sections.

END OF SECTION 04065

SECTION 04810 - UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Concrete Block.
- B. Reinforcement and Anchorage.
- C. Flashings.
- D. Lintels.
- E. Accessories.

1.02 RELATED SECTIONS

- A. Section 03200 - Concrete Reinforcement: Reinforcing steel for grouted masonry.
- B. Section 04065 - Mortar and Masonry Grout.
- C. Section 05500 - Metal Fabrications: Loose steel lintels.
- D. Section 06100 - Rough Carpentry: Nailing strips built into masonry.
- E. Section 07110 - Dampproofing: Dampproofing below grade masonry surfaces.
- F. Section 07840 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.
- G. Section 07910 - Joint Sealers: Backing rod and sealant at control and expansion joints.

1.03 REFERENCES

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2005.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2005.
- C. ASTM A 82/A 82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2005a.
- D. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2006b.
- E. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2006.
- F. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2006.
- G. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2006.
- H. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2006a.
- I. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.;

current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- C. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.
- D. Maintenance Materials:
 - 1. See Section 01600 - Product Requirements, for additional provisions.
 - 2. Provide 50 of each size, color, and type of glazed units for Washington County's use in maintenance of project.

1.06 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.
 - 1. Maintain one copy of each document on project site.

1.07 MOCK-UP

- A. Construct a masonry wall as a mock-up panel sized 8 feet long by 6 feet high; include mortar and accessories and structural backup in mock-up.
- B. Locate where directed.
- C. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 – PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Concrete Block: Comply with referenced standards and as follows:
 - 1. Size: Standard units with nominal face dimensions and nominal depths as indicated on the drawings for specific locations.
 - 2. Load-Bearing Units: ASTM C 90, normal weight.
 - a. Hollow block, as indicated.
 - b. Exposed faces: Manufacturer's standard color and texture where indicated.
 - c. Pattern: Vertical single score.
 - 3. Non-Loadbearing Units: ASTM C 129.
 - a. Hollow block, as indicated.
 - b. Lightweight.

2.02 MORTAR AND GROUT MATERIALS

- A. Mortar and grout: As specified in Section 04065.
- B. Grout Aggregate: ASTM C 404.

2.03 REINFORCEMENT AND ANCHORAGE

- A. Reinforcing Steel: Type and size as indicated on drawings; galvanized finish.
- B. Single Wythe Joint Reinforcement: Standard ladder design, fabricated from ASTM A82 cold drawn steel wire dipped galvanized to ASTM A153, Class B-2; Typically two continuous nine (9) gauge deformed side rods at CMU, butt welded in same plane to continuous perpendicular nine (9) gauge plain cross rod at sixteen (16) inches on center maximum spacing.
- C. Multiple Wythe Joint Reinforcement: Truss type; fabricated with moisture drip; ASTM A 82/A 82M steel wire, hot dip galvanized after fabrication to ASTM A 153/153M, Class B; Typically two continuous nine (9) gauge deformed side rods at CMU, butt welded in same plane to continuous perpendicular nine (9) gauge plain cross rod at sixteen (16) inches on center maximum spacing.; width as required to provide not more than 1 inch and not less than 1/2 inch of mortar coverage on each exposure.

2.04 FLASHINGS

- A. Rubberized Asphalt Flashing: Self-adhering polymer-modified asphalt sheet; 0.030 inch total thickness; with cross-linked polyethylene top and bottom surfaces.
- B. Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 coating, 24 gage total thickness.
- C. Lap Sealant: Butyl type as specified in Section 07900.

2.05 ACCESSORIES

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
- B. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; 3/8 inch wide x by maximum lengths available.
- C. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 06100.
- E. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

- 3.02 PREPARATION
- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
 - B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.
- 3.03 COLD AND HOT WEATHER REQUIREMENTS
- A. Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.
- 3.04 COURSING
- A. Establish lines, levels, and coursing indicated. Protect from displacement.
 - B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
 - C. Concrete Masonry Units:
 - 1. Bond: Running.
 - 2. Coursing: One unit and one mortar joint to equal 8 inches.
 - 3. Mortar Joints: Concave.
- 3.05 PLACING AND BONDING
- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
 - B. Lay hollow masonry units with face shell bedding on head and bed joints.
 - C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
 - D. Remove excess mortar and mortar smears as work progresses.
 - E. Interlock intersections and external corners, except for units laid in stack bond.
 - F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
 - G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
 - H. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.
 - I. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.
 - J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.
- 3.06 CAVITY MORTAR CONTROL
- A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.
 - B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.

- C. Install cavity mortar control panels continuously throughout full height of exterior masonry cavities during construction of exterior wythe, complying with manufacturer's installation instructions. Verify that airspace width is no more than 3/8 inch greater than panel thickness. Install horizontally between joint reinforcement. Stagger end joints in adjacent rows. Fit to perimeter construction and penetrations without voids.
- D. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.07 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.
- E. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches on center.
- F. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

3.08 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

- A. Install horizontal joint reinforcement 8 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.
- E. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches on center.

3.11 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
 - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
 - 3. Seal lapped ends and penetrations of flashing before covering with

mortar.

- B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install joint sealer below drip edge to prevent moisture migration under flashing.
- C. Extend plastic, laminated, and EPDM flashings to within 1/4 inch of exterior face of masonry.
- D. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

3.12 LINTELS

- A. Install loose steel lintels over openings.
- B. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.
 1. Openings to 42 inches: Place two, No. 3 reinforcing bars 1 inch from bottom web.
 2. Openings from 42 inches to 78 inches: Place two, No. 5 reinforcing bars 1 inch from bottom web.
 3. Openings over 78 inches: Reinforce openings as detailed.
 4. Do not splice reinforcing bars.
 5. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
 6. Place and consolidate grout fill without displacing reinforcing.
 7. Allow masonry lintels to attain specified strength before removing temporary supports.
- C. Maintain minimum eight (8) inch bearing on each side of opening.

3.13 GROUTED COMPONENTS

- A. Reinforce bond beams as indicated on Drawings.
- B. Reinforce columns as indicated on Drawings.
- C. Lap splices minimum 24 bar diameters.
- D. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- E. Place and consolidate grout fill without displacing reinforcing.
- F. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.14 CONTROL AND EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcement through control and expansion joints.
- B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
- C. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- D. Size control joint in accordance with Section 07900 for sealant

performance.

- E. Form expansion joint as detailed.

3.15 BUILT-IN WORK

- A. As work progresses, install built-in metal door frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
 - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

3.16 TOLERANCES

- A. Maximum Variation from Alignment of Columns: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.17 CUTTING AND FITTING

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.18 PARGING

- A. Dampen masonry walls prior to parging.
- B. Scarify each parging coat to ensure full bond to subsequent coat.
- C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch.
- D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot.
- E. Strike top edge of parging at 45 degrees.

3.19 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01400.

- B. Clay Masonry Unit Tests: Test each variety of clay masonry in accordance with ASTM C 67 requirements, sampling 5 randomly chosen units for each 50,000 installed.
 - C. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C 140 for conformance to requirements of this specification.
 - D. Mortar Tests: Test each type of mortar in accordance with ASTM C 780, testing with same frequency as masonry samples.
- 3.20 CLEANING
- A. Remove excess mortar and mortar droppings.
 - B. Replace defective mortar. Match adjacent work.
 - C. Clean soiled surfaces with cleaning solution.
 - D. Use non-metallic tools in cleaning operations.
- 3.21 PROTECTION
- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION 04810

SECTION 04930 – MASONRY CLEANING

PART 1 – GENERAL

- 1.01 SECTION INCLUDES
 - A. New Masonry Cleaning.
 - B. Existing Masonry Cleaning.
 - C. Paint Removal.
- 1.02 RELATED SECTIONS
 - A. Section 03900 - Concrete Restoration and Cleaning: Cleaning, repair and replacement of adjacent or associated concrete Work.
 - B. Section 04060 - Masonry Mortar: Requirements for re-pointing mortar joints.
 - C. Section 04910 - Unit Masonry Restoration: Repair and replacement of unit masonry.
 - D. Section 07190 - Water Repellants: Application of water repellent.
- 1.03 SUBMITTALS
 - A. Submit under provisions of Section 01300.
 - B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - C. Shop Drawings:
 - 1. Submit plan, section, elevation and perspective drawings as required to accurately depict the Work specified in this section.
 - 2. Coordinate Work with locations referenced on the Contract Drawings.
 - D. Selection Samples: For each finish product specified, two samples representing manufacturer's full range of available colors and sheens.
 - E. Verification Samples: For each finish product specified, two samples representing actual product, color, and sheen.
- 1.04 QUALITY ASSURANCE
 - A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.

- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.07 WARRANTY

- A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

PART 2 - PRODUCTS

2.01 NEW MASONRY CLEANING

- A. Masonry Detergent: A combination of organic and inorganic acids, wetting agents and inhibitors for use in the final clean up of new masonry.
 - 1. Dilution - Concrete and Clay block: 4 parts water.
 - 2. Dilution - Hard Burned Pink, Salmon and Tan Brick: 6 parts water.
 - 3. Dilution - Exposed Aggregate Concrete: 6 parts water.
 - 4. Dilution - Structural Tile (Unglazed): 6 parts water.
 - 5. Dilution - Red Brick: 6 to 8 parts water.
 - 6. Dilution - Sandstone, Ohio Bluestone and Other Porous Stones: 8 parts water.
 - 7. Dilution - Specialty Prefaced Concrete Block and Tile: 8 parts water.
 - 8. Dilution - Smooth Finished Precast and Cast-In-Place Concrete: 10 parts water
 - 9. Dilution - Polished Granite and Marble: 20 parts water -

Caution: 202 New Masonry Detergent might etch a polished stone surface. Great care must be exercised and testing conducted to ensure etching will or will not occur.

10. Dilution - Structural And Ceramic Glazed Tile and Brick: 10 to 12 parts water.

- B. Concrete Brick & Burnished Masonry Cleanser: A non-etching product specifically formulated to remove construction dirt and atmospheric staining from custom masonry and other concrete surfaces and colored mortar.
 - 1. Dilution - Exposed Aggregate/Removal of Retarder, Efflorescence: 2 parts water.
 - 2. Dilution - Burnished/Custom Masonry, Concrete Block, Slump Brick: 3 parts water.

PART 3– EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

- A. Perform application procedures in accordance with manufacturer's instructions.

3.04 CLEANING

- A. Remove protection of adjacent Work and temporary coverings. Repair or replace damaged Work prior to project closeout.
- B. Prior to project closeout, remove construction refuse and recycling from project. Dispose of debris as required by local law.

3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 04930

SECTION 05050 – BASIC METAL MATERIALS AND METHODS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. This section applies to all miscellaneous and ornamental metals that receive exterior exposure, such as handrails, guardrails, bollards, exterior metal stairs, gratings, ladders, trellises, and exposed structural elements such as shelf angles, etc.

1.02 RELATED SECTIONS

- A. Section 05051 – Shop Applied Coatings for Metal
- B. Section 05052 – Metal Fastenings
- C. Section 05053 – Security Metal Fastenings
- D. Section 05120 – Structural Steel
- E. Section 05210 – Steel Joist
- F. Section 05300 – Metal Decking
- G. Section 05400 – Cold Formed Metal Framing
- H. Section 05515 – Metal Ladders
- I. Section 05520 – Metal Railings
- J. Section 05810 – Expansion Joint Covers

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings; Indicate standard designations, metal coding, configurations, sizes, spacing, cambers, locations, extensions, bridging, connections, and attachments.
- C. Welders' Certificates: Submit manufacturer's certificates, certifying welders employed on the Work, verifying AWS qualifications within the previous twelve (12) months.

1.05 QUALITY ASSURANCE

- A. Design connections not detailed on drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Mississippi
- B. Perform Work, including that for headers and other supplementary framing, in accordance with SJI Standard Specification Load Tables and SJI technical Digest No. 9
- C. Design and Installation Requirements: Conform to all applicable UL Assembly Design requirements.
- D. Manufacturer Qualifications: Company specializing in performing the

work with a minimum of five (5) years documented experience.

- E. Erector Qualifications: Company specializing in performing the work with a minimum of five (5) years documented experience.

1.06 CORROSION RESISTANCE

- A. All metals with exterior exposure must be hot dip galvanized, corrosion-resistant materials. Miscellaneous electrical items such as conduits and brackets must also be corrosion-resistant or plastic, if permitted by code.
- B. Steel elements exposed on the interior of masonry wall cavities must also be made of corrosion-resistant, or shielded from the wall cavity with self-adhered waterproofing membrane.
- C. Metal items embedded in masonry, stone, or concrete may only be, galvanized steel. All fasteners used in stone, masonry, or concrete must also be galvanized steel. Do not cast pipe sleeves into exterior concrete unless they are galvanized steel, with stainless steel fasteners extending into the concrete.
- D. For high-humidity environments where condensation is expected, where chloride ion is present, follow more stringent guidelines appropriate for highly corrosive environments. The guidelines of this section do not apply to high-humidity or corrosive environments.
- E. Galvanized metal intended for painting must be prepared properly to receive paint; see related Painting sections.

1.07 OTHER CONSIDERATIONS

- A. Exposed Fasteners – Avoid exposed fasteners in locations accessible to the public. Where it is necessary to use fasteners, use tamper-proof type.
- B. Thermal Movement – Avoid long, continuous runs of handrail, angles, or other items subject to thermal cycling. Divide long runs into a series of shorter sections, each no longer than 40-50 feet.
- C. Structural Attachment - Attach metal items directly to supporting structural elements such as concrete slabs, structural steel, footings, or brackets extending to the building structure. Do not make primary attachments to brick or stone veneer, metal studs, curtain wall, or other secondary elements unless calculations show that these elements are capable of withstanding the load and transmitting it to primary structural elements. Do not attach handrails through gypsum or other friable material; provide rigid steel collars against which to tighten the fasteners.
- D. Cap Watertight – Use watertight welds to fully seal the ends of all hollow objects, such as tubes and pipes, so that they cannot collect water or condensation, or become a conduit for water or condensation. If the geometry of the piece does not permit fully sealing the ends, use a different geometry that does not create internal spaces where water can collect, that cannot be effectively hot-dip galvanized and painted.

- E. Grout all base plates solid after installation. Pack the grout tight to ensure that no voids remain. Do not leave plastic or metal shims exposed in the finished work. Use non-metallic, non-shrink grout.

PART 2 – PRODUCTS

2.01 GALVANIZED STEEL

- A. Galvanizing - ASTM A123. Galvanize all assemblies after fabrication to the greatest extent practical. Avoid the need to make field welds, which destroy the coating. Instead, use bolts or concealed fasteners to join sections in the field. Where field welding is unavoidable, grind all welds smooth and touch up with paint per ASTM A 780
- B. Painted Galvanizing – Apply epoxy shop primer within 12 hours of galvanizing, min. 3 mils thickness,
- C. Aluminum Extrusions, ASTM B221, alloy 6063-T6

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 05050

SECTION 05051 – SHOP APPLIED COATINGS FOR METAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated ferrous metal items, galvanized and prime-painted.
- B. Rough hardware.
- C. Miscellaneous framing and supports for the following:
 - 1. Aluminum handrails and railings.
 - 2. Steel door and frames.
 - 3. Aluminum-framed store-fronts and entrances.
 - 4. Aluminum windows.
 - 5. Louvers and vents.
 - 6. Wall and corner guards.
 - 7. All miscellaneous and ornamental

1.02 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications
- B. Section 05520 - Metal Railings
- C. Section 08120 – Hollow Metal Frames
- D. Section 08130 – Hollow Metal Doors
- D. Section 08410 - Aluminum Storefronts
- E. Section 08510 – Hollow Metal Windows
- F. Section 09900 – Paints and Coatings
- G. Section 10200 - Louvers and Vents

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit Product Data including Manufacturer's "SpecData" product sheet.
- C. Samples for Verification: Submit for each color, type and finish of Coating for review and acceptance for conformance to design intent by the Architect.

1.05 QUALITY ASSURANCE

- A. Paint and/or Powder Coating Manufacturer Qualifications: Must be Licensee of polyvinylidene (PVDF) resin manufacturer experienced in producing resin-based Coatings similar to those indicated for this Project with a record of successful in-service performance and with sufficient production capacity to produce required units without delaying the Work.

- B. Applicator Qualifications: Applicator experienced in performing work of this Section who has specialized in the application of work similar to that required for this project. Applicator shall be an approved applicator by one or more of the authorized Licensees.
- C. Certification: To insure that Coating-formulation being supplied contains the required minimum of seventy-percent (70%) by-weight of polyvinylidene fluoride (PVDF) resin based upon the total weight of resins present, a Letter-of-Certification from the Licensee is required.
- D. Single-Source Limitations: Obtain paint or powder Coating through one source from a single manufacturer.

1.06 APPLICABLE STANDARDS

- A. Polyvinylidene fluoride (PVDF) as the major vehicle (base resin) in liquid and powder Coatings shall comply with the following Standards:
 - 1. AAMA 2605-98 - Superior Performance Organic Coatings on Aluminum Extrusions and Panels as provided by the American Architectural Manufacturers Association.
 - 2. AAMA 609 & 610-02 - Cleaning and Maintenance of Painted Aluminum Extrusions and Curtain Wall Panels.
 - 3. American Society for Testing & Materials (ASTM):
 - a. ASTM B117-95 - Operating Salt Spray (Fog) Apparatus.
 - b. ASTM B244-79 - Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments.
 - c. ASTM B244-79 - Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments.
 - d. ASTM D523-89 - Specular Gloss.
 - e. ASTM D968-93 - Abrasion Resistance of Organic Coatings by Falling Abrasive.
 - f. ASTM D1308-87 - Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
 - g. ASTM D2244-93 - Calculation of Color Differences From Instrumentally Measured Color Coordinates.
 - h. ASTM D2247-94 - Testing Water Resistance of Coatings in 100% Relative Humidity.
 - i. ASTM D2248-93 - Detergent Resistance of Organic Finishes.
 - j. ASTM D2794-93 - Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
 - k. ASTM D3359-95a - Measuring Adhesion by Tape Test.
 - l. ASTM D3363-92a - Film Hardness by Pencil Test.
 - m. ASTM D4214-89 - Evaluating the Degree of Chalking of Exterior Paint Films.
 - n. ASTM D4585-92 - Testing Water Resistance of Coatings Using Controlled Condensation.

- o. National Coil Coaters Association (NCCA) - NCCA Publication Coil Coated Metal Building Panels-Care and Maintenance.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering systems that may be incorporated into the Work are not limited. Specifications are based on “Kynar 500” as manufactured by Arkema, Inc. Subject to compliance with requirements, Manufacturers offering Coatings containing minimum-70%-by-weight “Kynar 500” PVDF resin which may be incorporated into the Work are as follows but are not limited to:
 1. Akzo Nobel Coatings; (800-294-3361) www.azkonobel.com.
 2. BASF Corporation; (800) 758-2273 www.basf.com.
 3. Becker Industrial Coatings; (413) 743-0963 www.coilCoatings.com.
 4. PPG Industries, Inc.; (888) 774-7732 www.ppg.com.
 5. Rohm and Haas; (800) 367-3318 www.rohm-haas.com.
 6. The Valspar Corp.; (800) 328-8044 www.valspar.com.

2.02 MATERIALS

- A. Description: Materials shall mean liquid or powder Coating compositions (eg. Coating) containing a minimum-seventy-percent (70%) by-weight of “Kynar 500” polyvinylidene fluoride (PVDF) resin based upon the total weight of resins present in Coating.
- B. Performance Standard: Provide “KYNAR 500” PVDF resin-based Coatings in accordance with AAMA 2605-98.
- C. Product(s) Testing: Shall comply with AAMA 2605-98.
- D. Material Standard: Shall comply with AAMA 2605-98.
- E. Coating Composition: Coating composition shall be as described in “A” above and shall exhibit the following superior attributes:
 1. Color retention.
 2. Chalk resistance.
 3. Corrosion resistance.
 4. Flexibility.
 5. Stain resistance.
 6. Overall exterior durability.
- F. Factory-Applied Liquid and Powder Coating: Coatings containing “KYNAR 500” PVDF resin are factory-applied to properly cleaned, pretreated and primed metal substrates and then ovenbaked.
- G. “KYNAR 500” PVDF resin-based Coating finishes are formulated by the Licensed Formulators (“Manufacturers”) and contain, in addition to “KYNAR 500” PVDF resin, other resins, solvents and high quality pigments.

- H. Coating Color: Shall be from Standard Colors of each Licensee. Custom Colors and Exotics shall be as available through each Licensee Manufacturer.
- I. Coating Texture: Texture Finishes shall be as available through each Licensee Manufacturer.
- J. Compatibility with Sealants and Caulking: **“KYNAR 500”** PVDF resin-based Coatings can be used in conjunction with conventional sealants and caulking compounds. Consult Sealant or Caulking Manufacturer for specific recommendations prior to installation.
- K. Coating Limitations:
 - 1. All finishes must be applied by an Authorized Licensee-Approved Applicator.
 - 2. Coatings cannot be field-applied (see Part 3, Article 3.4).
 - 3. Coating is generally limited to application on the following substrates:
 - a. Aluminum.
 - b. Hot-dipped galvanized G-90 steel.
 - c. Fifty-five-percent (55%) aluminum-zinc alloy coated steel.
 - 4. Spray application of Coatings is generally limited to aluminum substrates only.
 - 5. Application to hot or cold-rolled steel or any other structural steel product is not recommended.

2.03 PHYSICAL/CHEMICAL PROPERTIES

A. TABLE 1: **“KYNAR 500”** PVDF RESIN-BASED COATING SYSTEM PERFORMANCE

<u>Property</u>		<u>Performance</u>
Color uniformity		Meets or exceeds specification.
Specular gloss,	ASTM D 523	Medium gloss.
Dry film hardness,	ASTM D 3363	Meets or exceeds specification.
Dry film adhesion,	ASTM D 3359	No adhesion loss.
Wet film adhesion,	ASTM D 3359	No adhesion loss.
Boiling water adhesion,	ASTM D 3359	No adhesion loss.
Impact resistance,	ASTM D 2794	No cracking or adhesion loss.
Abrasion resistance,	ASTM D 968	Meets or exceeds specification.
Muriatic acid resistance,	ASTM D1308	No effect.
Mortar resistance		No effect.
Nitric acid resistance		Meets or exceeds specification.
Detergent resistance,	ASTM D2248	No effect.
Humidity resistance,	ASTM D 2247	Meets or exceeds specification.
	ASTM D 4585	Meets or exceeds specification.
Salt spray resistance,	ASTM B 117	Meets or exceeds specification.
Color retention,	ASTM D 2244	Meets or exceeds specification.
Chalk resistance,	ASTM D 4214	Method D659 meets or exceeds specification.
Gloss retention,	ASTM D 523	Meets or exceeds specification.
Erosion resistance,	ASTM B 244	Meets or exceeds specification.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Compliance: Comply with Manufacturer’s Product Data, including product technical bulletins and application instructions.

3.02 PREPARATION

- A. Surface Preparation Prepare substrate to receive Coating in accordance with Authorized Licensee Instructions.

3.03 APPLICATION

- A. Coil Application: Apply “Kynar 500” PVDF resin-based Coating by coil application method to substrates in accordance with Authorized Licensee’s recommended mil thickness.
- B. Spray Application: Apply “Kynar 500” PVDF resin-based Coating by spray application method to substrates in accordance with Authorized Licensee’s recommended mil thickness.

3.04 REPAIR, CLEANING AND PROTECTION

- A. Repair: Repair or replace damaged installed products.
- B. Touch-up: Surface imperfections or minor scratches can be
- C. Construction Cleaning:
 - 1. Clean installed products in accordance with authorized “KYNAR 500” Licensee’s instructions prior to Owner’s acceptance.
 - 2. Remove construction debris from project site and legally dispose of debris.
- D. Protection: Protect installed product’s finish surfaces from damage during construction.

3.05 MAINTENANCE

- A. Maintenance Cleaning: If required, refer to AAMA Specification 609 & 610-02 or NCCA Publication Coil Coated Metal Building Panels — Care and Maintenance as a guide and consult Licensed Formulator.

END OF SECTION 05051

SECTION 05052 - METAL FASTENINGS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Stainless steel self drilling fasteners for attachment of roofing and siding panels and/or panel clips to metal substructures.
- B. Stainless steel self drilling fasteners for attachment of roofing and siding panel components or accessories to metal substructures.
- C. Stainless steel self drilling fasteners for performing sheet metal lap operations, as encountered in roofing and siding panel installation.

1.02 RELATED SECTIONS

- A. Section 05120 – Structural Steel
- B. Section 05210 – Steel Joist
- C. Section 05400 - Cold-Formed Metal Framing.
- D. Section 07540 – PVC Thermoplastic Membrane Roofing
- E. Section 07620 – Sheet Metal Flashing and Trim
- F. Section 08120 – Hollow Metal Frames
- G. Section 08130 – Hollow Metal Doors
- H. Section 08410 – Aluminum Framed Storefronts
- I. Section 08510 – Hollow Metal Windows

1.03 REFERENCES

- A. General: Reference latest edition of applicable codes and standards.
- B. Society of Automotive Engineers (SAE):
 - 1. SAE J-933-05: Mechanical and Quality Requirements for Tapping Screws.
 - 2. SAE J-78-98: Dimensional, Mechanical, and Performance Requirements for Steel Self-Drilling Tapping Screws.
 - 3. SAE J-81-97: Dimensional, Mechanical, and Performance Requirements for Steel Self- Tapping Screws.
 - 4. SAE J429-99: Mechanical and Material Requirements for Externally Threaded Fasteners.
- C. ASTM International (ASTM):

1. ASTM F606-06: Test Method for Determining Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets.
2. ASTM F738M-02: Standard Specification for Stainless Steel Metric Bolts, Screws, and Studs.
3. ASTM A493-95(2004): Standard Specification for Stainless Steel Wire and Wire Rods for Cold Heading and Cold-Forging.
4. ASTM B633-07: Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
5. ASTM B695-04: Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
6. ASTM F593-96(2003): Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
7. ASTM A380-06: Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems.
8. ASTM F1136-04: Standard Specification for Chromium/Zinc Corrosion Protective Coatings for Fasteners (Grade 2).
9. ASTM F1137-00(2006): Standard Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners.
10. ASTM G85-02: Standard Practice for Modified Salt Spray (Fog) Testing.
11. ASTM B117-07A: Standard Practice for Operating Salt Spray (Fog) Apparatus.
12. ASTM D2000-06: Classification System for Rubber Products in Automotive Applications.

1.04 PERFORMANCE REQUIREMENT

- A. Fasteners shall pass 2000 hour salt spray evaluation, per ASTM B117, with no red rust evident on the structural holding threads, shank, heads, or washers of the fasteners.
- B. Fasteners to bear manufacturer's head mark for performance verification.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01300
- B. Product Data
 1. Submit product data in accordance with quality assurance and performance requirements specified herein.

2. Product data to include fastener size, type, materials, load capacities, and installation instructions.

C. Engineering Data

1. Submit test reports and certifications in accordance with quality assurance and performance requirements specified herein.

D. Material Samples:

1. Fasteners: Two of each type with statement of intended use.
2. Closures: One of each type foam closure as required.
3. Clips: Two of each type.

E. Warranty:

1. Submit proposed warranty meeting requirements of this section.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (substrate compositions, ambient conditions, chemical exposures, etc.) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements manufacturers offering metal fasteners that may be incorporated into the Work are not limited.

2.02 MATERIALS

- A. Stainless steel self drilling fasteners with head, threads, and shank made from AISI grade 304 stainless steel, per ASTM specifications A493 and F593; and passivated by a process in accordance with ASTM specifications A380. Fasteners to have a hardened carbon steel drill point to facilitate drilling through the substructure; all threads engaging the substructure must be 304 Stainless Steel.
- B. Stainless steel fasteners and carbon steel drill points to be electronically or mechanically plated in accordance with ASTM specifications B633, B695, and/or F1136 (Grade 2).
- C. Fasteners to be equipped with 304 Stainless Steel or Aluminum washers with a vulcanized grey EPDM sealing element. EPDM sealing element shall conform with ASDM D2000 specifications.
 1. Fasteners for use in wall construction shall have a minimum 12mm (0.472") diameter sealing washer.
 2. Fasteners for use in roof construction shall have a minimum 19mm (0.748") diameter sealing washer.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

3.03 INSTALLATION

- A. Install fasteners per the manufacturer's recommendations and in accordance with applicable code(s).
- B. Do not overload by exceeding the manufacturer's published allowable load values.
- C. Do not over-torque fasteners.
- D. Use proper safety equipment.
- E. Field penetrations into the structural members must be within the manufacturer's allowable guidelines.

3.04 FIELD QUALITY CONTROL

- A. The Architect/Engineer reserves the right to require the fastener manufacturer's representative to demonstrate proper installation procedures for the fasteners, at no extra cost to Owner.
- B. The Architect/Engineer reserves the right to require pull-out, pull-over, or shear tests in order to verify performance of the fastener system, at no extra cost to Owner.

END OF SECTION 05052

SECTION 05501 – MISCELLANEOUS METAL FABRICATIONS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel, aluminum, and miscellaneous metal items.

1.02 RELATED SECTIONS

- A. Section 03300 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 04810 - Unit Masonry Assemblies: Placement of metal fabrications in masonry.
- C. Section 05515 - Metal Ladders.
- D. Section 05520 - Metal Railings.
- E. Section 09900 - Paints and Coatings: Paint finish.

1.03 REFERENCES

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.
- B. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels; 2002.
- C. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2005.
- D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2005.
- E. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- F. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2006a.
- G. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.
- H. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- I. ASTM A 283/A 283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003.
- J. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2006.
- K. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2005.
- L. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2003a.
- M. ASTM B 26/B 26M - Standard Specification for Aluminum-Alloy Sand Castings;

2005.

- N. ASTM B 85 - Standard Specification for Aluminum-Alloy Die Castings; 2003.
- O. ASTM B 177 - Standard Guide for Engineering Chromium Electroplating; 2001 (Reapproved 2006).
- P. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2006.
- Q. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2006.
- R. ASTM B 210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2004.
- S. ASTM B 210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric); 2005.
- T. ASTM B 211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire; 2003.
- U. ASTM B 211M - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire (Metric); 2003.
- V. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2006.
- W. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2006.
- X. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.
- Y. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2006.
- Z. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- AA. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- AB. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Design all metal fabrications under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in Louisiana.

PART 2 – PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.
- C. Plates: ASTM A 283.
- D. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- E. Fasteners: Zinc coated galvanized fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required. Provide tamper proof security type fasteners in all areas accessible to inmates.
- F. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
- G. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B 221 (ASTM B 221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B 209 (ASTM B 209M), 5052 alloy, H32 or H22 temper.
- C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B 210 (ASTM B 210M), 6063 alloy, T6 temper.
- D. Aluminum-Alloy Bars: ASTM B 211 (ASTM B 211M), 6061 alloy, T6 temper.
- E. Aluminum-Alloy Sand Castings: ASTM B 26.
- F. Aluminum-Alloy Die Castings: ASTM B 85.
- G. Bolts, Nuts, and Washers: Stainless steel.
- H. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by intermittent welds and plastic filler.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

- A. Bumper Posts and Guard Rails: As detailed; prime paint finish.
- B. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.
- C. Joist and Equipment Hangers: Strap anchors, fabricated with 14 gage steel; galvanized finish.
- D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- E. Lintels: As detailed; galvanized finish.
- F. Sill Angles for Tempered Glass Railing Assemblies: ASTM A 36/A 36M steel angles with anchoring devices and sizes as indicated in shop drawings for railing assembly, drilled and tapped for fastener types, sizes, and spacing indicated, prime paint finish.
- G. Toilet Partition Suspension Members: Steel channel sections; prime paint finish.

2.05 FINISHES - STEEL

- A. Prime paint all steel items.
 - 1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for primed and painted finish.
 - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements.
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.
- G. Chrome Plating: ASTM B 177, nickel-chromium alloy, thickness of 3/16" satin finish.

2.06 FINISHES - ALUMINUM

- A. Exterior Aluminum Surfaces: Class I natural anodized.
- B. Interior Aluminum Surfaces: Class I natural anodized.
- C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.
- L. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

2.07 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.

- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated.
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION 05501

SECTION 06050 – BASIC WOOD AND PLASTICS MATERIALS AND METHODS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. General provisions for all labor, material, and equipment necessary to furnish and install all rough carpentry, finish carpentry, and plastics as shown on Drawings and as herein specified.
- B. Work and components include"
 - 1. All rough carpentry, as shown, indicated, or noted on the Drawings
 - 2. Wood grounds and blocking
 - 3. All framing hardware, anchors, clips, etc., required to erect, fasten, and hold all rough hardware.
 - 4. All drilling, tapping, or other means of fastening woodwork to metal or masonry.
 - 5. All finish carpentry as shown, indicated, or noted on the Drawings.
 - 6. All solid surface plastic composites as shown, indicated or noted on the Drawings.

1.02 RELATED SECTIONS

- A. Section 06066 – Plastic Laminate Clad Countertops
- B. Section 06100 – Rough Carpentry
- C. Section 06110 – Wood Sheathing
- D. Section 06200 – Finish Carpentry
- E. Section 06400 – Millwork
- F. Section 09910 – Paints and Coatings

1.03 QUALITY STANDARDS

- A. The grades of materials used shall be defined by the rules of the recognized associations of lumber manufacturers producing the materials specified herein and used in the Work. Where grades of lumber are specified, it shall mean that the best quality of that particular grade shall be required.
- B. "Grade Mark", "Trade Mark", or "Mill Identification Mark", of the Associations having jurisdiction shall appear on each piece of standard yard dimension lumber (not boards), except that shipments may be accompanied by a certificate of inspection identifying the shipment and certifying compliance with the requirements of the specification. This certificate of inspection shall be issued by an agency authorized to grade by the manufacturers' association as responsible for the grading rules of the species involved.
- C. Grading and general requirements of the lumber shall conform to American Lumber Standards "Simplified Practice Recommendation R-16" and Federal Specifications MM-751HJ for lumber Softwood. The grading rules of the following shall govern:
 - 1. Southern Pine – Southern Forest Products Association
 - 2. Plywood – American Plywood Association
 - 3. Treated Wood – American Wood Preservers Association
 - 4. Hardwoods, Particle Board – National Forest Products Association
 - 5. Softwood Lumber – American Lumber Standards Committee

- D. The fasteners for carpentry work shall conform to the following standards as defined by the association:
1. Wood Screws, Inch Series – American National Standards Institute, ANSI B18.6.1
 2. Square and Hex Bolts and Screws, Inch Series – American National Standards Institute, ANSI B18.2.1
 3. Nails, Brads, Staples and Spikes, Wire Cute and Wrought – FS FF-N-105B
 4. Wood Construction Design – National Forest Products Association and Building Officials and Code Administration.
- E. When applicable, fabricate site made finish carpentry items in compliance with recommendations of Quality Standards of Architectural Institute (AWI).
- F. Solid Surfacing Material to be fabricated complying with the product manufacturer's most recent appropriate techniques for fabrication, installation and maintenance.
- G. Solid surface material (SSM) shall consist of reacted monomers and resins, mineral fillers and pigments manufactured in sheets of specific thicknesses. SSM shall be solid, non-porous, homogeneous, hygienic, renewable, and, when applicable, may feature inconspicuous hygienic seams. SSM shall be free from conspicuous internal strengthening fibers. SSM is typically fabricated using ½" (13 mm) nominal thickness sheets that may be supported by wood or steel members. SSM must meet or exceed performance standards set forth in ISSFA -2-01.
- H. Fabricator Qualifications: certified solid surface fabricator/installer.
- I. Installer Qualifications: Firm experienced in installation or application of systems similar in complexity to those required for this Project, including specific requirements indicated.
- a. Acceptable to or licensed by manufacturer.
- J. Source Limitations: Obtain materials and products from single source.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Store wood products to protect against moisture inside and under cover. Support stacked products to prevent deformation and to allow air circulation.
- B. Store lumber and plywood on sleepers, on edge or on end to prevent warpage.
- C. Allow damp or wet lumber to dry to ambient humidity, prior to erection or installation.
- D. All construction lumber shall be air dried to a moisture content not to exceed 19%.
- E. All finish lumber shall be air dried to a moisture content not to exceed 9%.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. General products and materials required by this Section shall comply with requirements of applicable specifications.
- B. Custom Casework:
 1. Plastic Laminate work shall be A.W.I. "Economy" Grade.
 2. Fine woodwork and special plastic laminate work shall be A.W.I. "Economy" Grade.

3. The use of particle board in the construction of casework, or in millwork to be located in wet areas, is prohibited.
- C. Counter Tops:
1. High-Pressure Decorative Laminate Countertops are preferred.
 2. Plastic Laminate made of melamine-impregnated decorative surface papers combined with phenolic-treated kraft paper saturated with resin. Sheets are to be bonded to a substrate of 45# density particleboard
 3. Brand name and edge treatment shall be optional with fabricator; desired colors selected from the manufacturer's standard, nonpremium priced line with standard matte finish; minimum 3/4" thick; with minimum of 4" high back and/or side splash above the deck surface.
- D. Cabinet and Drawer Hardware:
1. Cabinet hardware shall comply with ANSI A156.9 "American National Standards for Cabinet Hardware" and verify compliance in shop submittals and by inspection of installations.
 2. Drawer slides shall be side mounted type rated for intended use but in no case carrying less than a 100 lb. load rating. File drawer slides shall carry a minimum 150 lb. load rating.
 3. Cabinet hinges shall be flush overlay, concealed self closing, all metal, 165 degree opening.
 4. All cabinets and drawers to be lockable. Keying to be determined by Owner.
- E. Rough Carpentry:
1. Wood framing for interior wall partitions is not acceptable, with the exception of the following:
 - a. Blocking for installation of cabinets, shelving, and wall hung equipment.
 2. Wood framing is prohibited in all Exterior Wall applications, with the exception of the following:
 - a. Wood framing shall be acceptable as part of a low slope roof membrane system. All wood blocking, nailers, and cant strips shall be pressure treated and certified (with the appropriate stamp) or use in roofing applications.
 - b. All pressure treated wood shall be certified Arsenic Free.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Perform the Work required in this section in Compliance with Section 01400.
- B. Prior to commencement of work related to this Section inspect the job site to determine suitability of field conditions. Report all substandard conditions to the Architect in writing for correction prior to commencing Work. Commencement of Work of this section is construed as acceptance of existing field conditions.
- C. Verify controlling dimensions by field measurement prior to commencing work.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and

immediately after installation sufficient to remove indoor air contaminants.

3.03 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
- C. Variation from Plane (Other than Floors): 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.04 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01732.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION 06050

SECTION 06066 – PLASTIC LAMINATE CLAD COUNTERTOPS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Moisture-resistant plastic laminate-clad countertops.
- B. Standard plastic laminate-clad countertops.

1.02 SUMMARY

- A. This Section includes the following horizontal and trim plastic laminate surface product types:
 - 1. Feature Wall in Corridor
- B. Related Sections include the following:
 - 1. Section 06050 – Basic Wood and Plastic Materials and Methods
 - 2. Section 06100 – Rough Carpentry
 - 3. Section 06200 – Finish Carpentry
 - 4. Section 06400 – Millwork

1.03 SUBMITTALS

- A. Product Data:
 - 1. Plastic laminate.
 - 2. Moisture-resistant particleboard
 - 3. Particleboard
 - 4. Adhesive used for plastic laminate application.
 - 5. Installation materials.
- B. Shop Drawings:
 - 1. Show dimensioned elevations, large-scale details, means of attachment and other components.
- C. Material Safety Data Sheets:
 - 1. Plastic laminate
 - 2. Particleboard.
 - 3. Wood dust.
 - 4. Adhesive used for plastic laminate application.
- D. Samples:
 - 1. Plastic laminate color chips showing full range of color, pattern and texture.
 - 2. Particleboard: 12 by 12 inch (300 by 300 mm) piece.
- E. Samples – following initial color selection:
 - 1. High-Pressure Decorative Laminate: 8 by 10 inch (200 by 250 mm) sample of each color, pattern and texture selected.

- F. Quality Assurance/Control Submittals:
 - 1. Qualifications: Proof of fabricator/installer qualifications.
 - 2. Chemical treatment manufacturer's instructions for installing fire-retardant treated wood products.

1.04 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/installer qualifications:
 - 1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.
- C. Applicable standards:
 - 1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - 2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1) Flame Spread Index: 25 or less.
 - 2) Smoke Developed Index: 450 or less.
- D. Coordination drawings:
 - 1. Shall be prepared indicating:
 - a. Plumbing work.
 - b. Electrical work.
 - c. Miscellaneous steel for the general work.
 - d. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
 - 2. Content:
 - a. Project-specific information, drawn accurately to scale.
 - b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
 - c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
 - d. Provide alternate sketches to designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
- E. Drawings shall:
 - 1. Be produced in 1/2-inch scale for all fabricated items.

- F. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.
 - 1. No review or approval will be forthcoming.
 - 2. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.

- G. Job mock-up:
 - 1. Prior to fabrication of architectural millwork, erect sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.
 - 2. Build the mock-up to comply with the contract documents and install in a location as directed by the Architect.
 - 3. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
 - 4. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
 - a. Remove rejected units from project site.
 - 5. After approval, the mock-up may become a part of the project.
 - 6. This mock-up, once approved, shall serve as a standard for judging quality of all completed units of work.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.06 WARRANTY

- A. Provide manufacturer's warranty against defects in materials.
 - 1. Warranty shall provide material and labor to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
- B. Manufacturer's warranty period:
 - 1. Ten years from date of substantial completion.

1.07 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. High-Pressure Decorative Laminate: to be used for all areas in proximity to water:
1. Surface: NEMA LD 3, General Purpose Grade HGS, 0.048 inch minimum.
 2. Finish Texture: Matte.
 3. Color: As selected by Architect.
 4. Backing Sheet: Comply with QSI.
- B. Postforming High-Pressure Decorative Laminate: to be used for all basic countertop work surfaces
1. Surface: NEMA LD 3, Postforming Grade HGP, 0.038 inch minimum.
 2. Finish Texture: Matte
 3. Color: As selected by Architect
 4. Backing Sheet: Comply with QSI.
- C. Particleboard: Moisture Resistant Particleboard to be used in all areas in proximity to water:
1. Comply with ANSI A208.1, Grade M-3.
 2. Thickness Swell: ASTM D 1037, 3/4 inch (19 mm) panel thickness: 5 percent maximum.
 3. Absorption: ASTM D 1037, 3/4 inch (19 mm) panel thickness: 10 percent maximum.
 4. Certification: Meet CPA 3-08 EPPS including the following:
 5. Formaldehyde Emission Requirements: ANSI A208.2, Table A and HUD 24 CFR Part 3280.308.
 6. Recycled Content: 100 percent pre-consumer recycled/recovered wood content.
- D. Particleboard: Particleboard: to be used for all basic countertop work surfaces
1. Comply with ANSI A208.1, Grade M-S.
 2. Certification: Meet CPA 3-08 EPPS including the following:
 3. Formaldehyde Emission Requirements: ANSI A208.1, Table A and HUD 24 CFR Part 3280.308.
 4. Recycled Content: 100 percent pre-consumer recycled/recovered wood content.
- E. Adhesives for Bonding Plastic Laminate to Core: Semi-rigid (PVAc), or rigid (Urea Resorcinol), as recommended by laminate manufacturers printed installation instructions.

2.02 FABRICATION

- A. Joint adhesive:
1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- B. Sealant:
1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.
- C. Sink/lavatory mounting hardware:

1. Manufacturer's standard bowl clips, panel inserts and fasteners for attachment of undermount sinks/lavatories.
- D. Conductive tape:
1. Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.
- E. Insulating felt tape:
1. Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 1. Provide product in the largest pieces available.
 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - a. Exposed joints/seams shall not be allowed.
 3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
 4. Cut and finish component edges with clean, sharp returns.
 5. Rout radii and contours to template.
 6. Anchor securely to base cabinets or other supports.
 7. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
 8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
 9. Install with no more than 1/8-inch (3 mm) sag, bow or other variation from a straight line.

3.03 REPAIR

- A. Repair or replace damaged work which cannot be repaired to architect's satisfaction.

3.04 CLEANING AND PROTECTION

- A. Keep components clean during installation.

- B. Remove adhesives, sealants and other stains.

END OF SECTION 06066

SECTION 06100 - ROUGH CARPENTRY

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Non-structural dimension lumber framing.
- B. Rough opening framing for doors, windows, and roof openings.
- C. Roof-mounted curbs.
- D. Roofing nailers.
- E. Roofing cant strips.
- F. Preservative treated wood materials.
- G. Fire retardant treated wood materials.
- H. Miscellaneous framing and sheathing.
- I. Concealed wood blocking, nailers, and supports.
- J. Water-resistive barrier over wall sheathing.

1.02 RELATED SECTIONS

- A. Section 05120 - Structural Steel: Prefabricated beams and columns for support of wood framing.
- B. Section 05500 - Metal Fabrications: Miscellaneous steel connectors and support angles for wood framing.
- C. Section 07260 - Weather Barriers: Air barrier over sheathing.
- D. Section 07260 - Weather Barriers: Water-resistive barrier over sheathing.
- E. Section 07620 - Sheet Metal Flashing and Trim: Sill flashings.
- F. Section 07720 - Roof Accessories: Prefabricated roof curbs.

1.03 REFERENCES

- A. AFPA T10 - Wood Frame Construction Manual; American Forest and Paper Association; 2001.
- B. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- C. ASTM D 2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 1994 (Reapproved 2004).
- D. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2007.
- E. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
- F. AWPA C9 - Plywood -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2003.
- G. AWPA C20 - Structural Lumber -- Fire Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.

- H. AWPA C27 - Plywood -- Fire-Retardant Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
 - I. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood-Preservers' Association; 2007.
 - J. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 2005.
 - K. SPIB (GR) - Grading Rules; Southern Pine Inspection Bureau, Inc.; 2002.
- 1.04 DELIVERY, STORAGE, AND HANDLING
- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
 - B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
 - 2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
 - 3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
- B. Lumber fabricated from old growth timber is not permitted.
- C. Provide sustainably harvested wood; see Section 01600 for requirements.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Any allowed under referenced grading rules.
 - 2. Grade: No. 2.
- E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 2 or Standard Grade.
 - 2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

- A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.
- B. Grading Agency: Southern Pine Inspection Bureau, Inc. (SPIB).

- C. Sizes: Nominal sizes as indicated on drawings, S4S.
- D. Moisture Content: S-dry or MC19.
- E. Stud Framing (2 by 2 through 2 by 6):
 - 1. Species: Any allowed under referenced grading rules.
 - 2. Grade: Clear.

2.04 CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E 84.

2.05 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
- B. Water-Resistive Barrier: As specified in Section 07260.

2.06 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
 - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Fire Retardant Treatment:
 - 1. Exterior Type: AWWA Use Category UCFB, Commodity Specification H (Treatment C20 for lumber and C27 for plywood), chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E 84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D 2898.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Treat all exterior rough carpentry items.
 - c. Do not use treated wood in direct contact with the ground.
 - 2. Interior Type A: AWWA Use Category UCFA, Commodity Specification H (Treatment C20 for lumber and C27 for plywood), low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread rating of 25 when tested in accordance with ASTM E 84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
 - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
 - b. Treat rough carpentry items as indicated .
 - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:

1. Preservative Pressure Treatment of Lumber Above Grade: AWPAs Use Category UC3B, Commodity Specification A (Treatment C2) using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat lumber exposed to weather.
 - c. Treat lumber in contact with roofing, flashing, or waterproofing.
 - d. Treat lumber in contact with masonry or concrete.
 - e. Treat lumber less than 18 inches above grade.
 - f. Treat lumber in other locations as indicated.
2. Preservative Pressure Treatment of Plywood Above Grade: AWPAs Use Category UC2 and UC3B, Commodity Specification F (Treatment C9) using waterborne preservative to 0.25 lb/cu ft retention.
 - a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
 - b. Treat plywood in contact with roofing, flashing, or waterproofing.
 - c. Treat plywood in contact with masonry or concrete.
 - d. Treat plywood less than 18 inches above grade.
 - e. Treat plywood in other locations as indicated.
3. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPAs Use Category UC4A, Commodity Specification A (Treatment C2) using waterborne preservative to 0.4 lb/cu ft retention.
 - a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
 - b. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.
- B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.
- C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until

completion of erection and installation of permanent bracing.

- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- F. Specifically, provide the following non-structural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Handrails.
 - 4. Grab bars.
 - 5. Towel and bath accessories.
 - 6. Wall-mounted door stops.
 - 7. Chalkboards and marker boards.
 - 8. Wall paneling and trim.
 - 9. Joints of rigid wall coverings that occur between studs.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.

1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
3. Install adjacent boards without gaps.
4. Size and Location: As indicated on drawings.

3.07 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
- C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01732.
 1. Comply with applicable regulations.
 2. Do not burn scrap on project site.
 3. Do not burn scraps that have been pressure treated.
 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.
- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION 06100

SECTION 06160 – EXTERIOR SHEATHING

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Fiberglass-mat faced, moisture and mold resistant gypsum sheathing.
- B. Related Sections:
 - 1. Section 06100 Rough Carpentry.

1.02 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - 2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 3. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - 4. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 5. ASTM C1280 Standard Specification for Application of Gypsum Sheathing.
 - 6. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 7. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
 - 8. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 - 9. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
- B. Gypsum Association (GA): GA-253 Application of Gypsum Sheathing.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's specifications and installation instructions for each product specified.

1.04 WARRANTY

- A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay).
- B. Manufacturer's Warranty:
 - 1. Five years against manufacturing defects.
 - 2. Ten years against manufacturing defects when used as a substrate in architecturally specified EIFS.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177:
 - 1. Thickness: 1/2 inch.
 - 2. Width: 4 feet.
 - 3. Length: 8 feet
 - 4. Weight: 1.9 lb/sq. ft.
 - 5. Edges: Square.
 - 6. Surfacing: Fiberglass mat on face, back, and long edges.
 - 7. Racking Strength (ASTM E72): Not less than 540 pounds per square foot, dry.
 - 8. Flexural Strength, Parallel (ASTM C473): 80 lbf, parallel.
 - 9. Humidified Deflection (ASTM C1177): Not more than 2/8 inch.
 - 10. Permeance (ASTM E96): 23 perms.
 - 11. R-Value (ASTM C518): 0.56.
 - 12. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 - 13. Microbial Resistance (ASTM D6329, GREENGUARD 3-week protocol): Will not support microbial growth.

- B. Fire-Rated Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177, Type X:
 - 1. Thickness: 5/8 inch.
 - 2. Width: 4 feet.
 - 3. Length: [8 feet] [9 feet] [10 feet].
 - 4. Weight: 2.5 lb/sq. ft.
 - 5. Edges: Square.
 - 6. Surfacing: Fiberglass mat on face, back, and long edges.
 - 7. Racking Strength (ASTM E72): Not less than 654 pounds per square foot, dry.
 - 8. Flexural Strength, Parallel (ASTM C1177): 100 lbf, parallel.
 - 9. Humidified Deflection (ASTM C1177): Not more than 1/8 inch.
 - 10. Permeance (ASTM E96): Not more than 17 perms.
 - 11. R-Value (ASTM C518): 0.67.
 - 12. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
 - 13. Microbial Resistance (ASTM D6329, GREENGUARD 3-week protocol): Will not support microbial growth.

2.03 ACCESSORIES

- A. Screws: ASTM C1002, corrosion resistant treated.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 - 1. Inspection: Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.

3.02 INSTALLATION

- A. General: In accordance with GA-253, ASTM C1280 and the manufacturer's recommendations.

3.03 PROTECTION

- A. Protect gypsum board installations from damage and deterioration until date of Substantial Completion.

END OF SECTION 06160

SECTION 06200 - FINISH CARPENTRY**PART 1 – GENERAL**

- 1.01 SECTION INCLUDES
- A. Finish carpentry items.
 - B. Hardware and attachment accessories.
- 1.02 RELATED SECTIONS
- A. Section 06100 - Rough Carpentry: Support framing, grounds, and concealed blocking.
 - B. Section 06400 - Millwork: Shop fabricated custom cabinet work.
 - D. Section 08210 - Wood Doors.
 - G. Section 09900 - Paints and Coatings: Painting and finishing of finish carpentry items.
- 1.03 REFERENCES
- A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2007.
 - B. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2006, 8th Ed., Version 2.0.
 - C. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; American Wood-Preservers' Association; 2002.
 - D. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2004.
 - E. NHLA G-101 - Rules for the Measurement & Inspection of Hardwood & Cypress; National Hardwood Lumber Association; 2007.
 - F. PS 1 - Structural Plywood; 2007.
 - G. WDMA I.S.4 - Water-Repellent Preservative Non-Pressure Treatment for Millwork; Window and Door Manufacturers Association; 2007a.
- 1.04 ADMINISTRATIVE REQUIREMENTS
- A. Coordinate the work with plumbing rough-in, electrical rough-in, installation of associated and adjacent components.
 - B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
- 1.05 SUBMITTALS
- A. See Section 01300 - Administrative Requirements for submittal procedures.
 - B. Product Data:
 - 1. Provide data on fire retardant treatment materials and application instructions.
 - 2. Provide instructions for attachment hardware, and finish hardware.
 - C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories to a minimum scale of 1-1/2 inch to 1 ft.

- D. Samples: Submit two samples of finish plywood, six (6) x six (6) inch in size illustrating wood grain and specified finish.
- E. Samples: Submit two samples of wood trim six (6) inch long.

1.06 QUALITY ASSURANCE

- A. Grade materials in accordance with the following:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood: Certified by the American Plywood Association.
 - 3. Hardwood Lumber Grading: NHLA Grading Rules.
- B. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect work from moisture damage.

PART 2 – PRODUCTS

2.01 MATERIALS - GENERAL

- A. Unless otherwise indicated provide products of quality specified by AWI Architectural Woodwork Quality Standards Illustrated for Premium grade.
- B. Unless otherwise indicated provide products of quality specified by Woodwork Institute Manual of Millwork for Premium grade.
- C. Provide materials having fire and smoke properties as required by applicable code.

2.02 WOOD-BASED COMPONENTS

- A. Wood fabricated from old growth timber is not permitted.
- B. Provide sustainably harvested wood, certified or labeled as specified in Section 01600.
- C. Wood fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless otherwise noted, provided it is clean and free of contamination; identify source; provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.

2.03 LUMBER MATERIALS

- A. Softwood Lumber: Comply with PS 20 and with applicable grading rules of the respective grading and inspecting agency for the species and product indicated, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
- B. Hardwood Lumber: Comply with national hardwood Lumber Association rules maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.04 SHEET MATERIALS

- A. Softwood Plywood Not Exposed to View: Any face species, veneer core; PS 1 Grade A-B; glue type as recommended for application.
- B. Softwood Plywood Exposed to View: Face species as indicated, plain sawn, medium density fiberboard core; PS 1 Grade A-B; glue type as recommended for application.

- C. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1, Grade AA, glue type as recommended for application.

2.05 ADHESIVE

- A. Adhesive: Type recommended by laminate manufacturer to suit application;

2.06 FASTENERS

- A. Fasteners: Of size and type to suit application; hot dipped zinc coating (ASTM A 154) finish in concealed locations and hot dipped zinc coating (ASTM A 154) finish in exposed locations.
- B. Concealed Joint Fasteners: Threaded steel.

2.07 ACCESSORIES

- A. Plastic Edge Trim: Extruded convex shaped; smooth finish; self locking serrated tongue; of width to match component thickness; Color to be selected by Architect from standard range of colors.
- B. Aluminum Edge Trim: Extruded convex shape; smooth surface finish; self locking serrated tongue; of width to match component thickness; natural mill finish.
- C. Primer: Alkyd primer sealer.
- D. Wood Filler: Solvent base, tinted to match surface finish color.

2.08 WOOD TREATMENT

- A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84;
- B. Wood Preservative by Pressure Treatment (PT Type): AWWPA Treatment C2 (Lumber) and C9 (Plywood) using water borne preservative with 0.25 percent retainage. Mark each treated item with the AWPB or SPIB Quality Mark Requirements.
- C. Water Repellant Preservative Treatment by Dipping Method: WDMA I.S.4, with 0.25 percent retainage.
- D. Shop pressure treat wood materials requiring fire rating to concealed wood blocking.
- E. Provide identification on fire retardant treated material.
- F. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.
- G. Redry wood after pressure treatment to maximum 19 percent moisture content.

2.09 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.10 SHOP FINISHING

- A. Apply wood filler in exposed nail and screw indentations.

- B. Finish work in accordance with AWI Architectural Woodwork Quality Standards Illustrated, Section 1500:
 - 1. Transparent: Nitrocellulose lacquer (formerly TR-1).
 - 2. Opaque: Nitrocellulose lacquer (formerly OP-1).
- C. Back prime woodwork items to be field finished, prior to installation.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.
- C. See Section 06100-Rough Carpentry for installation of recessed wood blocking.

3.02 INSTALLATION

- A. Set and secure materials and components in place, plumb and level.
- B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply one coats of preservative treatment on wood in contact with cementitious materials. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

3.04 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09930.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.05 ERECTION TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION 06200

SECTION 06400 - MILLWORK

PART 1 – GENERAL

- 1.01 DESCRIPTION
 - A. Millwork items are indicated or required by Drawings and specified herein.
 - B. Millwork shall be described as counters, wall and base cabinets, hardware for same, plastic laminate tops, and any other items of finished millwork not specifically shown as Division 11 - Equipment.

- 1.02 RELATED WORK
 - A. Section 09900 – Painting
 - B. Section 09930 – Stains and Transparent Finishes

- 1.03 QUALITY STANDARDS
 - A. References
 - 1. Architectural Woodworking Institute (AWI), "Quality Standards".
 - 2. American Plywood Association (APA).
 - 3. Western Wood Products Association (WWPA).
 - 4. National Electrical Manufacturer's Association, High Pressure Decorative Laminate, 1985 - NEMA LD3.
 - 5. ANSI A208.1 - Wood Particleboard, 1989.
 - 6. ANSI/BM | HMA A156.9 - Cabinet Hardware, 1982.
 - B. Manufacturer's Qualifications: Shall have the proper equipment and be regularly engaged in the manufacturer of modular millwork cabinets.

- 1.04 SUBMITTALS
 - A. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, attachment devices and other components.

- 1.05 PRODUCT DELIVERY, STORAGE AND HANDLING
 - Protect millwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration. Store off floor on blocking skids in such a manner to allow ventilation of surfaces. Maintain temperatures above 50° and relative humidity less than 60%.

PART 2 – PRODUCTS

- 2.01 GENERAL
 - A. Style: Flush overlay. Grade: Custom.
 - B. Sub-base: Cabinet sub-base shall be separate and continuous (no cabinet body side-to-floor), water resistant exterior grade plywood (or solid pine) with

concealed fastening to cabinet bottom. Ladder-type construction consisting of front, back, and intermediates, to form a secure and level platform to attach cabinets.

2.02 MATERIALS

- A. Cabinet Core Components: Materials to receive plastic laminate shall be medium density fibercore board.
- B. Door, Drawer, and Shelf Edging: Edge all exposed edges of doors, drawers, caseparts, and front edge of shelves with hardwood edging.
- C. Face Material: Countertops, nosing, and splashes shall be laminated on exposed surfaces with 1/16 inch (0.0625) thick high-pressure plastic laminate in color and pattern as selected by Architect from manufacturers standard.

2.03 HARDWARE

- A. Pulls: 4 in o.c. brushed nickel.
- B. Hinges: Cabinet hinges shall be flush overlay, concealed self closing, all metal, 165 degree opening.
- C. Drawer Slides: Drawer slides shall be side mounted type rated for intended use but in no case carrying less than a 100 lb. load rating. File drawer slides shall carry a minimum 150 lb. load rating.
- D. Door Locks: Pin tumbler type. Keyed as per Owner.
- E. Adjustable shelving: Metal pins, holes @ 1.25 inch oc vert

2.04 MINIMUM PANEL THICKNESS

- A. Cabinet doors, drawer fronts, body parts: 3/4 in.
- B. Drawer bottoms: 5/8 in.
- C. Drawer sides and back: 5/8 in.
- D. Cabinet backs: 1/4 in. (Let into all four sides and hot melt glued in a continuous bead at all four sides to add unit body strength and develop moisture and vermin seal)
- E. Shelves: 3/4 or 1 1/8 in. exceeding 4 feet unsupported length.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Work shall be cut and assembled at mill and delivered ready for erection. When necessary to cut portions on the job, material shall be ordered with ample cutting allowance. Defects, bruises, and stains shall be worked out in the cutting. All millwork shall be based on measurements taken at the job site. Exposed surfaces shall be machine sanded unless otherwise noted. Mill assemblies shall be joined in accordance with standard practice as recommended by AWI. The best grade glue shall be used. Nails and screws shall be either concealed or countersunk. Intersecting molding at corners shall be neatly mitered.

- B. Finished work shall be plumb, erect, and true and shall be blind nailed whenever possible. Surface nails shall be steel set. All woodwork shall be securely nailed to nailing blocks, grounds, and furring.
- C. Anchor all cabinet work and shelving securely, plumb, true, and level, without distortion. Accurately scribe and closely fit face plates, fillers, and trim strips adjacent surfaces. Wood blocking will be provided within stud cavities as specified in Section 06100.
- D. All fasteners and fasteners connection components, nails, screws, nuts/bolts/washers. Etc. shall be non-corrosive and shall be appropriate to the materials secured.
- E. All painted trim work shall be caulked into adjacent surfaces (walls, ceilings, etc.) with paintable siliconized acrylic sealant tooled to a maximum 1/8" bead.

END OF SECTION 06400

SECTION 07050 – BASIC THERMAL AND MOISTURE PROTECTION**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. This section contains the general requirements relating to thermal and moisture protection including but not limited to waterproofing, dampproofing, water repellants, vapor retarders, air barriers, insulation, fireproofing, firestopping, and roofing.

1.02 RELATED SECTIONS

- A. Section 07110 –Dampproofing
- B. Section 07210 – Board Insulation
- C. Section 07215 – Blanket Insulation
- D. Section 07220 – Blown Insulation
- E. Section 07260 – Vapor Retarders
- F. Section 07410 – Metal Roof Panels
- G. Section 07420 – Metal Wall Panels
- H. Section 07540 – PVC Thermoplastic Membrane Roofing
- I. Section 07620 – Sheet Metal Flashing and Trim
- J. Section 07630 – Gutters and Downspouts
- K. Section 07650 – Flexible Flashing
- L. Section 07710 – Manufactured Roof Specialties
- M. Section 07720 – Roof Accessories.
- N. Section 07721 – Roof Hatches
- O. Section 07840 – Firestopping
- P. Section 07910 –Joint Sealers

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.

1.04 QUALITY ASSURANCE

- A. All systems and materials listed in this Division shall be in accordance with the roof system manufacturer’s recommendations as well as the NRCA Roofing and Waterproofing, Latest Edition
- B. For chemical compatibility purposes, specifications shall require that any “systems” (e.g. roofing) shall be by a single manufacturer. Furthermore only the manufacturers recommended accessories or adhesives shall be allowed.
- C. For all roofing systems provide adequate design criteria, data, cost and life cycle information to the Architect prior to the commencement of design to properly evaluate and determine appropriateness of use of the specialty roofing system.

- D. For all Thermal or Moisture Protection Systems, materials shall be appropriately in a dry, safe environment. Wet or damaged materials shall not be used for roofs, waterproofing, insulation, sealants, etc.
- E. For all pitched roofs, maintain proper ventilation, including accessories (e.g. baffles, vents, etc.) to prevent ice damming or moisture damage.
- F. Manufacturer Qualifications: Company specializing in performing the work with a minimum of five (5) years documented experience.
- G. Installer Qualifications: Company specializing in performing the work with a minimum of five (5) years documented experience.
- H. During installation and after completion of roofing system installation, contractor must provide presence on job site during and immediately after heavy rains in order to identify and repair leaks, clean up water and repair water damage.

PART 2 – PRODUCTS

2.01 BUILDING INSULATION

- A. Faced mineral Fiber Blanket/Batt Insulation: lightweight thermal and acoustical fiber glass insulation made of long, resilient glass fibers bonded with an acrylic thermosetting binder, facing is protected against mold growth and serves as a vapor retarder; in extreme humidity, the permeability doubles and allows moisture to escape at a faster rate.
- B. Unfaced Batt Insulation: lightweight thermal and acoustical fiber glass insulation made of long, resilient glass fibers bonded with an acrylic thermosetting binder.

2.02 ROOF AND DECK INSULATION

- A. Long Tabbed Banded Insulation System: Bottom layer faced Fiberglass with extension tabs and widths to match purlins, top layer unfaced fiberglass roll widths in increments to match roof panels, metal banding and hex head screws for attachment. Thickness as dictated by required R-values.
- B. Glass-mat-faced, water-resistant gypsum substrate conforming to ASTM C 1177/C 1177M. Material as approved by the roof membrane manufacturer.
- C. Polyisocyanurate Board Insulation: Complying with ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces. Material as approved by the roof membrane manufacturer.

2.03 FIRESTOPPING

- D. Expandable polyurethane foam is not acceptable for sealing penetrations through rated assemblies. Comply with ASTM E-184, “Standard Method of Fire Test of Through Penetration Fire Stops”, that has an F Rating equal to fire rating of penetrated assembly and minimum T Rating and meets all other specified requirements.

2.04 ROOFING

- A. General:
1. Roofing Contractor shall provide a complete roof plan of each roof area and provide large scale details clearly showing relationships between membranes, flashings, counter flashings, expansion joints, perimeter metal work, roof accessories, roof top equipment, any interruptions of the membrane, and all penetrations.
 2. All roofing installations shall comply with manufacturer's specifications, NRCA and SMACNA standards.
- B. Flat Roofs: Flat roofs shall be a single layer membrane thermoplastic membrane system (TPO) 60 mil minimum thickness. No flat roof system will be considered without a minimum twenty (20) year no dollar limit manufacturer standard warranty.
- C. Metal Roofs: Standing Seam Roof Panels System to be machined seamed and related items as shown on drawings with a minimum manufacturer's standard finish warranty of twenty (20) years and complying with the following:
1. Provide roof panel system with no air leakage when tested in accordance with ASTM E 283 at pressure differential up to 1.57 psf.
 2. Provide roof panel system with no water penetration when tested in accordance with ASTM E 331 at an inward static air pressure differential of not less than 6.24 psf and not more than 12.0 psf
 3. Provide roof panel system with a fire resistance rating tested and listed by design number in UL "Fire Resistance Directory" for a two (2) hour assembly rating.
 4. Provide roof panel system including supports meeting requirements of UL for Class 90 wind uplift resistance.

2.05 MISCELLANEOUS

- A. Access: Provide roof hatches with ladders located in separate closets or mechanical rooms, where possible. Do not install in hallways, stairwells, offices, classrooms or other normally occupied spaces.
- B. Walk Pads: Provide walk pads from roof access to all roof mounted equipment. Pads shall extend around each piece of equipment. Pads shall be compatible to roofing system and a minimum size of 24" x 24".
- C. Lightning Protectors: Provide as per Electrical Engineers specifications. Install according to roofing system manufacturer specifications and in a manner that will not void any part of the roofing system warranty.
- D. Gutters and Downspouts: Provide gutter and downspout system as specified and shown on drawings and complying with the following:
1. Follow NRCA and SMACNA standards.
 2. Downspouts shall be mounted a minimum of one (1) inch away from face of building.
 3. All connections between downspouts and gutters should be designed to be readily removed for maintenance purposes.
- E. Parapet Walls: provide parapet wall systems as shown on as specified and shown on drawings and complying with the following:
1. Cap all parapet walls.

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2. All interior surfaces of parapet walls shall be treated as an integral part of the roofing system. No exposed blocking.
- F. Roof Mounted Equipment: All roof mounted equipment shall be set on curbs as specified and attached to resist area wind loads.

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 07050

SECTION 07210 - BATT INSULATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Batt insulation and vapor retarder in exterior wall, and ceiling.
- B. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED SECTIONS

- A. Section 05400 - Cold Formed Metal Framing: Supporting construction for batt insulation.
- B. Section 06100 - Rough Carpentry: Supporting construction for batt insulation.
- C. Section 07260 - Weather Barriers: Separate air barrier and vapor retarder materials.
- D. Section 07840 - Firestopping.
- E. Section 09260 - Gypsum Board Assemblies: Acoustic insulation.

1.03 REFERENCES

- A. ASTM C 240 - Standard Test Methods of Testing Cellular Glass Insulation Block; 1997 (Reapproved 2003).
- B. ASTM C 552 - Standard Specification for Cellular Glass Thermal Insulation; 2003.
- C. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2006.
- D. ASTM C 612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2004.
- E. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.
- F. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2006.
- G. ASTM D 2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics; 2006.
- H. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2007.
- I. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
- C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- 1.05 FIELD CONDITIONS
- A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.
- 1.06 SEQUENCING
- A. Sequence work to ensure fireproofing and firestop materials are in place before beginning work of this section.
- 1.07 COORDINATION
- A. Coordinate the work with Section 07260 for installation of vapor retarder.

PART 2 – PRODUCTS

2.01 BATT INSULATION MATERIALS

- A. Faced Batt Insulation: ASTM C 665 Type II, Class C, Category 1; preformed batt; friction fit, conforming to the following:
1. Thermal Resistance (R-Value) (ASTM C518): R-19
 2. Water Vapor Permeance (ASTM E96): 1.0 perm (57.5 ng/Pa × s × m²)
 3. Water Vapor Sorption (ASTM C1104): 5% or less by weight.
 4. Odor Emission (ASTM C1304): Pass.
 5. Corrosiveness (ASTM C665, 13.8): Pass.
 6. Fungi Resistance (ASTM C1338): Pass.
 7. Fungi Resistance (ASTM D2020): Pass
 8. Recycled Content: Certified by Scientific Certification Systems to contain minimum of 20% post-consumer and 5% pre-consumer recycled glass product, on average of manufacturer's products.
 9. Prove through documentation that product complies with CIWMB Section 01350 for indoor air quality.
 10. Thickness: as required for application R value
- B. Unfaced Batt Insulation: ASTM C665, Type I; preformed unfaced batt; friction fit, conforming to the following:
1. Thermal Resistance (R-Value) (ASTM C518): R-19
 2. Combustion Characteristics (ASTM E136): Pass.
 3. Critical Radiant Flux (ASTM E970): Greater than 0.11 Btu/ft² × s (0.12 W/cm²).
 4. Water Vapor Sorption (ASTM C1104): 5% or less.
 5. Odor Emission (ASTM C1304): Pass.
 6. Corrosiveness (ASTM C665): Pass.
 7. Fungi Resistance (ASTM C1338): Pass.
 8. Recycled Content: Certified by Scientific Certification Systems to contain minimum of 20% post-consumer and 5% pre-consumer recycled glass product, on average of manufacturer's products.
 9. Prove through documentation that product complies with CIWMB Section 01350 for indoor air quality.
 10. Thickness: as required for application R value
 11. Flamespread (ASTM E84): 25, maximum.
 12. Smoke Developed (ASTM E84): 50, maximum.
 13. Material Standard: ASTM C665, Type I.

2.04 ACCESSORIES

- A. Vapor Retarder: Specified in Section 07260.
- B. Tape: Self-adhesive vapor retarder tape with flame spread index of 25 or less, smoke developed index of 50 or less.
- C. Insulation Fasteners: Impaling clip of unfinished steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
- D. Nails or Staples: Steel wire; electroplated, or galvanized; type and size to suit application.
- E. Wire Mesh: Galvanized steel, hexagonal wire mesh.
- F. Protective Boards: Cementitious, 1/4 inch thick.
- G. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.
- B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall and ceiling spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Install with factory applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.
- F. Staple or nail facing flanges in place at maximum 6 inches on center.
- G. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
- H. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.
- I. Tape seal tears or cuts in vapor retarder.
- J. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.
- K. Coordinate work of this section with requirements for vapor retarder specified in Section 07260.
- L. Coordinate work of this section with construction of air barrier seal specified in Section 07260.

3.06 PROTECTION

- A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION 07210

SECTION 07261 – VAPOR BARRIERS FOR EXISTING SLABS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Provisions of the Contract, including General, Supplementary and Special Conditions, applicable Division “O” Sections and Division 1 Sections, apply to this Section.
- B. The Contractor will employ and pay for the services of an independent testing agency to provide calcium chloride moisture tests on the concrete floor slabs of the designated areas to receive the flooring materials. Moisture tests must be performed, and results confirmed in writing with copies sent to the Owner, Project Manager, General Contractor, and to Flooring Installer, immediately after they are performed.

1.02 SUMMARY

- A. Extent of flooring and accessories is shown on drawings and in schedules and includes the following types:
 - 1 Ceramic Floor Tile
 - 2 Resilient Floor Tile
 - 3 Epoxy Flooring Systems

1.03 PROJECT CONDITIONS

- A. Before installation, a visit to the job site is required to confirm conditions and floor measurements. The entire area shall be well lighted in order for the installer to properly prepare the substrate and install the new flooring. Close spaces to traffic before, and for at least 12 hours after installation. This will minimize the chance of damage to the new floor. To minimize problems related to subfloor moisture and building expansion or contraction, the area to receive flooring shall be in operation and heated or air conditioned to the temperatures as listed below, for at least one week prior to the installation of the flooring. Portable heaters are not acceptable. Deliver all flooring materials and adhesives to the job site 48 hours in advance. For a 48 hour period before installation, during installation, and for a 48 hour period after installation, the temperature of the flooring material, adhesives, the space to receive flooring, and the subfloor shall be between 65 and 80 degrees Fahrenheit. Thereafter, the minimum temperature is 55 degrees Fahrenheit.
- B. Type of flooring and accessories after other building finishing operations, including painting, have been completed. Do not install flooring over concrete slabs until the slabs have been cured to ASTM standards and have been treated with the specified moisture control product. In all cases, moisture tests must be performed, results confirmed in writing, and requirements met, before installation may commence.

PART 2 – PRODUCTS

2.01 MOISTURE CORRECTION SYSTEM

- A. Once the Calcium Chloride test results are known, use the appropriate product for the identified level of problem.
 - 1 MoistureBloc Universal as manufactured by Vexcon Chemicals,
 - a. For Moisture Level reduction from 9#/1000 sq.ft./24 hours to under 3#/s

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- b. For reactive and non-reactive adhesives and LEED projects
 - 2 MoistureBloc One Step as manufactured by Vexcon Chemicals,
 - a. For Moisture Level reduction from 9#/1000 sq.ft./24 hours to under 3#'s
 - b. For non-reactive adhesives or where water based products are required and LEED projects
 - 3 MoistureBloc Emulsion Vapor Reduction System as manufactured by Vexcon Chemicals,
 - a. For Moisture Level reduction from 15#/1000 sq.ft./24 hours to under 3#'s
 - b. For reactive or non-reactive adhesives or where water based products are required
 - 4 MoistureBloc Vapor Reduction System FT as manufactured by Vexcon Chemicals, Tel: (888) 839-2661. Contact the MoistureBloc Brand Manager
 - a. For Moisture Level reduction from 15#/1000 sq.ft./24 hours to under 3#'s
 - b. For reactive or non-reactive adhesives
 - 5 MoistureBloc MX Emulsion System as manufactured by Vexcon Chemicals, Tel: (888) 839-2661. Contact the MoistureBloc Brand Manager
 - a. For Moisture Level reduction from 27#/1000 sq.ft./24 hours to under 3#'s
 - b. For use where low odor water based products are required
 - 6 MoistureBloc MX System as manufactured by Vexcon Chemicals, Tel: (888) 839-2661. Contact the MoistureBloc Brand Manager
 - a. For Moisture Level reduction from 27#/1000 sq.ft./24 hours to under 3#'s
- B. Product to be applied by a manufacturer's approved installation contractor.

PART 3- EXECUTIONS

3.01 INSTALLATION

- A. Pre-installation Inspection: The flooring installer, the Contractor and the Owner shall examine the flooring substrate and all other conditions under which flooring installation is to be performed. Flooring work shall not proceed until all conditions meet manufacturer's specifications and are acceptable to the Owner. Particular attention shall be paid to the moisture content of the concrete slab (maximum 3 lbs. of water/1000 sq. ft. of slab in a 24-hour period when tested by Owner's independent laboratory, and shown to be in accord with the ASTM F1869-98 calcium chloride test) and to the use of the specified type of adhesive recommended by the Manufacturer for proper adhesion of the flooring.
- B. Installation: Install in strict accordance with flooring manufacturer's recommendations for type(s) of materials, project conditions, and intended use.
- C. ON EXISTING SLABS ON GRADE, DO NOT INSTALL NEW FLOORING OVER EXISTING CONCRETE SEALERS OR CURING COMPOUNDS. IN ALL EXISTING CONSTRUCTION, SUBFLOOR MUST BE CLEAN, DRY AND THE SLAB MUST PASS THE MOISTURE CONTROL SYSTEM MANUFACTURER'S WATER ABSORPTION TEST.
 - 1. New concrete slabs can be cured with Moisture Control System, See section 3.1, C for details.
 - 2. The general contractor will be responsible to see that the concrete floor is broom clean and free of all paint, curing compounds, dry wall compound, grout, dust, solvent, wax, grease, oil, asphalt sealing compounds, dirt and other extraneous materials. The surface must be hard and dense and free from powder or flaking.
 - 3. The general contractor will mark the areas to receive the moisture correction system with a chalk line. A moisture absorption test must be performed throughout the chalked off areas: A drop of water should penetrate into the

- concrete under 2 minutes. The concrete must be clean, dry and water absorbent prior to applying the Moisture Control sealer. The sealer shall be applied to an area approximately 6" beyond the chalked off area. Should this test fail, sanding grinding or chemical removal will be required in accordance with Paragraph D, 4, a-c or contact the Moisture control manufacturer for cleaning recommendations.
4. The flooring contractor shall be responsible for the necessary preparation for installation. Preparation shall include surface preparation, moisture correction system installation, patching, leveling, and final cleaning.
 - a. Floor preparation must be tested in accordance with moisture control system manufacturer's absorption test.
 - b. Mechanical Removal: Use either a planetary or counter rotating head machine with an overlapping capability and Metal bond diamonds aggressive enough to reveal fresh concrete on 100% of the floor or
 - i. Scrubbed or Sanded Clean Finish: Wet concrete surfaces thoroughly and scrub or sand with nylon bristle brushes or grit screens
 - c. Chemical Treatment Removal:
 - i. Use MoistureBloc Adhesive Remover per manufacturer's instructions to remove adhesive.
 - ii. Use MoistureBloc Stripper to remove curing compounds, sealers and other film forming materials.
 5. The concrete floor slab shall be tested for moisture levels, and the contractor shall contact Vexcon for the appropriate MoistureBloc System.
 - a. Moisture testing shall be done on all concrete slabs regardless of age or grade level. Test cleaned sections of concrete for moisture using a calcium chloride test kit in accord with ASTM F1869-98. Follow the instructions included with the kit. A minimum of three tests must be conducted for the first 1,000 square feet of flooring, with one additional test for each 1,000 square feet of flooring thereafter. The moisture emission from the concrete slab shall not exceed 3 lb. per 1,000 square feet per 24 hours.
 - b. The areas to receive the specified moisture correction system must be at least 65 degrees Fahrenheit and no more than 80 degrees Fahrenheit for 48 hours before commencing installation. Installer shall verify that general contractor has complied with temperature requirements prior to placing moisture tests.
 6. Application of the Moisture Correction System shall be done in strict accordance with manufacturer's installation instructions, and allowed to cure as described in the installation procedure.
 7. After application of moisture control material, all holes, grooves, expansion joints, and other depressions must be filled with manufacturer approved Brand Name primer/bonding agent and latex underlayment, and troweled smooth and feathered even with the surrounding surface.
 8. Apply all floor levelers/underlayment after the installation of moisture correction system. Unless leveler patching compound manufacturer approves their material for initial moisture levels in 3.1, D, 5,a. Apply per manufacturer's recommendations in areas where required for type(s) of materials, project conditions and intended use.
 9. The flooring contractor shall inspect the floor before installing flooring. Any hollows, wrinkles or areas that were scratched or damaged by other trades must be corrected to the satisfaction of the flooring contractor.
 10. Adhesive Bond Testing: Adhesion testing shall be conducted to ensure that a satisfactory bond can be obtained with the recommended adhesive over any substrate in question. Adhere 3' x 3' sections of the flooring and allow to set for

3-7 days. Check for bond strength at that time by removing the test material.

- E. Apply adhesive recommended by flooring manufacturer in strict accordance with manufacturer's instructions.
1. Use only adhesive recommended by Brand of Flooring for their products, and which are compatible with the selected moisture correction system.
- F. Protect the floor: Protecting the floor after installation is important, to prevent permanent damage to the floor. Keep foot traffic off the floor for 12 hours after installation. Keep rolling loads, fixtures, and furniture off the floor for 24 hours. Heavy objects set on a new floor may cause permanent indentation, adhesive oozing between seams, or other damage. The longer the floor is left undisturbed after the installation, the stronger the adhesive bond will be. Flooring should be installed after all other finishing and construction operations have been completed. If additional construction must be undertaken after the floor is installed, leave the floor undisturbed for 24 hours, then cover the floor (with building paper, cardboard, plywood, or a combination of these materials) to prevent damage or staining of the new floor, until the space is ready to be occupied. After construction is completed, remove protective coverings from the floor, sweep or vacuum, strip and polish accordingly. Do not wash the floor or begin maintenance program for seven (7) days after installation. Sweep and damp mop the floor to keep looking good prior to opening.
- G. PREVENTATIVE MEASURES
- 1 Floor Protectors should be used to minimize damage from the bottoms of chair legs.
 - 2 Window Coverings should be used to protect the floor from damage due to direct sunlight.
 - 3 Plywood or other boards should be used to protect the floor when moving heavy objects such as furniture, fixtures, displays or appliances. **DO NOT MOVE HEAVY OBJECTS DIRECTLY ACROSS THE FLOOR!**
 - 4 Good Maintenance Practices should be used to keep the floor clean, which will minimize wear, scuffing, scratching, etc. See the appropriate **Brand Name Commercial Maintenance Procedures**.
- H. INITIAL MAINTENANCE PROCEDURES SUMMARY
- 1 Begin initial maintenance after 5-7 days after the floor is installed. Obtain a copy of the Brand Name Maintenance Guide for complete instructions.

END OF SECTION 07261

SECTION 07910 – JOINT SEALERS

PART 1 – GENERAL

1.01 WORK OF THIS SECTION

- A. The WORK of this Section includes providing preformed joint sealers and appurtenant WORK.

1.02 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 08800 – Glazing
 - 2. Section 07950 – Expansion Control
 - 3. Section 05810 – Expansion Joint Cover Assemblies

1.03 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes:
 - 1. International Building Code
 - 2. National Fire Protection Association

1.04 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:
 - 1. ASTM C 719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement
 - 2. ASTM C 790 Recommended Practices for Use of Latex Sealing Compounds
 - 3. ASTM C 804 Recommended Practices for Use of Solvent-Release Type Sealants
 - 4. ASTM C 834 Specification for Latex Sealant Compounds
 - 5. ASTM C 919 Practice for Use of Sealants in Acoustical Applications
 - 6. ASTM C 920 Specification for Elastomeric Joint Sealants
 - 7. ASTM C 962 Guide for Use of Elastomeric Joint Sealants
 - 8. ASTM D 412 Test Methods for Rubber Properties in Tension
 - 9. ASTM D 1056 Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
 - 10. ASTM D 2628 Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete
 - 11. ASTM D 3405 Specification for Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements
 - 12. ASTM D 3406 Specification for Joint Sealant, Hot-Poured, Elastomeric-Type, for Portland Cement Concrete Pavement

1.05 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
 - 1. Product Data: Manufacturer's recommended applications and technical data for each joint sealer product required, including instructions for joint preparation and joint sealer application.
 - 2. Samples for Initial Selection Purposes: Submit manufacturer's standard bead samples consisting of strips of actual products showing the full range of colors available, for each product exposed to view.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of Materials: Manufactured materials shall be delivered in original, unbroken packages or containers bearing the manufacturer's label. Packages or containers shall be delivered to the site with seals unbroken.
- B. Manufacturer's labels shall bear name of manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.
 - 1. Storage: All materials shall be carefully stored in an area that is protected from deleterious elements and in a manner recommended by the product manufacturer. Storage and handling of materials shall be in such a manner as to prevent deterioration or damage due to moisture, temperature changes, contaminants or other causes.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Manufacturer's Recommendations: Only products recommended for the specific application indicated shall be used.
- B. Single Source Responsibility: All joint sealer materials for a specific application shall be obtained from a single manufacturer.
- C. Compatibility: Joint sealers, joint fillers, and other related materials shall be provided which are compatible with one another and with joint substrates under the indicated conditions of service and application, as demonstrated by manufacturer's testing and field experience.
- D. Colors: Colors of exposed joint sealers shall be provided as indicated or, if not otherwise indicated, as selected by the Architect from manufacturer's standard colors.

2.02 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standards: Manufacturer's standard chemically curing elastomeric sealant shall be of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.

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- | | |
|-----------------------|--|
| substrate | 1. Two-Part Nonsag Polysulfide Sealant: Type M; Grade NS; Class 12 1/2; Uses NT, M, G, A, and as applicable to the joint indicated, Use O. |
| NS; | 2. Two-Part Pourable Polysulfide Sealant: Type M; Grade P; Class 12 1/2; Uses T, M, G, A, and, as applicable to the joint substrates indicated, Use O. |
| Uses | 3. Two-Part Water Immersion Polysulfide Sealant: Type M; Grade Class 12 1/2; Uses T, M, G, A, and, as applicable to the joint substrates indicated, Use O; with a history of successful field experience in sealing joints immersed intermittently or continuously in water. |
| following capability: | 4. One-Part Polysulfide Sealant: Type S; Grade NS; Class 12 1/2; T, M, G, A, and, as applicable to joint substrates indicated, Use O. |
| indicated, | 5. One-Part Non-Acid-Curing Silicone Sealant: Type S; Grade NS; Class 25; and complying with the following requirements for Uses NT, M, G, A, and, as applicable to joint substrates indicated, Use O. Modulus and additional joint movement capabilities as follows: <ul style="list-style-type: none"> a. Low Modulus: Tensile strength of 45 psi or less at 100 percent elongation when tested after 14 days at 77 degrees F and 50 percent relative humidity per ASTM D 412. b. Medium Modulus: Tensile strength of not less than 45 nor more than 75 psi or less at 100 percent elongation when tested after 14 days at 77 degrees F and 50 percent relative humidity per ASTM D 412. c. Additional capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, withstand 50 percent increase and decrease of joint width as measured at time of application and remain in compliance with other requirements of ASTM C 920. |
| | 6. One-Part Acid-Curing Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to joint substrates indicated, Use O. |
| | 7. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, Use O; formulated with fungicide for sealing interior joints with nonporous substrates around ceramic tile, showers, sinks and plumbing fixtures. |
| | 8. Two-Part Non-Acid Curing Silicone Sealant for Use T: Type M; Grade NS; Class 25; Uses T, M, and, as applicable to joint substrates indicated, Use O; and complying with the requirement for additional joint movement <ul style="list-style-type: none"> a. Additional capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand an increase and decrease of 50 percent of joint width as measured at time of application and remain in compliance with other requirements of ASTM C 920. |
| | 9. Multi-Part Nonsag Urethane Sealant: Type M; Grade NS; Class 25; Uses NT, M, G, A, and, as applicable to joint substrates Use O. |

- Use
10. Two-Part Nonsag Low-Modulus Urethane Sealant: Type M; Grade NS; Class 25; Uses NT, M, A, and as applicable to joint substrates indicated, Use O; with additional capability to withstand an increase and decrease of 50 percent of joint width as measured at time of application and remain in compliance with other requirements of ASTM C 920, based on manufacturer's recommendations and testing.
 11. Two-Part Pourable Urethane Sealant: Type M; Grade NS; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, Use O.
 12. Two-Part Nonsag Urethane Sealant for Use T: Type M, Grade NS: Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, Use O.
 13. One-Part Nonsag Urethane Sealant: Type S; Grade NS; Class 25; Uses NT, M, A, and, as applicable to joint substrates indicated, O.
 14. One-Part Nonsag Low-Modulus Urethane Sealant: Type S; Grade NS; Class 25; Uses NT, M, A, and, as applicable to joint substrates indicated, Use ; with additional capability to withstand an increase and decrease of 50 percent of joint width as measured at time of application and remain in compliance with other requirements of ASTM C 920, based on manufacturer's recommendations and testing.
 15. One-Part Pourable Urethane Sealant: Type S; Grade P; Class 25; Uses T, M,. and, as applicable to joint substrates indicated, Use O.

2.03 SOLVENT RELEASE CURING JOINT SEALANTS

- revised as
- A. Acrylic Sealant: Manufacturer's standard one-part, nonsag, solvent release curing, acrylic terpolymer sealant complying with ASTM C 920 for Type S; Grade NS: Uses NT, M, G, A, and, as applicable to joint substrates indicated, Use O; except for selected test properties which are follows:
 1. Heat aged hardness - 40 to 50
 2. Weight loss - 15 percent
 3. Maximum cyclic movement capability - plus or minus 7-1/2 percent (Class)
 - B. Butyl Sealant: Manufacturer's standard one-part, nonsag, solvent release curing, polymerized butyl sealant complying with FS TT-S-001657 for Type I and formulated with minimum of 75 percent solids to be nonstaining, paintable, and have a tack-free time of 24 hours or less.
 - C. Pigmented Small Joints Sealant: Manufacturer's standard, solvent release curing, pigmented, synthetic rubber sealant formulated for sealing joints 3/16-inch or smaller in width.

2.04 LATEX JOINT SEALANTS

- A. Acrylic-Emulsion Sealant: Manufacturer's standard, one- part, nonsag, acrylic, mildew resistant, acrylic-emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior exposures

involving joint movement of not more than plus or minus 7.5 percent.

2.05 MISCELLANEOUS JOINT SEALANTS

- A. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmissions of airborne sound.
- B. Butyl-Polyisobutylene Sealant: Manufacturer's standard solvent release curing, butylpolyisobutylene sealant recommended for concealed joints.
- C. Butyl-Polyisobutylene Tape Sealant: Manufacturer's standard, solvent-free, butylpolyisobutylene tape sealants with a solids content of 100 percent; formulated to be nonstaining, paintable, and non-migrating in contact with nonporous surfaces; packaged on rolls with release paper on one side; with or without reinforcement thread to prevent stretching.

2.06 COMPRESSION SEALS

- A. Preformed Foam Sealant: Manufacturer's standard preformed, precompressed, impregnated open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water repellent agent; factory-produced in precompressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by the manufacturer. Provide products which are permanently elastic, mildew-resistant, non-migratory, nonstaining, compatible with joint substrates and other joint sealers, and comply with the following requirements:
 - 1. Impregnating agent: Manufacturer's standard
 - 2. Density: Manufacturer's standard
 - 3. Backing: Pressure sensitive adhesive, factory applied to one side, with protective wrapping or coated on one face with release agent serving as bond breaker for primary joint sealant.
- B. Preformed Hollow Neoprene Gasket: Manufacturer's standard preformed polychloroprene elastomeric joint seal of the open-cell compression type complying with ASTM D 2628 and with requirements indicated for size, profile and cross-section design.

2.07 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers.
- B. Plastic Foam Joint-Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of either flexible, open cell polyurethane foam or non-gassing, closedcell polyethylene foam, subject to sealant manufacturer's approval; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by the sealant manufacturer for preventing bond between sealant and joint filler or other materials at the back or third surface of the joint. Provide self-adhesive tape where applicable.
- D. Elastomeric Tubing Joint Fillers: Neoprene, butyl or EPDM tubing complying with ASTM D 1056, non-absorbent to water and gas, capable of remaining resilient at temperatures down to minus 26 degrees F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth and otherwise contribute to optimum sealant performance.

2.08 MISCELLANEOUS MATERIALS

- A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated.
- B. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.
- C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and with surfaces adjacent to joints.

2.09 SECURITY SEALANTS

- A. Rigid two part high solids, high modulus epoxy resin compound, meeting ASTM C-881 Type I testing.
- B. Surface preparation: Surfaces must be clean, sound and free of surface water. Remove laitance, curing compounds, coatings, oil, grease, rust, waxes and other bond inhibiting substances.
- C. Joint Backing: for deep joints install a closed cell backer rod allowing for proper tooling of the sealant under pressure. Closed cell backer rod should have a 25% minimum compression when installed.
- D. Physical Properties:
 - 1. Compression Strength: 11,000psi
 - 2. Hardness, Shore D: 70 (max 72 hours)
 - 3. Pot Life: 75 minutes
 - 4. Viscosity: Heavy paste consistency
 - 5. VOC Content: Base – 0 g/L
Activator – 0 g/L

2.10 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering joint sealant systems that may be incorporated into the Work are not limited.

PART 3 – EXECUTION

3.01 PROJECT CONDITIONS

- A. Environmental Conditions: CONTRACTOR shall not proceed with installation of joint sealers under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by the joint sealer manufacturers.
 - 2. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions: Installation of joint sealers shall not proceed when joint widths are less than, or more than, allowed by the joint sealer manufacturer for the application indicated.

3.02 PREPARATION

- A. Surface Cleaning of Joints: All joints shall be cleaned out immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - 1. All foreign material shall be removed from joint substrates which could interfere with adhesion of joint sealer, including dust; paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer) oil; grease; waterproofing; water repellents; water, and surface dirt.
 - 2. Concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces shall be cleaned by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Loose particles remaining from the above cleaning operations shall be removed by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Laitance and form release agents shall be thoroughly removed from all concrete surfaces.
 - 4. Metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other nonporous surfaces shall be cleaned with chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Joint substrates shall be primed where indicated or where recommended by joint sealer manufacturer. Primer shall be applied so as to comply with joint sealer manufacturer's recommendations. Primers shall be confined to areas of joint sealer bond. Spillage or migration onto adjoining surfaces shall not be allowed.
- C. Masking Tape: Masking tape shall be used where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Tape shall be removed immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

- A. General: Unless otherwise indicated, comply with joint sealer manufacturers' printed installation instructions.

- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 962 for use of joint sealants as applicable to materials, applications and conditions indicated.
- C. Solvent-Release-Curing Sealant Installation Standard: Comply with requirements of ASTM C 804 for use of solvent-release-curing sealants.
- D. Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.
- E. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications and conditions indicated.
- F. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
 - 1. Install joint-fillers of the types indicated to provide support of sealants during application and at position necessary to produce the required cross-sectional shapes and depths.
 - a. Do not leave gaps between ends of joint-fillers.
 - b. Do not stretch, twist, puncture or tear joint-fillers.
 - c. Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.
 - 2. Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints, where required to prevent third-side adhesion of sealant to back of joint.
 - 3. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint-fillers.
- G. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- H. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by the sealant manufacturer.
 - 1. Concave joint configuration per Figure 6A in ASTM C 962, unless otherwise indicated.
 - 2. Flush joint configuration per Figure 6B in ASTM C 962, where indicated.
 - 3. Recessed joint configuration per Figure 6C in ASTM C 962, of recess depth and at locations indicated.
 - a. Where necessary, use masking tape to protect adjacent surfaces of tooled joints.

- I. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and complying with sealant manufacturer's directions for installation methods, materials and tools which produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in conformance with sealant manufacturer's recommendations.
- J. Installation of Preformed Hollow Neoprene Gaskets: Install gaskets, with minimum number of end joints, in joint recesses with edges free of spalls and sides straight and parallel, both within tolerances specified by gasket manufacturer. Apply manufacturer's recommended adhesive to joint substrates immediately prior to installing gaskets. For straight sections provide gaskets in continuous lengths; where changes in direction occur, adhesively splice gasket together to provide watertight joints. Recess gaskets below adjoining surfaces by 1/8 inch to 1/4 inch.

3.04 PROTECTION AND CLEANING

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers and reseal joints with new materials to produce installations with repaired areas indistinguishable from original work.
- B. Clean off excess sealants or sealant smears adjacent to joints as WORK progresses, by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF SECTION 07910

SECTION 08050 – BASIC DOOR AND WINDOW MATERIALS AND METHODS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Section includes all general door and window the extent and location of each is indicated in on the Drawings and specified hereafter.

1.02 CERTIFICATIONS AND STANDARDS

- A. Wood and Door Manufacturers Association (WDMA)
- B. NFPA 80 “Standard for Fire Doors and Windows”
- C. ASTM E152 “Standard Methods of Fire Tests of Door Assemblies”
- D. NFPA 101 “Standard for Fire Rated Openings Hardware”
- E. UBC 7-2 or UL-10C – Positive Pressure Testing for Door Frame and Hardware Assemblies
- F. Consumer Products Safety Commission Publication 16 CFR, part 1201
- G. FGMA – Glazing Manual
- H. UL 752 – Bullet Resistant Glazing
- I. US-10 or US-26D – Architectural Hardware Finishes

1.03 CERTIFICATIONS

- A. Installation Contractor / Sub-Contractors
 - 1. For each product/system specified and requiring manufacturers warranty and contractors maintenance bond, the proposed installation contractor must provide evidence of manufacturer’s license to install and affidavit of the following required duration of continuous experience on projects of equivalent size, quantity and complexity.
 - a. Standard Steel Doors - 3 years
 - b. Custom Steel Doors - Minimum 3 years.
 - c. Wood Doors - Minimum 3 years.
 - d. Overhead Coiling Doors - Minimum 3 years.
 - e. Metal Frame Storefront and Curtain Wall Systems - Minimum 5 years.
 - f. Automatic and ADA Entrance Doors - Minimum 5 years.
 - g. Windows and Glazing - Minimum 5 years.
 - h. Door Hardware (Supplier) - Minimum 5 years.
 - i. Door Hardware (Installer) - Minimum 3 years.
 - j. Security Doors (Supplier) - Minimum 5 years.
 - k. Security Doors (Installer) – Minimum 5 years

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- l. Security Window Frames (Supplier) – Minimum 5 years
- m. Security Window Frames (Installer) – Minimum 5 years
- n. Security Glazing (Supplier) – Minimum 5 years
- o. Security Glazing (Installer) – Minimum 5 years
- p. Security Hardware (Supplier) – Minimum 5 years
- q. Security Hardware (Installer) – Minimum 5 years

1.04 WARRANTIES AND GUARANTEES

A. Manufacturers Guarantee

1. All components of each door and window system shall be protected against failure and/or performance deficiencies by a product manufacturer's installation and materials warranty. Said warranties shall be specific to each system required and shall be non-prorated warranties which guarantee against material and labor defects for a minimum period of five (5) years.
2. Guarantee stating all Interior doors shall carry a lifetime guarantee. Guarantee shall include removal, finishing, and hanging of doors at no cost to the Owner.
3. Typical and Security Windows and Window Installation: Provide a written guarantee that all parts of the installation will meet specified performance requirements and will be free from defects in materials and workmanship for a period of two years following acceptance. Weather-stripping shall be guaranteed for a period of five years. Guarantee shall certify that all work is in accordance with the Contract Documents and shall contain a statement that, should defects develop during the guarantee period, caused by improper workmanship or materials, such defects will be repaired or windows will be replaced at no expense to the Owner.
4. Insulating and Reflective Glass and Security Glazing Guarantee: Provide manufacturer's written guarantee that for ten years from date of manufacture a replacement will be provided for any unit which develops edge separation or other defects which materially obstruct vision through the glass or safety; except, that guarantee shall not cover glass breakage from other than natural causes.
5. Type of Guarantee:
All Guarantees shall include all labor for periodic inspection and maintenance for one year and service within eight (8) working hours.
6. Warranty:
Power operators, controls, electrical circuitry provided by the power door operator equipment supplier shall be guaranteed against defects in material and workmanship at no cost to the Owner for a period of five (5) year from date of Substantial Completion.
7. Hardware including: closers, hinges, locksets, hold opens, etc. required for the proper installation of all interior and exterior doors shall be provided with a manufacturers minimum 5 year guarantee against defects in labor and materials.

1.05 QUALITY CONTROL

- A. All materials and fabrication shall be of the highest quality available and

shall be identified by the official mark of the appropriate regulatory or testing agency and manufacturers name.

1. Compliance with ANSI:
Door operator system, controls, wiring and other components shall comply with the latest edition of American National Standards Institute “ Specifications for Making Buildings and Facilities Accessible to, and to be Usable by the Physically Handicapped”.
2. Quality and Design:
Hardware must be adequate for the intended use and must satisfy code requirements, but shall not be excessively sophisticated nor unnecessarily expensive. Make submittal at a time which will allow for adequate review and for making required changes without causing unnecessary delays to the Project.
3. Labels:
Labeled construction and labels shall be provided where required by codes.

1.06 SUBMITTALS

- A. Shop Drawings
Provide complete shop drawings including all technical data sheets and testing reports for each product. Shop drawings shall include installation requirements and details. Drawings shall indicate all necessary allowances and components for thermal expansion, contraction and normal building movement. Shop drawing shall show all necessary flashing profiles/sections and fastening requirements; including installation details and minor components.
- B. Samples
Provide product section/material samples for all door, window and hardware components. Samples shall include all finish and color selection options.
- C. Maintenance Manual
Three copies of an appropriate maintenance manual shall be provided to Owner on completion of work.

PART 2 – PRODUCTS

2.01 DESIGN STANDARDS - DOORS

- A. Typical Doors – Steel
Typical steel doors shall not be less than 16-gauge reinforced steel. The top channel of each metal door shall be turned web up, to avoid a dirt pocket or moisture trap. All exterior doors shall be of seamless insulated hot dipped A60 galvanized steel construction.
- B. Entrance Doors – Aluminum
Entrance doors shall be wide stile type, with 12-inch bottom rail. Face plates not less than 0.064-inch thick shall be provided for flush aluminum doors.
- C. Security Doors – Steel

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Security Exterior shall be two (2) inch minimum thickness, , with vertical stiffeners. All exterior doors shall be of seamless insulated hot dipped A60 galvanized steel construction.

- D. Typical Door Frames - Steel
Frames shall be one piece, welded frames of not less than 14-gaugesteel. All frames shall be heavily reinforced at hinge locations. Exterior frames to be hot dipped A60 galvanized steel construction.
- E. Security Door Frames – Steel
Frames shall be one piece, welded frames of not less than 10-gaugesteel. All frames shall be heavily reinforced at hinge locations. Exterior frames to be hot dipped A60 galvanized.
- F. Typical Wood Doors
Interior Wood Doors shall be of stave lumber core construction, meeting WDMA Quality Grade for Standard Duty. Face with finished Class 1 tempered hardboard with factory applied finish.
- G. Labels -
Labeled construction and labels shall be provided where required by codes.
- H. Provisions for Noise Control -
On machine room doors and other doors where excessive noise is anticipated weather-stripping at heads and jambs and surface applied automatic door bottoms shall be required.
- I. Removable Mullions -
Pairs of double doors shall have a removable mullion with lock strike unless approval is given by Architect to deviate from this requirement.

2.02 DESIGN STANDARDS - HARDWARE

- A. Typical Finishes -
For all typical hardware, specify US-10 or US-26D. Other finishes may be used only where necessary to match materials to which hardware is applied.
- B. Prohibited Materials and Installations -
 - 1. Raised Thresholds:
Thresholds raised above floor levels at doors to trash and receiving rooms and over 1/2-inch high at doors intended for use of handicapped persons.
 - 2. Floor Mounted Door Stops:
Floor mounted door stops should be avoided if possible.
 - 3. Closers:
Floor closers should be avoided if possible.
- C. Typical Locks -
 - 1. Heavy duty, mortise locks only, **with 2 - piece metal anti friction latch**. Locks shall be reversible and shall have capability for changing function within any one case.

- D. Typical Keying -
1. Specification:
All locking devices shall be equipped with cylinders with removable 7-pin tumbler cores. For security while the building is under construction, locks shall be equipped with temporary construction cores.

2.03 POWER DOOR OPERATORS

- A. Handicapped Door Openers -
Furnish and install power door operators and controls as indicated on drawings and as specified.
- B. Work Included Under this Section -
1. Power door operators:
To be surface - mounted or concealed in door - head.
 2. Possible Reinforcement:
Reinforcement of aluminum doors and frames as may be found necessary to assure that doors and frames are sufficiently sturdy to accept power operations.
 3. Wall Switches:
Wall switches, mounted by various means as shown on drawings.
 4. Electrical Controls:
Low-voltage electrical controls circuits from power door operators to wall switches.
 5. Wiring:
Wiremolds and conduits for electrical control circuits.
 6. Electrical Boxes:
Anchorage of wall switch electrical boxes to walls and posts.
- C. Equipment and Labor -
Equipment and labor shall be provided by a factory authorized and trained distributor for products specified.

2.04 WINDOWS

- A. Typical Exterior Windows -
1. Performance Requirements:
The manufacturer shall, if requested by the Associate, submit copies of test reports, made or witnessed by an independent testing laboratory, which show conformance to the following performance standards, as made on previously manufactured windows of the same type to be furnished for this project.
Air infiltration of an assembled sash and frame shall not exceed 0.15 cubic feet of air per minute, per foot of sash perimeter, when the window is subjected to a static air pressure equivalent to a wind velocity of 50 miles per hour. There shall be no apparent water leakage to the indoor side of the window when tested for fifteen minutes with water spray at a rate of 5 gallons per square foot per hour under a pressure equivalent to a wind velocity of 50 miles per hour.
 2. Thermal Performance:

All windows shall be constructed and installed to provide the maximum in thermal efficiency possible. All units shall be thermally broken with a minimum total “U” value of U=.625.

2.05 GLAZING

- A. **Wired Glass**
Borrowed light windows shall be glazed with 1/4 inch wired glass or as required by code.
- B. **Laminated Glass**
Glass for exterior aluminum doors shall be 1/4 inch thick, double laminated safety glass, or an approved equal.
- C. **Insulating Glass**
Glass for exterior windows shall be 3/4 clear (non-reflective) “Low-E” type with interior air space filled with inert low heat transfer gas.
- D. **Security Glass**
Glass for security windows shall be a glass clad polycarbonate type with a single source responsibility program.
- G. **Texture**
All glass shall be smooth float type glass, with obscure glass provided for toilet rooms and areas as specified in program documents. Obscure glass textures shall be as approved by the Architect.

PART 3 – EXECUTION

3.01 PRE-INSTALLATION

- A. Each primary door and window system shall be preceded by a Pre-installation conference attended by the General Contractor, Manufacturer, Installer, Associate Owner and Architect.
 - 1. **Observation of Installation by Personnel -**
All Parties shall be given 2 weeks advance notice of intent to start installation of systems and materials. Designated personnel must be permitted to perform a pre-installation inspection and to be present throughout installation to observe installation techniques for compliance with specifications. Questionable installations will be brought to the attention of the Contractor who shall take immediate action to correct any deficiencies in materials or installation. Failure of personnel to call attention to deficiencies shall not relieve the Contractor of responsibilities stipulated in the Maintenance Bond.
 - 2. Finish materials and colors are subject to the approval of the Architect/Owner.
 - 3. **Responsibility for Satisfactory Installation**
Inspect work of other trades prior to any installation work. If any area or opening cannot be put into proper condition to receive the doors or window by specified methods, immediately notify the Architect in writing, or assume responsibility for and rectify.

4. Test Panels
The Architect reserves the right to order window units field tested in order to determine that minimum requirements have been met. The Contractor shall repair, at his own expense, the units where test were executed.
5. Rated Enclosures
Caulking used at rated enclosures shall be UL rated and of type appropriate for assembly type, materials, and trade.

3.02 TEMPLATES AND DIAGRAMS

- A. Templates and diagrams and other data as needed shall be furnished to fabricators and installers of related work for coordination of operators with Electrical Contract Work and other work.

END OF SECTION 08050

SECTION 08120 - HOLLOW METAL FRAMES**PART 1 – GENERAL**

- 1.01 DESCRIPTION
- A. Extent of standard steel door and window frames as indicated and scheduled on the Drawings.
- 1.02 SUBMITTALS
- A. Shop Drawings: Submit for fabrication and installation of steel frames. Include details of each frame type, elevations of each frame type, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- B. Provide schedule of frames using same reference numbers for details and openings as those on contract drawings. Coordinate glazing frames and stops with glass and glazing requirements.
- 1.03 FIRE RATED ASSEMBLIES
- A. Fire-Rated Assemblies: Where fire-rated assemblies are indicated or required, provide fire-rated frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
- 1.04 DELIVERY, STORAGE AND HANDLING
- A. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. If cardboard wrapper becomes wet, remove carton immediately. Provide 1/4" spaces between stacks to promote air circulation.
- 1.05 WARRANTY
- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.
1. Include coverage for degradation of color finish.
- 1.06 FIELD CONDITIONS
- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and after installation of

sealants.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing industrial windows specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum five (50 years of experience).

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering steel frames which may be incorporated into the Work are not limited.

2.02 FABRICATION, GENERAL

- A. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled. Close top and bottom edges of exterior frames as integral part of construction or by addition of minimum 16-gage inverted steel channels.
- B. Finish Hardware Preparation: Prepare frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier.
- C. Shop Painting: Clean, treat, and paint exposed surfaces of steel frame units, including hot dipped A60 galvanized surfaces for all exterior frames. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.
- D. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- E. Accurately fit and secure joints and corners. Make joints flush and hairline.
- F. Prepare components to receive anchor devices. Fabricate anchors.
- G. Arrange fasteners to conceal from view.
- H. Prepare components with reinforcement for operating hardware.
- I. Reinforce mullions with internal galvanized steel members to maintain rigidity.

- J. Provide internal drainage weep holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.
 - K. Factory-glaze window units.
- 2.03 STANDARD STEEL DOOR FRAMES
- A. Provide metal frames, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 14-gage Cold Rolled Steel (CRS) conforming to ASTM A1008 and ASTM A568 recommended for interior opening with normal humidity exposure.
 - B. Fabricate frames with fully welded corners and assemblies, knocked down frames will not be acceptable..
 - C. Door Silencers: Except on weather stripped frames, drill stops to receive 3 silencers on strike jamb.
- 2.04 STANDARD STEEL WINDOW FRAMES
- A. Steel Windows: cold rolled steel sections, factory fabricated, factory finished, with vision glass, infill panels, related flashings, anchorage and attachment devices.
 - 1. Grade: SWI Standard Intermediate design.
 - 2. Sash Configuration: Fixed non-operable lights.
 - B. Frame: See Window Schedule flush glass stops of snap-on type.
 - C. Reinforced Mullion: See Window Schedule, of shaped steel structural section.
 - D. Sills: See Window Schedule; sloped for positive wash; fit under sash leg to 1/2 inch beyond wall face; one piece full width of opening with jamb angles to terminate sill end.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install standard frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Placing Frames: Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. In masonry construction, locate three (3) wall anchors per jamb at hinge and strike levels.
- C. Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with treated wood, cementitious, or dissimilar materials.
- D. Install window frames and glass and glazing in accordance with manufacturers instructions.

- E. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.
- F. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.
- G. Install sill and sill end angles.
- H. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- J. Install operating hardware.
- K. Install glass and infill panels in accordance with Section 08800, to glazing method required to achieve performance criteria.
- L. Install perimeter sealant, backing materials, and installation criteria in accordance with Section 07910.

3.02 ERECTION TOLERANCES

- A. Maximum Variation from Level or Plumb: 1/16 inches in 3 ft non-cumulative or 1/8 inches per 10 ft.

3.03 ADJUSTING

- A. Adjust hardware for smooth operation and secure weathertight closure.
- B. Prime Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- C. Final Adjustments: Check and readjust operating finish hardware items, leaving steel frames undamaged and in complete and proper operating condition.

3.04 CLEANING

- A. Remove protective material from factory finished surfaces.
- B. Remove labels and visible markings.
- C. Wash surfaces by method recommended and acceptable to sealant and window manufacturer; rinse and wipe surfaces clean.
- D. Remove excess sealant by method acceptable to sealant manufacturer.

3.05 PROTECTION

- A. Do not permit continuing construction activities near unprotected finish surfaces.

END OF SECTION 08120

SECTION 08130 - METAL DOORS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Extent of standard steel doors as indicated and scheduled on the Drawings.

1.02 SUBMITTALS

- A. Shop Drawings: Submit for fabrication and installation of steel doors. Include details of each door type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- B. Provide schedule of doors using same reference numbers for details and openings as those on contract drawings. Coordinate glazing frames and stops with glass and glazing requirements.

1.03 FIRE RATED ASSEMBLIES

- A. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.

1.04 REFERENCES

- A. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.
- B. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998.
- D. ANSI A250.11, Recommended Erection Instructions for Steel Frames.
- E. ASTM A 366/A 366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled; 1997.
- F. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process; 1998.
- G. ASTM E-90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

- H. DHI A115.1G - Installation Guide for Doors and Hardware; 1994.
- I. NFPA 80 - Standard for Fire Doors and Windows; 1999.
- J. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies; 1995.
- K. UL 10B - Standard for Fire Tests of Door Assemblies; 1997.
- L. UL 10C - Positive Pressure Fire Tests of Door Assemblies.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's data sheets and specifications.
- B. Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Show layout, profiles, product components and anchorages.
- C. Certificates: Product certificates signed by the manufacturer certifying material compliance with ANSI A250.8, specified performance characteristics and criteria, and physical requirements.
- D. Installation Instructions: Manufacturer's printed installation instructions, if other than as specified in SDI-105.

1.06 QUALITY ASSURANCE

- A. All products shall conform to the requirements of ANSI A250.8, "SDI 100 Recommended Specifications for Standard Steel Doors and Frames".
- B. Acoustical Doors shall have a minimum Sound Transmission Classification (STC) Rating of 38 (standard honeycomb core) and be tested in accordance with ASTM E- 90-87, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements". Optional STC openings available – 42, 43, 47, 48, 50 and 52 – all tested in accordance with ASTM E90 and E413
- C. Insulated Doors shall have:
 - 1. A "U Factor" of 0.10 for a Polyurethane core.
 - 2. A "U Factor" of 0.13 for a Polystyrene core.
- D. Fire Rated Doors:
 - 1. Doors shall be tested in accordance with UL 10B, "Fire Tests of Door Assemblies", NFPA 252, "Fire Tests of Door Assemblies", and UL 10C, "Positive Pressure Fire Tests of Door Assemblies".
 - 2. Doors must have an approved marking or physical label, applied by an authorized facility, in accordance with the procedure set forth by an independent certification agency.
- E. Stairwell Doors shall have a 250 degree F temperature rise rating (30 minute fire test duration.) The fire label on the door shall indicate the specific hourly rating.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver doors and frames palletized and wrapped to provide protection while in transit.
- B. Store all materials under cover. Avoid use of non-vented plastic or canvas shelters to prevent forming of humidity chambers that cause rust.
- C. If cardboard wrapping becomes wet, remove cartons immediately.
- D. Provide 1/4 inch (6 mm) spacing between doors to provide air circulation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering steel doors which may be incorporated into the Work are not limited.

2.02 FABRICATION, GENERAL

- A. Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option). Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.
- A. Finish Hardware Preparation: Prepare doors to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier.
- B. Shop Painting: Clean, treat, and paint exposed surfaces of steel door including hot dipped A60 galvanized surfaces for all exterior doors. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

2.03 STANDARD STEEL DOORS

- A. Materials
 - 1. Uncoated Steel Sheet: Cold rolled commercial steel sheet complying with ASTM A366/A 366M.
 - 2. Galvannealed Steel Sheet: ASTM A 653/A 653M, commercial quality, hot-dipped.
 - a. Coating Thickness: G90 coating (Galvanized.)
- B. Door Construction
 - 1. Typical Steel Doors: Full flush (No Vertical Face Seams), complying with ANSI A250.8; face panels laminated to core and

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complete unit closed with steel perimeter channels projection welded to face sheets.

- a. Thickness: 1-3/4 inches (44 mm).
 - b. ANSI Level 2, Model 2; 18 gage (1.0 mm) faces, no visible edge seams.
 - c. Faces: Full flush.
 - d. Face Material: Galvanized steel sheet.
 - e. Insulated Doors: Insulated; U-value of 0.13, polystyrene core.
 - f. Core: Doors fabricated by laminating panels to a specified core and the complete unit closed with steel perimeter channels, projection welded to the face sheets. Core shall be as follows:
 - i. Expanded polystyrene core.
 - g. Finish: Factory prime finish.
 - h. Acoustical Doors: Minimum Sound Transmission Classification (STC) Rating of 38 when tested according to ASTM E 90.
2. Door Reinforcements:
- a. Top and Bottom Channels: 16 gage steel, projection welded to both face sheets at a maximum of 2-1/2 inches (64 mm) on center.
 - i. For exterior Doors fill top channel with epoxy and grind smooth.
 - b. Hinge Reinforcement: Hinge reinforcing channel shall be projection welded to both face sheets at a maximum of 5 inches (127 mm) on center.
 - i. DL Series: 1-3/4 inch (44 mm) thick. Reinforced with a continuous 16 gage channel with additional 9 gage reinforcements located at each hinge preparation.
 - c. Lock Reinforcing Channel: Lock reinforcing channel shall be projection welded to both face sheets.
 - i. DL Series: Non beveled and reinforced with a continuous 16 gage channel. 16 gage reinforcements for mortised or cylindrical locks are of an integral type in accordance with ANSI A115 standards.
 - d. Closer Reinforcement: 12 gage box type reinforcement, 18 inches (457 mm) long.
3. Fire Rated Doors: Ratings as indicated on Door Schedule, when tested in accordance with NFPA 252 or UL 10B.
- a. Labeled by UL
 - b. Stairwell Doors: 250 degrees F (139 degrees C) temperature rise rating as well as the required fire rating.

2.04 FACTORY FINISH

- A. All doors, frames, and stick components shall be cleaned and finished in accordance with ANSI A250.10, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames".
- B. Preparation: Clean and phosphatize surfaces of steel doors and frames".
- C. Primer: Apply one coat of a gray, alkyd acrylic enamel primer, forced cured.

- D. Finish: Paint with alkyd acrylic enamel using a two-coat process, with each coat being force cured after each coating.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Install standard sheet doors, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Door Installation:
 - 1. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100. Install each hardware item in compliance with the manufacturer's instructions and recommendations.
 - 2. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant. See Section 07900 - Sealants.

3.02 ADJUST AND CLEAN

- A. Prime Coat Touch-Up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- B. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08130

SECTION 08510 - ALUMINUM STOREFRONTS**PART 1 - GENERAL**

1.01 SUMMARY

- A. Related Documents: Conditions of the Contract, Division 1 - General Requirements, and Drawings apply to Work of this Section.
- B. Section Includes:
 - 1. Storefront system, complete with reinforcing, fasteners, anchors, and attachment devices.
 - 2. Accessories necessary to complete work.
- C. Related Sections:
 - 1. Section 06100 Rough Carpentry.
 - 2. Section 07900 - Joint Sealers.
 - 3. Section 08520 Aluminum Windows.
 - 4. Section 08710 - Door Hardware.
 - 5. Section 08810 - Glazing.
 - 6. Section 08413 Glazed Aluminum Curtain Wall.

1.02 REFERENCES

- A. Aluminum Association (AA):
 - 1. DAF-45 Designation System for Aluminum Finishes.
- B. American Architectural Manufacturers Association (AAMA):
 - 1. 501 Methods of Test for Exterior Walls.
 - 2. 501.2 Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.
 - 3. 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
 - 4. 611 Voluntary Specification for Anodized Architectural Aluminum.
 - 5. 701 Voluntary Specifications for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
 - 6. 1503 Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.
 - 7. 1801 Voluntary Specification for the Acoustical Rating of Windows, Doors, and Glazed Wall Sections.
 - 8. CW-10 Care and Handling of Architectural Aluminum From Shop to Site.
 - 9. SFM1 Aluminum Storefront and Entrance Manual.
- C. American Society for Testing and Materials (ASTM):
 - 1. A36 Structural Steel.
 - 2. A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 3. B209 Aluminum and Aluminum - Alloy Sheet and Plate.
 - 4. B221 Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
 - 5. E283 Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
 - 6. E330 Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
 - 7. E331 Test Method for Water Penetration of Exterior Windows, Curtain

Walls and Doors by Uniform Static Air Pressure Difference.

- D. Glass Association of North America (GANA):
 - 1. Glazing Manual
- E. Federal Specifications (FS):
 - 1. TT-P-641G(1) Primer Coating, Zinc Dust-Zinc Oxide (For Galvanized Surfaces).
 - 2. TT-P-645A Primer, Paint, Zinc Chromate, Alkyd Type.

1.03 SYSTEM REQUIREMENTS

- A. Design Requirements:
 - 1. Drawings are diagrammatic and do not purport to identify nor solve problems of thermal or structural movement, glazing, anchorage, or moisture disposal.
 - 2. Requirements shown by details are intended to establish basic dimension of units, sight lines and profiles of members.
 - 3. Provide concealed fastening.
 - 4. Provide entrance and storefront systems, including necessary modifications, to meet specified requirements and maintaining visual design concepts.
 - 5. Attachment considerations are to take into account site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units and building structure or between units themselves.
 - 6. Provide for expansion and contraction due to structural movement without detriment to appearance or performance.
 - 7. Framing systems shall accommodate expansion and contraction movement due to surface temperature differentials of 180 degrees F without causing buckling, stress on glass, failure of joint seals, excessive stress on structural elements, reduction of performance, or other detrimental effects.
 - 8. Stresses placed on structural silicone sealants shall be kept within sealant manufacturer's recommended maximum.
- B. Performance Requirements:
 - 1. Wind loads: Provide framing system capable of withstanding wind load design pressures of [] psf acting inward and [] psf acting outward. The design pressures are based on the [] Building Code; [] Edition.
 - 2. Air infiltration: Air leakage through fixed light areas of storefront shall not exceed 0.06 cfm per square foot of surface area when tested in accordance with ASTM E283 at differential static pressure of 6.24 psf (300 PA).
 - 3. Water infiltration: No uncontrolled leakage when tested in accordance with ASTM E331 at test pressure of 10 psf (480PA) as defined in AAMA 501.
 - 4. Deflection: Maximum calculated deflection of any framing member in direction normal to plane of wall when subjected to specified design pressures for spans up to and including 13'-6" (4.11m) shall be limited to [L/175] of its clear span and for spans greater than 13'-6" (4.11m) deflection shall be limited to [L/240] of its clear span + 1/4" (6.35mm), except that maximum deflection of members supporting plaster surfaces shall not exceed 1/360 of its span.
 - 5. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503,

the thermal transmittance (U-factor) shall not be more than:

- a. Clear Glass: 0.54 BTU/h-ft²-F (3.06 W/m²-K)
 - b. Low E Glass: 0.32 BTU/h-ft²-F (1.81 W/m²-K)
6. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
 - a. Clear Glass: 62
 - b. Low E Glass: 66
 7. Sound Transmission Class (STC): When tested to ASTM E-90, the STC Rating shall not be less than:
 - a. Clear Glass: 33
 - b. Lami Glass: 37
 8. Sound Transmission Class (OITC): When tested to ASTM E-90, the OITC Rating shall not be less than:
 - a. Clear Glass: 27
 - b. Lami Glass: 29

- C. Testing Requirements: Provide components that have been previously tested by an independent testing laboratory.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01300.
- B. Product Data:
 1. Submit manufacturer's descriptive literature and product specifications.
 2. Include information for factory finishes, hardware, accessories, and other required components.
 3. Include color charts for finish indicating manufacturer's standard colors available for selection.
- C. Shop Drawings:
 1. Submit shop drawings covering fabrication, installation and finish of specified systems.
 2. Include following:
 - a. Fully dimensioned plans and elevations with detail coordination keys.
 - b. Locations of exposed fasteners and joints.
 3. Provide detailed drawings of:
 - a. Composite members.
 - b. Joint connections for framing systems and for entrance doors.
 - c. Anchorage.
 - d. System reinforcements.
 - e. System expansion and contraction provisions.
 - f. Glazing methods and accessories.
 - g. Internal sealant requirements.
 - h. Thermal improvements.
 4. Schedule of finishes.
- D. Samples:
 1. Submit manufacturers standard samples indicating quality of finish.
 2. Where normal texture or color variations are expected, include additional samples illustrating range of variation.
- E. Test Reports:

1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting. Include other supportive data as necessary.
- F. Manufacturer's Instructions: Submit manufacturer's printed installation instructions.

1.05 QUALITY ASSURANCE

- A. Single Source Responsibility:
1. To ensure quality of appearance and performance, obtain materials for systems from either a single manufacturer or from manufacturer approved by systems manufacturer.
- B. Perform Work in accordance with AAMA SFM1 and manufacturer's written instructions.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of Section 01600.
- B. Protect finished surfaces as necessary to prevent damage.
- C. Do not use adhesive papers or sprayed coatings that become firmly bonded when exposed to sun.
- D. Do not leave coating residue on any surfaces.
- E. Replace damaged units.

1.07 WARRANTY

- A. Provide warranties in accordance with Section 01700.
- B. Provide written warranty in form acceptable to Owner jointly signed by manufacturer, installer and Contractor warranting work to be watertight, free from defective materials, defective workmanship, glass breakage due to defective design, and agreeing to replace components which fail within 1 year from date of Substantial Completion.
- C. Warranty shall cover following:
1. Complete watertight and airtight system installation within specified tolerances.
 2. System is structurally sound and free from distortion.
- D. Provide written warranty stating organic coating finish will be free from fading more than 10%, chalking, yellowing, peeling, cracking, pitting, corroding or non-uniformity of color, or gloss deterioration beyond manufacturer's descriptive standards for 1 year from date of Substantial Completion and agreeing to promptly correct defects.

PART 2 - PRODUCTS

2.01 MANUFACTURERS AND PRODUCTS

- A. Subject to compliance with requirements indicated, provide products by one of the following:
1. Oldcastle Building Envelope®, Terrell, TX.
 2. Cardinal Commercial Products
 3. Tubelite Inc.
 4. Aluflam North America LLC
 5. U.S. Aluminum
 6. Kawneer North America
- B. Basis of Design Storefront Systems:
1. Series-3000-XT center set incorporating dual thermal break 2" (50.8mm) x 4-1/2" (114.3mm) mullion profile. This system uses two poured-in-place polyurethane thermal pockets to create its thermal break. Mullion filler to be structural composite assembly composed of two aluminum members assembled with glass-reinforced polyamide insulating strip. This system accommodates 1" glass thickness, with 1/4" (6.35mm) as an option.

2.02 FRAMING MATERIALS AND ACCESSORIES

- A. Aluminum:
1. ASTM B221, alloy 6063-T6 for extrusions; ASTM B209, alloy 5005-H16 for sheets; or other alloys and temper recommended by manufacturer appropriate for specified finish.
- B. Internal Reinforcing:
1. ASTM A36 for carbon steel.
 2. Shapes and sizes to suit installation.
 3. Steel components factory coated with alkyd type zinc chromate primer complying with FS TT-P-645.
- C. Anchorage Devices:
1. Manufacturer's standard formed or fabricated steel or aluminum assemblies of shapes, plates, bars or tubes.
 2. Hot-dip galvanize steel assemblies after fabrication; comply with ASTM A123, 2.0 ounce minimum coating.
- D. Fasteners:
1. Aluminum, non-magnetic stainless steel or other non-corrosive materials compatible with items being fastened.
 2. Provide concealed fasteners wherever possible.
 3. For exposed locations, provide Phillips flathead screws with finish matching item fastened.
 4. For concealed locations, provide manufacturer's standard fasteners.
- E. Expansion Anchor Devices: Lead-shield or toothed-steel, drilled-in, expansion bolt anchors.
- F. Protective Coatings: Cold-applied asphalt mastic complying with SSPC, compounded for 30 mil thickness for each coat; or alkyd type zinc chromate primer complying with FS TT-P-645.
- G. Touch-Up Primer for Galvanized Components: Zinc oxide conforming with FS TT-

P-641.

- H. Glazing Gaskets:
1. Compression type design, replaceable, molded or extruded, of ethylene propylene diene monomer (EPDM).
 2. Profile and hardness as required to maintain uniform pressure for watertight seal.

I. Internal Sealants and Baffles.

2.03 GLASS AND GLAZING ACCESSORIES

A. Refer to Section 08810.

2.04 FABRICATION

- A. Coordination of Fabrication:
1. Check actual frame or door openings required in construction work by accurate field measurements before fabrication.
 2. Fabricate units to withstand loads that will be applied when system is in place.
- B. General
1. Conceal fasteners wherever possible.
 2. Reinforce work as necessary for performance requirements, and for support to structure.
 3. Separate dissimilar metals and aluminum in contact with concrete utilizing protective coating or preformed separators, which will prevent contact and corrosion.
 4. Comply with Section 08810 for glazing requirements.
- C. Aluminum Framing:
1. Provide members of size, shape and profile indicated, designed to provide for glazing from [exterior] [interior].
 2. Provide manufacturer's standard, dual thermal break between exterior and interior aluminum surfaces.
 3. Fabricate frame assemblies with joints straight and tight fitting.
 4. Reinforce internally with structural members as necessary to support design loads.
 5. Maintain accurate relation of planes and angles, with hairline fit of contacting members.
 6. Seal horizontals and direct moisture accumulation to exterior.
 7. Provide flashings and other materials used internally or externally that are corrosive resistant, non-staining, non-bleeding and compatible with adjoining materials.
 8. Provide manufacturer's extrusions and accessories to accommodate expansion and contraction due to temperature changes without detrimental to appearance or performance.
- D. Flashings: Form from sheet aluminum with same finish as extruded sections. Apply finish after fabrication. Material thickness as required to suit condition without deflection or "oil-canning".

2.05 FINISHES

- A. Organic Coating (high performance fluorocarbon):
 - 1. Comply with requirements of AAMA 2605.
 - 2. Surfaces cleaned and given conversion coating pre-treatment prior to application of 0.3 mil dry film thickness of epoxy or acrylic primer following recommendations of finish coat manufacturer.
 - 3. Finish coat of 70% minimum fluorocarbon resin fused to primed surfaces at temperature recommended by manufacturer, 1.0 mil minimum dry film thickness.
 - 4. Acceptable coatings are Trinar by Akzo Coatings, Inc.; Nubelar by Glidden Company; Fluoroceram by Morton International, Inc.; Duranar by PPG Industries Inc.; and Fluropon by Valspar Corporation.
 - 5. Provide in either a 2, 3, or 4 coat system as required for color selected.
 - 6. Manufacturer's standard colors as selected by Architect.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine conditions and proceed with Work in accordance with Section 01400.

3.02 INSTALLATION

- A. Erection Tolerances:
 - 1. Limit variations from plumb and level:
 - a. 1/8 inch in 10'-0" vertically.
 - b. 1/8 inch in 20'-0" horizontally.
 - 2. Limit variations from theoretical locations: 1/4 inch (6.35mm) for any member at any location.
 - 3. Limit offsets in theoretical end-to-end and edge-to-edge alignment: 1/16 inch (1.57mm) from flush surfaces not more than 2 inches (50.8mm) apart or out-of-flush by more than 1/4 inch (6.35mm) .
- B. Install doors and hardware in accordance with manufacturer's printed instructions.
- C. Set units plumb, level and true to line, without warp or rack of frame.
- D. Anchor securely in place, allowing for required movement, including expansion and contraction.
- E. Separate dissimilar materials at contact points, including metal in contact with masonry or concrete surfaces, with bituminous paint or preformed separators to prevent contact and corrosion.
- F. Set sill members in bed of sealant. Set other members with internal sealants and baffles to provide weather-tight construction.
- G. Coordinate installation of perimeter sealant and backing materials between assemblies and adjacent construction in accordance with requirements of Section 07920.
- H. Glazing: Refer to requirements of Section 08810.

3.03 ADJUSTING

- A. Test door operating functions. Adjust closing and latching speeds and other hardware in accordance with manufacturer's instructions to ensure smooth operation.

3.04 CLEANING

- A. Clean surfaces in compliance with manufacturer's recommendations; remove excess mastic, mastic smears, foreign materials and other unsightly marks.
- B. Clean metal surfaces exercising care to avoid damage.

END OF SECTION 08510

SECTION 08520- ALUMINUM WINDOW**PART 1 GENERAL****1.01 SUMMARY**

- A. Related Documents: Conditions of the Contract, Division 1 - General Requirements, and Drawings apply to Work of this Section.
- B. Section Includes:
 - 1. Aluminum Prime Windows
 - a. Type: Casement
 - b. Category: Architectural (AW)
 - c. Designation: Performance Grade-100(AW100)
- C. Related Sections
 - 1. Drawings, General and Supplementary Conditions of the Contract, Division 1 and the following Specification Sections, apply to this Section.
 - 2. Section 01 41 00 – Regulatory Requirements
 - 3. Section 01 43 00 – Quality Assurance
 - 4. Section 07 92 00 – Joint Sealants
 - 5. Section 08 51 13 – Aluminum Windows
 - 6. Section 08 81 00 – Glass Glazing

1.02 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA/WDMA/CSA 101/I.S.2/A440–Standard Specifications for Windows, Doors, and Skylights
 - 2. AAMA 910 – Voluntary “Life Cycle” Specifications and Test Methods for AW Class Architectural Windows and Doors
 - 3. AAMA 1503 – Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections
- B. American National Standards Institute (ANSI)
 - 1. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- C. ASTM International
 - 1. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 2. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - 3. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - 4. ASTM E2188 - Standard Test Method for Insulating Glass Unit Performance.
 - 5. ASTM E2189 - Standard Test Method for Testing Resistance to Fogging in Insulating Glass Units.
 - 6. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
- D. Consumer Product Safety Commission (CPSC)
 - 1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- E. Glass Association of North America (GANA)
 - 1. Glazing Manual (current edition)

1.03 SYSTEM DESCRIPTION

A. Test Procedures and Performance

1. Specifications for Windows, Doors and Unit Skylights: AAMA 101.
2. Air Infiltration Test: ASTM E 283, at 6.24 psf static air pressure differential. Air infiltration shall not exceed 0.10 CFM per sq. ft.
3. Water Resistance Test: ASTM E 331, no water leakage at 15 psf static air pressure differential.
4. Uniform Load Deflection Test: ASTM E 330, at static air pressure of +/- 100 psf. No member shall deflect more than 1/175 of its span.
5. Uniform Load Structural Test: ASTM E 330, at static air pressure difference of +/- 150 psf.
6. Condensation Resistance Test: AAMA 1503.1, CRF shall be not less than 55.
7. Thermal Transmittance Test: AAMA 1503.1, U-Value shall not exceed .46 BTU/HR/SQ.FT/°F.

1.04 SUBMITTALS

A. Provide submittals in a timely manner to meet required construction completion schedule and in accordance with specifications.

1. Shop Drawings

- a. Shop drawings will be prepared by the window manufacturer. Shop drawings prepared by window distributor, installer, representative/dealer of outside drafting firm are not acceptable.
- b. Show components complete with dimensions, material and details of anchoring and fastening.
- c. Show finishes, sealants and other information indicating compliance with specifications.
- d. Submit test report per 1.03 SYSTEM DESCRIPTION A. Test Procedures and Performance.

2. Samples

- a. Components: submit samples of anchors, fasteners, hardware, assembled corner sections and other materials and components if requested by architect.
- b. Finish: submit full range color samples for approval by architect.

3. Warranties: submit written copies in accordance with - 1.08 WARRANTIES

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect materials from damage before installation per instructions and in accordance with specifications.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer that has completed the same or similar projects in size and scope.

B. Source Limitations: Obtain aluminum windows from single source manufacturer.

C. In-House Testing: Conduct air and/or water testing of 2% windows prior to shipping.

1. Detailed documentation on in-house testing is available upon request.

1.07 PROJECT / SITE CONDITIONS

A. Ensure ambient and surface temperatures and joint conditions are suitable for installation of materials.

1.08 WARRANTY

A. Window System

1. Qualified window manufacturer, with proven financial responsibility and years of experience of at least the length of the warranty period shall provide written 10 year warranty against defects in materials and workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements indicated, provide products by one of the following:
 1. Oldcastle Building Envelope®, Terrell, TX.
 2. Cardinal Commercial Products
 3. Tubelite Inc.
 4. Aluflam North America LLC
 5. U.S. Aluminum
 6. Kawneer North America
- B. Basis of Design:
 1. Oldcastle BuildingEnvelope® Signature™ Series 5" Lap

2.02 MATERIALS

- A. Aluminum: 6063-T5 alloy shall have 0.080" wall thickness.
 1. Extrusions: comply with ASTM B 221. Extrusion tolerances shall meet ANSI H35.2.
 2. Sheet: comply with ASTM B 209.
 3. Frame Depth: 5"
 4. Thermal Barrier: Crimped-in-place glass reinforced polyamide 6/6 nylon strut.
- B. Hardware: material shall be corrosion resistant and compatible with aluminum. Hardware must prove its strength and suitability by being installed on units that are tested in accordance with specifications.
 1. Fasteners: provide non-magnetic stainless steel screws, epoxy adhesives, or other material warranted by the manufacturer.
- C. Sealants: color of exposed sealants shall be compatible with adjacent window materials. Comply with AAMA 803.3.
- D. Glazing: windows shall be factory glazed unless too large or unsafe for handling.
 1. Glass: provide in accordance with Section 08 81 00.
 2. Glazing Materials: units shall be gasket glazed, setting blocks, edge blocks and accessories as recommended by and in accordance with GANA Glazing Manual.
- E. Weatherstripping: shall be non-shrinking, resistant to ultraviolet degradation, and replaceable closed cell elastomer shall meet ASTM C 509. Dense elastomer shall meet ASTM C 864

2.03 FABRICATION

- A. Frames: shall be machined, mechanically fastened and sealed to form a watertight joint.
- B. Component Forming: all aluminum components shall be formed, free of scratches and burrs, before application of finish.

2.04 FINISHES

- A. Organic Coating (high performance fluorocarbon):
 1. Comply with requirements of AAMA 2605.

2. Surfaces cleaned and given conversion coating pre-treatment prior to application of 0.3 mil dry film thickness of epoxy or acrylic primer following recommendations of finish coat manufacturer.
3. Finish coat of 70% minimum fluorocarbon resin fused to primed surfaces at temperature recommended by manufacturer, 1.0 mil minimum dry film thickness.
4. Acceptable coatings are Trinar by Akzo Coatings, Inc.; Nubelar by Glidden Company; Fluoroceram by Morton International, Inc.; Duranar by PPG Industries Inc.; and Fluropon by Valspar Corporation.
5. Provide in either a 2, 3, or 4 coat system as required for color selected.
6. Manufacturer's standard colors as selected by Architect.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface and are in accordance with approved shop drawings.

3.02 INSTALLATION

- A. Install windows with skilled tradesman in accordance with approved shop drawings and specifications.
- B. Unfinished aluminum shall be insulated from direct contact with steel, masonry concrete, and non-compatible materials by bituminous paint, zinc chromate primer or other suitable insulating material.
- C. Install vapor retarder/air barrier in accordance specifications between window perimeter and adjoining collateral materials and existing wall barriers to assure continuity.
- D. Plumb window faces in a single plane for each wall plane. Erect square and true. Anchor to maintain position when subjected to normal thermal and building movement, seismic forces and specified wind loads.
- E. Apply sealants at joints and intersections and at opening perimeters in accordance with approved shop drawings and Section 07 93 13 to provide watertight installation.

3.03 FIELD QUALITY CONTROL

- A. Conduct on-site air and water infiltration tests in accordance with AAMA 502, ASTM E 783, ASTM E 1105, and with architect and window manufacturer's representative present. Architect will select units to be tested. Air infiltration shall not exceed 1.5 x air infiltration amount specified for laboratory testing.
- B. Tested units not meeting specified requirements and units having similar deficiencies shall be corrected at no cost to owner.
- C. Cost for successful tests shall be paid by owner. Unsuccessful tests shall be paid by contractor.
- D. Testing shall be by agency acceptable to architect and window manufacturer and employed by contractor.

3.04 CLEANING

- A. After installation and testing, windows and glazing shall be inspected, adjusted, and left clean and free of labels and dirt. Protect finished installation against damage.
- B. Final cleaning of anodized finish shall be in accordance with AAMA 609.1; painted finish shall be in accordance with AAMA 610.1.

END OF SECTION

SECTION 08710 - FINISH HARDWARE**PART 1 - GENERAL**

1.01 DESCRIPTION

- A. Finish Hardware for Hollow Metal and Wood Doors.
- B. Intent of Hardware Groups
 - 1. Should items of hardware not clearly specified be required for completion of the work, furnish such items of type and quality comparable to specified hardware and appropriate for service required.
 - 2. Where hardware items not definitely or correctly specified are required for completion of the work, a written statement of such omission, error or other discrepancy shall be directed to Architect, prior to date specified for receipt of bids for clarification by addendum or furnish such items in the type and quality established by this specification and appropriated to the service intended.

1.02 RELATED SECTIONS

- A. Section 08120 - Hollow Metal Frames
- B. Section 08130 – Hollow Metal Doors
- C. Section 08210 – Wood Doors
- D. Section 08330 – Overhead Coiling counter Doors
- E. Section 08410 – Aluminum Framed Storefronts

1.03 SUBMITTALS

- A. After the award of a formal contract, five (5) complete typewritten copies of the proposed Finish Hardware Schedule shall be submitted to the Architect and Owner for approval. This schedule shall be prepared using the "Sequence and Format for the Hardware Schedule" as approved and recommended by the Door and Hardware Institute (DHI). After approval of the schedule, the Hardware Supplier shall provide two (2) copies of the approved schedule to the Architect for file and distribution purposes.
- B. Final Hardware Schedule: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - 1. Type, style, function, size, and finish of each hardware item. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
 - 2. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door schedule.
 - 3. Keying information.
- C. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.

- D. Templates: Furnish hardware templates to each fabricator of doors, frames, and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such work, to confirm that adequate provisions are made for proper location and installation of hardware. If physical hardware is required by any manufacturer, the hardware Supplier shall ship to them such hardware via prepaid freight in sufficient time to prevent any delay in execution of their work.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. All items of hardware to be delivered to the job site shall be completely packaged in the original container with all necessary screws, bolts, miscellaneous parts, instructions, and where necessary, installation templates for manufacturer's suggested installation. They are to be clearly labeled so as to conveniently identify them and their intended location in the building.
- B. A representative of the General Contractor shall receive the hardware when delivered at the job site. A dry, locked storage space complete with shelving, shall be set aside for the purpose of unpacking, sorting out, checking and storage.
- C. Finish hardware shall be delivered to the General Contractor by the Hardware Supplier. The hardware shall be jointly inventoried by representatives of the General Contractor and the Hardware Supplier.

1.05 QUALITY STANDARDS

- A. The supplier shall regularly furnish hardware in the area for no less than five (5) years. The supplier shall employ a certified Architectural Hardware Consultant (AHC) or a person with similar equivalent experience and qualifications.
- B. Hardware for Fire-rated Openings: NFPA 80, NFPA 101, and local requirements. Provide hardware that has been tested and listed by UL for types and sizes of doors required, and complies with the requirements of door and frame labels.
- C. Positive Pressure: Test standard for door, frame, and hardware assembly shall be per UBC 7-2 or UL-10C. A conformance statement is required on all labels.
- D. Handicap Accessibility: ANSI A117.1 and ADA Accessibility Guidelines.
- E. ANSI - Upon request of the Architect, the hardware manufacturers will issue letters of compliance that their products meet with ANSI standards, have been tested, and are the grades required in this specification.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Hardware has been specified herein by manufacturers' name, brand and catalog numbers for the purpose of establishing a basis for quality, finish, design and operational function. Subject to compliance with the requirements of the section, manufacturer intending to provide hardware

systems that may be incorporated into the Work are not limited, **except as indicated**. These specifications are based on hardware systems as listed.

- B. Cooperate with Finish Hardware supplier in establishing scheduled dates for submittals and delivery of templates and finish hardware. Inventory Hardware and provide secure lock-up for hardware delivered to the site.

2.02 CYLINDERS

- C. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:

1. Best CorMax – Patented (2027 Expiration)
2. Sargent – Degree Patented (2027 Expiration)
3. Schlage – Everest Primus XP (2024 Expiration)

- D. Cylinders shall be Interchangeable Core type.

- E. All cylinders shall employ a patented locking mechanism that requires the use of a patented key and is furnished with a minimum of seven (7) pins.

- F. Keys shall be nickel silver and furnished with a large bow.

- G. Certifications:

1. BHMA A156.5 Grade 1
2. Mortise Cylinders: E09211
3. Rim Cylinders: E09221

- H. Cylinders and cores shall be furnished in BHMA standard architectural finishes. Finish to be selected by Architect and approved by Owner from manufacturers standard range.

- I. Keying: Seven (7) pin with two (2) nickel silver change keys per cylinder. Consult with Owner for desired keying options.

- J. Performance Features:

1. Core:
 - a. Locking Pin Mechanism
2. Key: Control Pin
3. Pins:
 - a. Nickel Silver bottom pins.
4. Collar:
 - a. Solid Recessed for all mortise cylinders
 - b. Surface Mount for all rim cylinders

- K. Keys

1. Nickel Silver
2. Key Set number stamped on upper level keys
3. All other stamping options to be verified with Owner before proceeding.
4. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.

2.03 EXIT DEVICES

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
1. Precision Apex 2000 Series
 2. Sargent 19-GL-80 Series
 3. Von Duprin 35/98 Series
- B. Exit device chassis shall be forged steel, electroplated for corrosion resistance.
- C. Pushpad mechanism shall be constructed of extruded aluminum, bronze plated or stainless steel.
- D. Maximum protection shall be 3-1/2" when active and 2-3/4" when dogged down.
- E. Nylon bearings and stainless steel springs shall be used for long life and durability; only torsion springs are acceptable.
- F. Rear and active case covers shall be plated to match the exit bar finish. Plastic or painted covers are not acceptable.
- G. Latchbolts shall be steel and shall incorporate a deadlocking latch feature for increased security. Devices without deadlocking latches are not acceptable.
- H. Mounting screws shall be concealed to deter tampering. All exposed fasteners shall be tamper resistant center pinned torx fasteners.
- I. Devices shall be closed on all sides with no pinch points.
- J. All exit devices shall be easily field sized to accommodate various door widths.
- K. Exit devices shall have single point, one quarter turn hex key dogging standard. Optional cylinder dogging shall be available. Devices with hex key dogging shall be easily field converted to cylinder dogging. Panic listed devices shall be available less dogging.
- L. Trims shall be through bolted with concealed fasteners. All lever trims shall use cast or forged levers. Trims with cylinders shall house the locking mechanism in the trim or in the active case of the exit device. Lever trims shall match those on Mortise and Cylindrical Locksets.
- M. Exit devices and trims shall be furnished in BHMA standard architectural finishes. Finish to be selected by Architect and approved by Owner from manufacturers standard range.
- N. Exit devices shall be listed by Underwriters Laboratories (UL) for safety as panic hardware.
- O. Certifications:

1. ANSI/BHMA A156.3, Grade 1
- P. Exit devices, shall be from one manufacturer.
- Q. Trims and electronic components shall carry a one (1) year limited warranty.
- R. Exit devices shall carry a five (5) year limited warranty.
- 2.05 ELECTRICALLY CONTROLLED MORTISE LOCKSETS
- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
1. Best: 45HW Series, 15H Design
 2. Sargent: 8270 Series, LNL Design
 3. Schalge L9000-E: Series, 06B Design
- B. Functions available shall be in one size case, manufactured from heavy gauge steel, minimum thickness 3/32", completely chrome plated for corrosion resistance and lubricity of parts.
- C. Cases shall be closed on all sides to protect internal parts.
- D. Locks shall have adjustable beveled and armored fronts, standard 2-3/4" backset and a full 3/4" throw **one or** two piece mechanical anti friction latch bolt, and shall be available for a minimum door thickness of 1-3/4".
- E. Internal parts shall be heavy gauge steel, zinc dichromate plated for corrosion resistance.
- F. Locking solenoid shall be self contained in the mortise lock case, allowing the lockset to be installed in a standard mortise door preparation with a slight modification by door manufacturer.
- G. Shall be available in 12 or 24 volt, ~~AC~~/DC, and fail safe or fail secure.
- H. Locksets with latchbolts, regardless of trim, shall be listed by Underwriters Laboratories (UL) for A label and lesser class doors.
- I. Mechanical cylinder override shall be available.
- J. Lock trim shall be through bolted through the lock case to ensure correct alignment and proper certification.
- K. Lock, trim and cylinders unless otherwise specified, shall be from one manufacturer.
- L. Locksets shall carry a one (1) year warranty.
- M. Certifications:
1. ANSI A156.13 Series 1000, Grade 1
 2. ANSI A117.1 Accessibility Code

- O. Electronically Controlled Mortise Locksets shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.

2.06 MORTISE LOCKSETS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
 - 1. Best: 45H Series, 15H Design
 - 2. Sargent: 8200 Series, LNL Design
 - 3. Schalge: L9000 Series, 06B Design
- B. Locks shall be manufactured from heavy gauge steel, minimum thickness 3/32", chrome plated for corrosion resistance and lubricity of parts.
- C. Cases are to be closed on all sides to protect internal parts.
- D. Locks are to have adjustable, beveled and armored fronts, standard 2-3/4" backset, a full 3/4" throw two piece mechanical anti friction latch bolt and a one piece stainless steel 1" throw deadbolt.
- E. Internal parts shall be heavy gauge steel, zinc dichromate plated for corrosion resistance.
- F. Locksets shall be furnished with two (2) post lugs to mount trim. Alignment post shall be located over and under the spindle for rigidity and security, and shall project through the lock case to ensure proper alignment.
- G. Certifications:
 - 1. UBC-7-2 (1997) and UL10C – Positive Pressure
 - 2. ANSI A156.13 Series 1000 Grade 1
 - 3. ANSI A117.1, Accessibility Code
- H. All locks, trims and cylinders unless otherwise specified, shall be from one manufacture.
- I. All locksets shall carry a five (5) year limited warranty.
- J. Mortise Locksets shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.

2.07 HINGES

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
 - 1. Stanley Security Solutions, Inc
 - 2. Hager Company
 - 3. McKinney Manufacturing
 - 4. Bommer Manufacturing

5. Ives (Ingersoll Rand)
- B. Hinges shall be manufactured in accordance with ANSI/BHMA A156.1 as follows:
 1. Typical Continuous Hinge: Concealed Leaf Aluminum Gear Type, Heavy Duty.
 2. Electric Continuous Hinge: Concealed wire transfer type 8 wires.
 3. Typical Hinges: Five knuckle, Ball Bearing, Flush Pin.
 4. Electric Hinges: Concealed wire transfer type 8 wires.
- C. Furnish non-removable pins for all out-swing exterior doors, and fasteners as required by opening conditions.
- D. Unless otherwise noted in hardware sets, furnish the following sizes:
 5. 1 3/8" doors: 3 1/2" for doors up to 36" in width, 4" for doors over 35" in width
 6. 1 3/4" doors: 4 1/2" for doors up to 36" in width, 5" for doors up to 48" in width, 6" for doors over 48" in width.
 7. Hinge width shall be determined by the trim conditions.
- E. Furnish two (2) hinges per leaf for doors up to 60" in height, three (3) hinges per leaf for doors up to 90" in height, and one (1) additional hinge for each 30" of additional height.
- F. Furnish all hinges from the same manufacturer.
- G. Hinges shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.

2.08 CLOSERS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
 1. LCN 4040XP Series
 2. Sargent 351 Series
 3. Stanley D-4550 Series
 4. Rixson (ASSA ALBOY) 0601 Series – Smok-Chek V
- B. Closers shall be of rack and pinion construction with a triple heat cold formed steel spindle and a steel piston, heat treated and precision machined.
- C. Cases shall be of cast iron or aluminum based on approved products with a one piece seamless forged spring tube. A two piece or seamed spring tube shall not be acceptable. Springs shall be double heat treated and tempered. Closers shall have a heavy duty steel main arm.
- D. Closers shall be multi sized with adjustable spring power to accommodate sizes one (1) through six (6). Closing shall be controlled by two (2) valves – one to control closing speed and one to control latching speed. Valves shall be concealed against unauthorized adjustment and shall be non critical with "O" rings.

- E. Closers shall be available with an adjustable back check intensity valve. Delayed action shall be available and accomplished with a separate valve. Valves shall be accessible without removing the closer from the door.
- F. Closers shall be surfaced applied with rectangular cover, and shall be devoid of manufacturer's trademarks.
- G. Closers shall not project more than 2-3/4". Full cover shall be standard. Non hold open closers shall be regularly furnished with a power adjustment arm bracket capable of providing a 15% power adjustment. Closers mounted top jamb and parallel arm shall allow for a full 180 degree door opening.
- H. Closers shall be listed by Underwriter's Laboratories for closers with non hold open arms.
- I. Certifications:
 - 1. ANSI/BHMA A156.4, Grade 1
 - 2. ICC/ANSI A117.1
- J. Closers shall carry a ten (10) year limited warranty.
- K. Closers shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.

2.09 PROTECTIVE PLATES

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. manufacturers whose products are approved are as follows:
 - 1. Burns Manufacturing
 - 2. Trimco Inc.
 - 3. McKinney Products Company
 - 4. Ives (Ingersol Rand)
- B. Certifications:
 - 1. ANSI 156.6
- C. Kick plates to be 12" x 2" less than door width unless otherwise stated.
- D. Provide torx center pin tamper resistant fasteners at scheduled applications.
- E. Furnish all kickplates from one manufacturer.
- F. All pre-drilled holes to be counter sunk.
- G. Furnish heavy duty self adhesive tape at scheduled applications.
- H. Kickplates shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.

2.10 PUSH AND PULL

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. manufacturers whose products are approved are as follows:
1. Burns Manufacturing
 2. Trimco Inc.
 3. McKinney Products Company
 4. Ives (Ingersol Rand)
- B. Plates shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.
- C. Provide torx center pin tamper resistant fasteners at scheduled applications.
- D. Pulls to be through bolted to the doors.
- E. Furnish push and pull plates from same manufacturer.
- F. Certifications:
1. ANSI A156.6

2.11 DOOR STOPS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. manufacturers whose products are approved are as follows:
1. Burns Manufacturing
 2. Trimco Inc.
 3. McKinney Products Company
 4. Ives (Ingersol Rand)
- B. Stops shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.
- C. Fasteners:
1. Wall Stops: Concealed mounting with shield and toggle bolt size as per manufacturer
 2. Floor Stops: Size as recommended by manufacturer with shield and machine screw with lead expansion shield.
- D. Materials: Cast Brass
- E. Certifications:
1. ANSI A156.6

2.12 FLUSH BOLTS AND STRIKES

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. manufacturers whose products are approved are as follows:
1. Burns Manufacturing
 2. Trimco Inc.
 3. McKinney Products Company
- B. Flush Bolts shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.
- C. Certifications:
1. ANSI A156.6
- D. Provide all strikes, shims and guides to insure proper installation and operation.
- F. Furnish all flush bolts and strikes from one manufacturer.
- G. Furnish manual or automatic flush bolts as codes and conditions require.

2.13 SEALS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. manufacturers whose products are approved are as follows:
1. Reese Inc. (R)
 2. Pemko Products Inc. (P)
 3. National Guard Products (N)
 4. McKinney Products Company (M)
- B. All aluminum extrusions are of alloy 6063-T5.
- C. Seals shall be furnished in BHMA standard architectural finishes. Finish shall be selected by Architect and approved by Owner from manufacturer's standard range.
- D. Gasket shall be of a silicone based remaining flexible to -70 degrees F.
- E. All fasteners to be of stainless steel type with torx center pin tamper resistant type at "Security" areas.
- E. Certifications:
1. ASTM E283-91
 2. ASTM E90-90
 3. ASTM E413-87
 4. UBC 7-2
 5. ADA Accessible
- F. Seals shall be listed by Underwriter's Laboratories for applicable fire ratings and smoke seals.

2.14 SILENCERS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are limited. Manufacturers whose products are approved are as follows:
 - 1. Burns Manufacturing
 - 2. Trimco Inc.
 - 3. McKinney Products Company
- B. Certifications:
 - 1. ANSI A156.16

2.15 DOOR POSITION SWITCH

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are not limited. These specifications are based on products by the Securitron Inc. (SE). Additional manufacturers whose products are approved are as follows:
 - 1. Nascom Inc.
 - 2. Lokcnetics Inc.
 - 3. Altronix Corporation.
- B. Door Position Switches shall be the DPS-M Series as manufactured by Securitron Inc.
- C. The DPS-M style is a Normally Closed switch (SPST). Include a magnetic switch and a cylindrical permanent magnet.

2.16 POWER SUPPLY

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are not limited. These specifications are based on products by the Securitron Inc. (SE). Additional manufacturers whose products are approved are as follows:
 - 1. Rutherford Controls Inc..
 - 2. Security Door Controls Inc.
 - 3. Altronix Corporation
- B. Boxed Power Supply system shall be the BPS-24 Series as manufactured by Securitron Inc.
 - C. 1, 4 or 8 separate output circuit breakers based on model
 - D. LEDs monitor zone status (voltage, no voltage)
 - E. Slide switches connect or disconnect load from power (excludes 1 Amp)
 - F. Internal capability of charging option 12 or 24VDC sealed lead acid backup batteries while operating the DC load (battery not included)
 - G. Complete - Requires only 110VAC to the fused input (BPS)

- H. Rugged steel enclosure
- I. Provided with terminals for fire alarm relay connection, allowing release of all devices upon fire alarm activation
- J. Clean linear power for flawless operation with all sensitive active electronic components
- K. BPS UL Listed

2.17 ACCESS CONTROLS

- A. Subject to compliance with requirements of this Section manufacturer offering hardware products or systems that may be incorporated into the Work are not limited. These specifications are based on products by the Securitron Inc. (SE). Additional manufacturers whose products are approved are as follows:
 - 1. Rutherford Controls Inc..
 - 2. Security Door Controls Inc.
 - 3. Altronix Corporation
- B. Access Control System shall be the DK-16 Series as manufactured by Securitron Inc.
- C. Stainless steel plate
- D. Telephone-type keypad with engraved and paint filled numbers in plastic keys on a single gang box
- E. Red, green and a yellow LED mounted on the face
- F. Digital Keypad System circuit board is a remote unit for increased security
- G. Digital Keypad System circuit board mounts in a plastic enclosure and provides for 59 multiple users, expandable to 119
- H. Wiegand output available
- I. User code and/or hard code disable feature
- J. 5 Amp DPDT relay output for lock control and alarm shunt, camera call-up or other device interface, REX input
- K. True 10 digit operation (keys are not paired), 3 LEDs and a beeper
- L. 16 ft. [4.8m], 12 conductor, 22 gauge keypad cable

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine all doors, frames, and related items for conditions that would prevent proper installation and operation of the finish hardware.
- B. A schedule of mounting heights shall be included in the hardware schedule.

3.02 INSTALLATION

- A. Installation shall be by a qualified and knowledgeable workman who is experienced with reading plans, schedules, and manufacturer's instructions.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface mounted items until finishes have been completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Hardware not installed with the manufacturer's supplied fasteners and security fasteners will be rejected; warranties and fire labels shall be void.

3.03 FIELD QUALITY CONTROL

- A. The supplier shall inspect the installation and certify that the hardware is correctly installed and adjusted in accordance with the schedule and manufacturer's instructions.
- B. Where hardware is found to be installed and/or adjusted incorrectly, the contractor shall repair, or replace as directed by the Architect.
- C. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- D. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.04 PROTECTION

- A. Hardware shall be protected against field painting, cleaning, finished, and other related work done on jobsite.

3.05 CLEANING

- A. All hardware shall be left clean and free of disfigurements.

END OF SECTION 08710

08710.1 – DOOR HARDWARE SCHEDULE

H1 STOREFRONT ENTRANCES	CYLINDER	1	CORBIN 3080-178-6-626
	CLOSER	1	LCN 4040XP
	HINGE	3	BY STOREFRONT MFGR
	THRESHOLD	1	BY STOREFRONT MFGR
	WEATHERSTRIPPING	3	BY STOREFRONT MFGR
	EXIT DEVICE	1	VON DUPRIN 98L 996L #17 32D
	FLOOR STOP	1	IVES FS410 26D
	BOTTOM SEAL	1	BY STOREFRONT MFGR
ADA ASSIST DOORS			
	CLOSER	1	LCN 4821 SERIES W/ WIRED ACTUATOR
FIRE ALARM DOORS	CLOSER	1	RIXSON ASS ALBOY 0601 SERIES – SMOKE CHECK V

NOTES:

1. Apply weather stripping prior to installing surface applied hardware. Do not notch weather stripping.
2. Provide compatible astragals and seals for all pairs of doors.
 - A. REMOVEABLE MULLION - KR822
 - B. MULLION SEAL - NGP5100S
 - C. MEATING EDGE SEALS – 115NA
3. Contractor responsible for making adjustments to hardware set for pairs of doors.
4. Hardware supplier should verify all quantities in the following schedule.
5. The following is a general listing of hardware requirements and is not intended for use as a final hardware schedule. Any items of hardware required by established standards of practice, or to meet state and local codes shall be furnished whether or not specifically called out in the following listed groups.
6. Supplier shall supply hardware for every numbered opening, whether specified in the above hardware sets or not. Hardware shall be same as similar openings.
7. Contractor responsible for making adjustments to hardware sets required to be labeled and rated for code compliance. Standards for fire rated doors and frames shall be NFPA 80 – Standard for Fire Doors and Other Opening Protective’s.

END OF SECTION 08710.1

SECTION 08810 - GLAZING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Glazing shall consist of plate glass, tempered glass, wire glass, mirrors, and related items as shown on Drawings and specified herein.

1.02 RELATED ITEMS

- A. Section 07910 – Sealants
- B. Section 08120 – Hollow Metal Frames
- C. Section 08130 - Hollow Metal Doors
- D. Section 08210 - Wood Doors
- E. Section 08410 - Aluminum Framed Storefront

1.03 INDUSTRY STANDARDS

- A. FS DD-G-451, FS DD-M-411, FS DD-G-1403
- B. ANSI Z97.1
- C. Consumer Products Safety Commission Publication 16 CFR, Part 1201
- D. NFPA 80
- E. ASTM E84
- F. SIGNA No. 64-7-2
- G. FGMA - Glazing Manual
- H. UL 752 - Bullet Resistant Glass

PART 2 – PRODUCTS

2.01 GLASS PRODUCTS

A. GLAZING SCHEDULE

- 1. G1 – 1/2" Overall Thickness, Single Pane Tempered Unit
 - a. Description – Tempered
 - b. Thickness – 12.7MM (1/2")
 - c. Outboard Lite – 6MM C1048 A Type 1 C1 Q3
- 2. G2 – 1" Overall Thickness, Low E Coating, Argon Filled Insulated Units
 - a. Description – Insulated
 - b. Thickness – 24MM (1")
 - c. Outboard Lite – 6MM C1036 Type 1 C2 Q3
 - d. Inboard Lite – 6MM C1036 Type 1 C1 Q3
 - e. Transmission – 62%
 - f. U Value – 0.35
 - g. Reflectance Out – 15%
 - h. Reflectance In – 12%
 - i. Shading Coefficient – 0.59
 - j. SHGC – 0.51
 - k. LSG – 1.20

2.02 GLAZING COMPOUND

- A. Furnish as required of appropriate materials, matching adjacent materials when exposed.

PART 3 – EXECUTION

3.01 CONDITION OF SURFACES

- A. Installer shall inspect substrate and corrections (if any) shall be made thereto by the trades involved before any work may begin. Installer shall be responsible for field checking all dimensions, elevations, and slopes on the connecting work to insure a proper fit and watertight connection.
- B. Clean contact surfaces with solvent and wipe dry. Seal porous glazing channels or recesses. Prime surfaces to receive sealant.

3.02 INSTALLATION OF GLASS

- A. Glass shall be installed by experienced glazers. All glass over 6 sq ft shall be set on two setting blocks at quarter points. If this is impractical, the blocks may be moved equal distance from the center to within 6 in of the edge, but no more than 1/8 the glass width from the vertical edges of the glass. Neoprene setting blocks from 70 to 90 durometer, a minimum of 4 in long to limit the load from the glass weight to 15 psi. Lead setting blocks may be used with loads up to 100 psi.
- B. Glazing should not be done when temperatures are 40°F or below, unless specifically sanctioned by the glazing compound or sealant manufacturer.

3.03 WORKMANSHIP

- A. Produce a permanent watertight and neat installation in compliance with respective manufacturer's directions. Glass set in wood stops shall be set in elastic glazing compound with wood stops, primed. Glass set in fixed metal stops shall be back bedded and face compound cut to a neat line.
- B. Glass in aluminum frame construction shall have clearances as dictated by type of construction. Glass shall be isolated from framing as appropriate to control sound transmission, wind driven rain, or similar circumstances.

3.04 PROTECTION

- A. As glazing progresses, provide tapes or banners fastened to framing and suspended over the glass to alert workman this opening is glazed. Do not use materials that will stain or deface the glass in any manner.

3.05 GLASS BREAKAGE

- A. Replace broken and defective glass. This subcontractor is responsible for glass breakage resulting from faulty materials, setting, and workmanship.

3.06 CLEANING

- A. Remove glazing compound material from finish surfaces. Remove labels after work is completed. Before final inspection for acceptance of the project, remove paint, stains, excess glazing compound, etc. Clean and polish all glass and surrounding work and leave in perfect condition.

END OF SECTION 08810

SECTION 09110 - NON-LOADBEARING METAL FRAMING**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Metal partition, ceiling, and soffit framing.
- B. Framing accessories.

1.02 RELATED SECTIONS

- A. Section 05400 - Cold Formed Metal Framing: Structural load bearing metal stud framing and Exterior wall stud framing.
- B. Section 06100 - Rough Carpentry: Wood blocking within stud framing.
- C. Section 07260 – Vapor Retarders.
- D. Section 07210 - Batt Insulation: Acoustic Insulation.
- E. Section 08310 - Access Doors and Panels.
- F. Section 09260 - Gypsum Board Assemblies: Metal studs for gypsum board partition framing.

1.03 REFERENCES

- A. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.
- B. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2004.
- C. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2004.
- D. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2004.
- E. ASTM E 413 - Classification for Rating Sound Insulation; 2004.
- F. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
 - 2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.
- C. Product Data: Provide data describing framing member materials and finish, product criteria, load charts, and limitations.
- D. Product Data: Provide manufacturer's data on partition head to structure

connectors, showing compliance with requirements.

- E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years experience.

1.06 MOCK-UP

- A. Provide mock-up of stud wall, ceiling, and soffit framing including insulation, sheathing, window frame, and door frame and finish specified in other sections. Coordinate with installation of associated work specified in other sections.
 1. Mock-up Size: Full height, minimum 12 feet long, including corner.
 2. Mock-up may remain as part of the Work.

1.07 PROJECT CONDITIONS

- A. Coordinate the placement of components to be installed within stud framing system.

PART 2 – PRODUCTS

2.01 FRAMING MATERIALS

- A. Fire Rated Assemblies: Comply with applicable code and as follows:
 1. Fire Rated Partitions: minimum two (2) hour rating.
 2. Top of Fire Rated Partitions: minimum two (2) hour rating.
 3. Fire Rated Ceiling and Soffits: minimum two (2) hour rating.
- B. Non-Load bearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
 1. Studs: C shaped with flat or formed webs with knurled faces.
 2. Runners: U shaped, sized to match studs.
 3. Ceiling Channels: C shaped.
 4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.
- C. Load bearing Studs: As specified in Section 05400.
- D. Ceiling Hangers: Type and size as specified in ASTM C 754 for spacing required.
- E. Partition Head to Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.
- F. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.
- G. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C 754.
- H. Fasteners: ASTM C 1002 self-piercing tapping screws.
- I. Sheet Metal Backing: 0.036 inch thick, galvanized.

- J. Anchorage Devices: Power actuated.
- K. Acoustic Insulation: As specified in Section 07212.
- L. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- M. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.02 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required.
- B. Fit, reinforce, and brace framing members to suit design requirements.
- C. Fit and assemble in largest practical sections for delivery to site, ready for installation.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that rough-in utilities are in proper location.

3.02 INSTALLATION OF STUD FRAMING

- A. Extend partition framing to structure where indicated and to minimum eight (8) inches above adjacent ceiling in other locations.
- B. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs as indicated.
- C. Align and secure top and bottom runners at 24 inches on center.
- D. At partitions indicated with an acoustic rating:
 - 1. Provide components and install as required to produce STC rating of 40 minimum, based on published tests by manufacturer conducted in accordance with ASTM E 90 with STC rating calculated in accordance with ASTM E 413.
 - 2. Place one bead of acoustic sealant between runners and substrate, studs and adjacent construction.
 - 3. Place one bead of acoustic sealant between studs and adjacent vertical surfaces.
- E. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- F. Install studs vertically at spacing indicated on drawings.
- G. Align stud web openings horizontally.
- H. Secure studs to tracks using crimping method. Do not weld.
- I. Stud splicing is not permissible.
- J. Fabricate corners using a minimum of three studs.
- K. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.

- L. Brace stud framing system rigid.
- M. Coordinate erection of studs with requirements of door frames; install supports and attachments.
- N. Coordinate installation of bucks, anchors, and blocking with electrical and mechanical work to be placed within or behind stud framing.
- O. Blocking: Use wood blocking secured to studs. Provide blocking for support of plumbing fixtures and accessories.

3.03 CEILING AND SOFFIT FRAMING

- A. Comply with requirements of ASTM C 754.
- B. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.
- C. Install furring independent of walls, columns, and above-ceiling work.
- D. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.
- E. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.
- F. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- G. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splices securely.
- H. Reinforce openings in suspension system that interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches past each opening.
- I. Laterally brace suspension system.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/8 inch in 10 feet.
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION 09110

SECTION 09260 - GYPSUM BOARD ASSEMBLIES

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Acoustic insulation.
- B. Gypsum wallboard.
- C. Joint treatment and accessories.
- D. Water-resistive barrier over exterior wall sheathing.

1.02 RELATED SECTIONS

- A. Section 05400 - Cold Formed Metal Framing: Exterior wind-load-bearing metal stud framing.
- B. Section 06100 - Rough Carpentry: Building framing and sheathing.
- C. Section 06100 - Rough Carpentry: Wood blocking product and execution requirements.
- D. Section 07210 - Batt Insulation: Acoustic insulation.
- E. Section 07260 – Vapor Retarders: Water-resistive barrier over sheathing.
- F. Section 07840 - Firestopping: Top-of-wall assemblies at fire rated walls.
- G. Section 07910 - Joint Sealers: Acoustic sealant.
- H. Section 09110 - Non-Load bearing Metal Framing.

1.03 REFERENCES

- A. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002.
- B. ASTM C 514 - Standard Specification for Nails for the Application of Gypsum Board; 2004.
- C. ASTM C 557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003.
- D. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.
- E. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.
- F. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2004.
- G. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2007.
- H. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2004.
- I. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2006a.

- J. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.
- K. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2004.
- L. ASTM E 413 - Classification for Rating Sound Insulation; 2004.
- M. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.
- N. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2006.
- O. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate special details associated with fireproofing and acoustic seals.
- C. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.
- D. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- E. Test Reports: For all stud framing products that do not comply with ASTM C 645 or C 754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

1.05 QUALITY ASSURANCE

- A. Maintain one copy of all installation standards at project site.
- B. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum five (5) years of documented experience.

PART 2 – PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C 840 and GA-216.
 - 1. See PART 3 for finishing requirements.
- B. Interior Partitions Indicated as: Provide completed assemblies with the following characteristics:
 - 1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E 413, based on tests conducted in accordance with ASTM E 90.
- C. Shaft Walls at HVAC Shafts: Provide completed assemblies with the following characteristics:
 - 1. Air Pressure Within Shaft: Sustained loads of 5 lbf/sq ft with maximum mid-span deflection of L/240.
 - 2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E 413, based on tests conducted in accordance with ASTM

E 90.

- D. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:
1. Fire Rated Partitions: minimum two (2) hour rating.
 2. Head of Fire Rated Partitions: minimum two (2) hour rating.
 3. Fire Rated Ceilings and Soffits: minimum two (2) hour rating.
 4. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL Fire Resistance Directory.

2.02 GYPSUM BOARD MATERIALS

- A. Gypsum Wallboard: ASTM C 1396/C 1396M. Sizes to minimize joints in place; ends square cut.
1. Regular Type: Abuse-Resistant Gypsum wallboard specially formulated for increased impact resistance, with enhanced gypsum core and heavy duty face and back paper.
 - a. Application: Inmate Accessible areas indicated.
 - b. Core Type: Type X, as indicated.
 - c. Thickness: 5/8inch.
 - d. Edges: Tapered.
 2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.
 - a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.
 - b. Other Applications: Use at all vertical surfaces, unless otherwise indicated.
 - c. Thickness: 5/8 inch.
 - d. Edges: Square.
 3. Ceiling Board: Special sag-resistant type.
 - a. Application: Ceilings, unless otherwise indicated.
 - b. Thickness: 5/8 inch.
 - c. Edges: Tapered.
- B. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M; ends square cut.
1. Application: Vertical surfaces in wet areas, not behind thin set tiles in wet areas.
 2. Core Type: Type X, as indicated.
 3. Thickness: 5/8 inch.
 4. Edges: Tapered.
- C. Gypsum Shaftwall or Coreboard: ASTM C 1396/C 1396M; Type X core; sizes to minimize joints in place; 1 inch thick; square, tongue and groove, or double beveled edges, ends square cut.

2.04 ACCESSORIES

- A. Acoustic Insulation: ASTM C 665; preformed glass fiber, friction fit type, unfaced. Thickness: sized to fill void, minimum six (6) inch.
- B. Acoustic Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- C. Water-Resistive Barrier: No. 15 asphalt felt.

- D. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.
 - 1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.
 - 2. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 - 3. Ready-mixed vinyl-based joint compound.
 - 4. Powder-type vinyl-based joint compound.
 - 5. Chemical hardening type compound.
- E. Screws: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.
- F. Nails: ASTM C 514.
- G. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- H. Adhesive for Attachment to Wood: ASTM C 557.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 SHAFT WALL INSTALLATION

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
 - 1. Fasten runners to structure with short leg to finished side, using appropriate power-driven fasteners at not more than 24 inches on center.
 - 2. Install studs at spacing required to meet performance requirements.
- B. Shaft Wall Liner: Cut panels to accurate dimension and install sequentially between special friction studs.

3.03 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C 754 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
- C. Studs: Space studs as permitted by standard.
 - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
 - 2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.
- D. Acoustic Furring: Install resilient channels at maximum 24 inches on center. Locate joints over framing members.
- E. Furring for Fire Ratings: Install as required for fire resistance ratings indicated and to GA-600 requirements.

- F. Blocking: Install wood blocking for support of:
 - 1. Framed openings.
 - 2. Wall mounted cabinets.
 - 3. Plumbing fixtures.
 - 4. Toilet partitions.
 - 5. Toilet accessories.
 - 6. Wall mounted door hardware.

3.04 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Place continuous bead at perimeter of each layer of gypsum board.
 - 3. In non-fire-rated construction, seal around all penetrations by conduit, pipe, ducts, and rough-in boxes.

3.05 GYPSUM BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- C. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For non-rated assemblies, install as follows:
 - 1. Single-Layer Applications: Adhesive application.

3.06 JOINT TREATMENT

- A. Finish all gypsum board in accordance with ASTM C 840 Level 4.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION 09260

SECTION 09510 - SUSPENDED ACOUSTICAL CEILINGS**PART 1 – GENERAL**

- 1.01 SECTION INCLUDES
- A. Suspended metal grid ceiling system.
 - B. Acoustical units.
 - C. Supplementary acoustical insulation above ceiling.
- 1.02 RELATED SECTIONS
- A. Section 07210 - Batt Insulation: Acoustical insulation.
 - B. Section 07910 - Joint Sealers: Acoustical sealant.
 - C. Division 16 – Addressable Fire Alarm System
 - D. Division 15 – HVAC Registers and Grilles
 - E. Division 16 - Lighting
- 1.03 REFERENCES
- A. ASTM C 635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2004.
 - B. ASTM E 1264 - Standard Classification for Acoustical Ceiling Products; 1998 (Reapproved 2005).
 - C. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.
- 1.04 ADMINISTRATIVE REQUIREMENTS
- A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
 - B. Do not install acoustical units until after interior wet work is dry.
- 1.05 SUBMITTALS
- A. See Section 01300 - Administrative Requirements, for submittal procedures.
 - B. Product Data: Provide data on suspension system components.
 - C. Samples: Submit two samples six (6) x six (6) inch in size illustrating material and finish of acoustical units.
 - D. Manufacturer's Installation Instructions: Indicate special procedures.
 - E. Maintenance Materials:
 1. See Section 01600 - Product Requirements, for additional provisions.
 2. Provide 20 percent of total acoustical unit area of each type of acoustical unit for Washington County's use in maintenance of project.
- 1.06 QUALITY ASSURANCE
- A. Fire-Resistive Assemblies: Complete assembly listed and classified by UL for the fire resistance indicated.
 - B. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
 - C. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- 1.07 FIELD CONDITIONS
- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements of this Section manufacturers offering products that may be incorporated into the Work are not limited. This specification is based off of products manufactured by United States Gypsum Company (USG). Other available manufacturers are included as follows but are not limited too:
1. Armstrong World Industries Inc.
 2. Sound Seal Inc.
 3. Certain Teed Corporation
 4. Rockfon Inc.

2.02 ACOUSTICAL UNITS

- A. Acoustical Units - General: ASTM E 1264, Class A.
1. Units for Installation in Fire-Rated Suspension System: Listed and classified for the fire-resistive assembly the suspension system is a part of.
 2. Units for Installation in "Wet" areas shall be humidity resistant, with anti microbial coating.
- B. Acoustical Tile (LAT) Type 1: Painted natural mineral fiber, ASTM E 1264 Type III, with the following minimum characteristics:
1. Size: 24 x 24 inches (600 x 600mm)
 2. Thickness: 15/16 inches
 3. Composition: Water felted
 4. Light Reflectance: 0.85 minimum, determined as specified in ASTM E 1264
 5. NRC Range: 0.55 determined as specified in ASTM E 1264.
 6. Ceiling Attenuation Class (CAC): 0.35, determined as specified in ASTM E 1264
 7. Edge: Square
 8. Surface Color: White
 9. Surface Pattern: Fine
- C. Acoustical Tile (LAT) Type 2: Wet Formed Mineral Fiber Painted, ASTM E 1264 Type IX, with the following minimum characteristics:
1. Size: 24 x 24 inches (600 x 600mm)
 2. Thickness: 15/16 inches
 3. Composition: Wet Formed Mineral Fiber
 4. Light Reflectance: 0.89 minimum, determined as specified in ASTM E 1264
 5. NRC Range: Not applicable
 6. Ceiling attenuation Class: 0.33, determined as specified in ASTM E 1264
 7. Edge: Square
 8. Surface Color: White
 9. Surface Pattern: Light Texture
 10. Panel Features: Washable, scrubbable, soil and impact resistant finish. Meets USDA/FSIS guidelines for use in food processing areas.

2.03 SUSPENSION SYSTEM(S)

- A. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.
- B. DX/DXL Suspension System as manufactured by USG: Exposed Steel Suspension System Formed steel, commercial quality cold rolled;

intermediate-duty.

1. Profile: Tee;
2. Size: 15/16 inch wide face.
3. Construction: Double web.
4. Finish: Painted
5. Class A Fire Rated where required.
6. Color: Black

2.04 SUSPENDED DECORATIVE CHANNEL SCHEDULE

- A. Steel Channel Units for Suspended Decorative Channel: Where ceilings of this designation are indicated, provide channels complying with the following:
1. Products: C2 Paired Compasso Channels by USG Interiors, Inc.
 2. C2 Paired Compasso Channels: 8-inch wide face, 9/16-inch horizontal legs with hems formed for attachment to the mounting bracket creating a 1-3/8-inch reveal; commercial quality cold-rolled 24-gauge steel, factory finished in baked polyester enamel paint finish [color] with gray interior.
 3. Splice Plate: steel in finish to match trim channels; formed for snap-fit into channel ends.
 4. Mounting Brackets: steel brackets in manufacturer's standard painted finish, color gray, formed for snap-fit into channels and attached to hanger devices.
 5. 90° Corner Trim Pieces: to match C2 Paired Compasso Channels
 6. End Caps: to match C2 Paired Compasso Channels
 7. Accessory Device Bracket: steel accessory angle in small 1-5/8-inch, to coordinate with electrical.
 8. Hanger Devices: Turnbuckle devices and accessories for 1/32-inch diameter aircraft cable.
 9. Color: Custom color to be Black to match typical grid system.

2.05 BATT INSULATION

- A. Provide glass fiber thermal insulation for ceiling assembly as indicated in building plans.
- B. Do not use unfaced insulation in exposed applications where there is potential for skin contact and irritation.
- C. Insulation Types:
Unfaced Batt Insulation: ASTM C665, Type I; preformed unfaced batt; friction fit, conforming to the following:
1. Thermal Resistance (R-Value) (ASTM C518): R-19
 2. Combustion Characteristics (ASTM E136): Pass.
 3. Critical Radiant Flux (ASTM E970): Greater than 0.11 Btu/ft² × s (0.12 W/cm²).
 4. Water Vapor Sorption (ASTM C1104): 5% or less.
 5. Odor Emission (ASTM C1304): Pass.
 6. Corrosiveness (ASTM C665): Pass.
 7. Fungi Resistance (ASTM C1338): Pass.
 8. Recycled Content: Certified by Scientific Certification Systems to contain minimum of 20% post-consumer and 5% pre-consumer

recycled glass product, on average of manufacturer's products.

9. Prove through documentation that product complies with CIWMB Section 01350 for indoor air quality.
10. Thickness: 6-1/2"
11. Flamespread (ASTM E84): 25, maximum.
12. Smoke Developed (ASTM E84): 50, maximum.
13. Material Standard: ASTM C665, Type I.
14. Butt insulation edges together tightly to prevent thermal leaks

2.06 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Perimeter Moldings: Same material and finish as grid.
 1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
 2. At Concealed Grid: Provide exposed L-shaped molding.
- C. Acoustical Insulation: Specified in Section 07210.
- D. Acoustical Sealant For Perimeter Moldings: Specified in Section 07910.
- E. Gasket For Perimeter Moldings: Closed cell rubber sponge tape.
- F. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

- A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- B. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- C. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- D. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- F. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.
- G. Do not eccentrically load system or induce rotation of runners.
- H. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 1. Use longest practical lengths.
 2. Overlap and rivet corners.
- I. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.

3.03 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit border trim neatly against abutting surfaces.
- D. Install units after above-ceiling work is complete.

- E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
 - F. Cutting Acoustical Units:
 - 1. Make field cut edges of same profile as factory edges.
 - G. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.
- 3.04 ERECTION TOLERANCES
- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
 - B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.
- 3.03 STOCK FOR OWNER
- A. Upon completion of this installation, furnish the Owner 30 pieces of each type of ceiling tile incorporated in the work. Wrap in heavy brown paper and marked.
 - B. The acoustical units shall be protected until the end of the project.

END OF SECTION 09510

SECTION 09650 – RESILIENT TILE FLOORING**PART 1 – GENERAL**

1.01 SUMMARY

- A. Section Includes: Resilient Tile Flooring and accessories

1.02 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.

1.02 SUBMITTALS

- A. Submit samples for Architect's selection.
- B. Submit product data, including fire test results and recommended adhesives for floor tile and rubber base.
- C. Submit maintenance data, including recommended cleaning agents and waxes.

1.03 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
1. Store materials at not less than 70 degrees F. for at least 72 hours before installation.
 2. Do not install materials if inside temperature is below 70 degrees F.

PART 2 – PRODUCTS2.01 RESILIENT FLOORING TILE (RFT)

- A. Resilient Vinyl Tile Flooring with the following physical characteristics:
- a) Meets performance requirements for ASTM F 1700, Class III, Type B
 - b) Overall thickness: 0.098" (2.5mm)
 - c) Wear Layer Thickness: 20 mil (0.51mm)
 - d) Edge Treatment: Micro bevel
 - e) Tile size: 6" x 36" (152mm x 915mm)
 - f) Slip Resistance (ASTM C1028): Passes
 - g) Dimensional Stability (ASTM F2199): Passes
 - h) Squareness (ASTM F540): Passes
 - i) Static Load (ASTM F970): Passes
 - j) Residual Indentation (ASTM F1914): Passes
 - k) Smoke Density (ASTN E662): Passes
 - l) Resistance to Light (ASTN F1515): Passes
 - m) Chemical Resistance (ASTM F925): Passes
 - n) Resistance to Heat (ASTM F1514): Passes
 - o) Warranty: Limited 15-year Manufacturer's Warranty
 - p) Color selections will be made by the Architect from "**Mannington's Color Anchor**" collection.
 - q) Color to be selected by the Architect from the manufacturer's standard colors.

2.02 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Portland Cementitious underlayment products.
- B. Adhesives: Moisture Loc Adhesive by Mannington Commercial or equal

2.03 FIRE TEST REQUIREMENTS

- A. All resilient flooring shall comply with the following Fire Test requirements:
 - 1. Flame Spread, Test Method ASTM E 648, Requirement of .45 W/cm² or more Class I
 - 2. Smoke obscuration of 450 or less when measured in the NBS Smoke Density Chamber and in accordance with ASTM E-662.
 - 3. Static Load Resistance, Test Method ASTM F 970, Requirement \leq .005 in.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect surfaces scheduled to receive resilient flooring and base for acceptability.
- B. Verify all surfaces as clean and free from moisture, paint, oil, grease and wax.
- C. Caution: Verify dryness of concrete slabs to receive resilient flooring, in accord with Resilient Flooring Institute Recommendations, prior to beginning floor tile installation.

3.02 PREPARATION

- A. Patch cracks, holes, depressions, and other imperfections in surfaces which are scheduled to receive resilient flooring with a latex or epoxy floor patch material especially manufactured for this purpose. At locations where partitions are removed from fields of asbestos tile to remain, or at locations where asbestos tile is abated from only a portion of a room, use floor patch to level slab up to plane of asbestos tile to remain. Floor patch material shall be compatible with the floor covering, shall be unaffected by moisture and/or floor cleaning chemicals, and shall be workable to a feather-edge thickness. Floor patch material shall be trowel applied and checked to a line with an 8' straight edge. Maximum allowable tolerance shall be 3/16" in 8' in any direction. Floor patch materials after curing shall be machine sanded to provide a smooth, plane surface.
- B. All wall surfaces, to be covered with rubber base, shall be smooth and solid. All voids, cracks and joints shall be filled solid at wall areas to be covered with rubber base.

3.03 INSTALLATION

- A. Tile joints shall be aligned in both directions. "Grain" of tile shall all run in the same direction within one room or space. Lay tiles square with room axis.
- B. Cut tile to and around all permanent fixtures. Remove excess adhesive from surface of tile.

- C. No tile work shall be started until work of other trades, including painting, has been substantially completed.
- D. Temperature shall be maintained at not less than 70 degrees F. during and 72 hours immediately before and after installation.
- E. Install beveled edging material 1/8" thick x 1" wide as specified where tile terminates against rooms or spaces which are not scheduled to receive flooring (center below door).
- F. Flooring shall be laid out so that tiles less than half-size generally will not be required.
- G. Provide rubber base at wood cabinets, unless otherwise noted.
- H. Flooring shall be rolled as per manufacturer's printed instructions.
- I. Rubber base must always return to a hard surface (for example, at frames that do not extend to the wall face, return base back to frame with prefabricated corner pieces).

3.04 CLEANING

- A. Follow manufacturer's recommended cleaning instructions.

3.05 EXTRA STOCK

- A. Supply an extra 5% of each resilient flooring pattern used, including floor tile and rubber base. Extra stock shall be supplied in clean, marked cartons for Owner's use.

END OF SECTION 09650

09654 – RUBBER BASE AND ACCESSORIES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: RESILIENT WALL BASE

1.02 REFERENCED DOCUMENTS

- A. ASTM International
1. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
 2. E648, Standard Test Method for Critical Radiant Flux of Flooring Systems Using a Radiant Energy Source.
 3. E662, Test Method for Specific Density of Smoke Generated by Solid Materials.
 4. F137, Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
 5. F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring.
 6. F1861, Standard Specification for Resilient Wall Base.
- B. Other Referenced Documents
1. National Fire Protection Association (NFPA), NFPA 255; Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
 2. National Fire Protection Association (NFPA), NFPA 258; Test Method for Specific Density of Smoke Generated by Solid Materials.
 3. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
 4. The Collaborative for High Performance Schools (CHPS).

1.03 SUBMITTALS

- A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products.
- B. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.
- C. Samples: Submit selection and verification samples for finishes, colors, and textures.
- D. Quality Assurance Submittals: Submit the following
1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.
- E. Maintenance Information: Maintenance information for installed products in accordance with Division 1 sections.

1. Methods for maintaining installed products.
2. Precautions against cleaning materials and methods detrimental to finishes and performance.

F. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.
- B. Regulatory Requirements
 1. Fire Performance characteristics: Provide resilient wall base with the following Fire performance characteristics as determined by testing products in accordance with ASTM method (and NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - a. ASTM E648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems; Class 1, Greater than 0.45 W/cm².
 - b. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; < 450.
- C. Single-Source Responsibility: Obtain resilient wall base tile and manufacturer's recommended adhesive from a single supplier.
- D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, Manufacturer's conditions, recommended adhesive depending on product, substrate type and type of installation, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with requirements in Division 1.

1.05 DELIVERY, STORAGE AND HANDLING

- A. General: Comply with requirements in Division 1.
- B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with Identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive rubber flooring shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of 65° - 85° F for 48 hours prior to, during and thereafter installation of rubber flooring. Rubber flooring and adhesive shall be conditioned in the same manner. Rubber flooring/tile must be un-boxed at least 48 hours prior to installation in the areas in which it will be installed.

- B. Existing Conditions: (Specify existing conditions affecting product use and installation).

1.07 SEQUENCING AND SCHEDULING

- A. Finishing Operations: Install resilient wall base after finishing operations, including floor covering, painting and ceiling operations, have been completed.

1.08 MAINTENANCE

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1, Closeout Submittals Section.
- B. Quantity: Furnish quantity of resilient wall base equal to 5% of amount to be installed.
- C. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.
- D. Maintenance of finished resilient wall base to be conducted per Manufacturer's Maintenance Guide.

1.09 WARRANTY

- A. Manufacturer's Materials Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
 1. Warranty: 1 year limited warranty commencing on Date of Substantial Completion. Notice of any defect must be made in writing to manufacturer within 30 days after buyer learns of the defect.

PART 2 - PRODUCTS

2.01 RESILIENT WALL BASE

- A. Manufacturer: Flexco Corporation, 1401 E. 6th Street, Tuscumbia, AL 35674. Phone: 800-633-3151, Fax: 800-346-9075, Web: www.flexcofloors.com
- B. Test results
 1. ASTM D570, Water Absorption of Plastics; < 0.15%.
 2. ASTM E84 (NFPA 255), Surface Building Characteristics of Building Materials; Class C.
 3. ASTM E648 (NFPA 253), Critical Radiant Flux; Class 1, > 1.0 W/cm².
 4. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; Passes.
 5. ASTM F925, Resistance to Chemicals; Passes, List Available.
 6. ASTM F1515, Light Stability; Excellent.
 7. ASTM F1861, Standard Specification for Resilient Wall Base - Types TS, TP & TV, Group 1 & 2, Styles A&B; (Federal Specification SSW40a, Type II, Styles A&B).

8. NFPA 101 Life Safety Code, Wall Base; Interior floor trim material used at the junction of the wall and the floor to provide a functional or decorative border, and not exceeding 6 in. (150 mm) in height shall meet the requirements for the interior wall finish for its location or the requirements for Class II interior floor finish as described (CFR > .22 W/cm² / < .45 W/cm²) using ASTM E 648. If Class I floor finish is required (CFR > .45 W/cm²), the interior floor trim shall be Class I.
9. Complies with California Proposition 65
10. Approved for Collaborative for High Performance Schools 01350, Low-Emitting Material Criteria.

C. Rubber Base Product:

1. RB1 - Wallflowers Premium Molded Rubber Wall Base
 - a. Complies with ASTM F 1861 Type TS (Thermoset Vulcanized Rubber)
 - b. Profile:
 - i. Standard Toe (Cove base)
 - c. Height :
 - i. 6" (152.4 mm)
 - d. Length:
 - i. 120' (36.57 m) Coils
 - e. Thickness: 1/8" (3.175 mm)
 - f. Corner Installation:
 - i. Factory Formed Inside and Outside Corners.

PART 3 – EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's requirements as published in Flexco installation instructions.
- B. Adhesive: Flexco 106 Wall Base Adhesive.
- C. Caulking: Flexco colored caulking as required.

3.02 EXAMINATION

- A. Site Verification of Conditions: Confirm substrate conditions (which have been previously addressed under other sections) are acceptable for product installing in accordance with manufacturer's instructions.
- B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage while installing.
- B. Substrate Preparation: Prepare substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as paint, dust, grease, oils, solvent, old

adhesive residue, vinyl wall coverings, non-porous surfaces and all other contaminants that may interfere with adhesive bond.

- C. Do not install over existing floor covering or over substrates not approved by manufacturer.

3.04 INSTALLING

- A. Refer to Flexco installation instructions for specific resilient wall base detailed specifications on installing.
 - 1. Finish Floor Covering Designs: As selected by Architect.
 - 2. Accessories: Architect shall specify manufacturers' color coordinated accessories as required, including (but not limited to) resilient wall base, stair nosing, reducers or other edgings, welding rods for heat welded seams.

3.05 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Upon Owner's request and with minimum 72 hours notice, provide manufacturer's field service consisting of product use recommendations and periodic site visits to confirm installing of product is in accordance with manufacturer's instructions.
- B. Site Visits: (Specify number and duration of periodic site visits).

3.06 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of substantial completion.
- B. Restrict cleaning for first 72 hours.

3.07 INITIAL MAINTENANCE PROCEDURES

- A. General: Include in contract sum cost for initial maintenance procedures and execution by professional maintenance personnel after resilient wall base has been installed for 72 hours as specified in the Flexco maintenance instructions.

3.08 CLEANING

- A. Cleaning: See Flexco maintenance instructions. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of.

END OF SECTION

SECTION 09685 - CARPET TILE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Carpet tile, fully adhered.

1.02 REFERENCES

- A. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2006.
- B. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2006a.
- C. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; Carpet and Rug Institute; 2002.
- D. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; www.carpet-rug.org; current edition.
- E. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; www.carpet-rug.org; current edition.
- F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2006.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate layout of joints.
- C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- E. Submit two, twelve (12) inch long samples of edge strip.
- F. Manufacturer's Installation Instructions: Indicate special procedures.
- G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in installing carpet with minimum five (5) years experience.

1.05 FIELD CONDITIONS

- A. Store materials in area of installation for minimum period of 24 hours prior to installation.

1.06 EXTRA MATERIALS

- A. See Section 01600 - Product Requirements, for additional provisions.
- B. Provide one (1) box per one hundred (100) sq ft of carpet tile, of each type, color, and pattern specified.

1.07 WARRANTIES

- A. Provide standard manufacturers lifetime warranty covering the following requirements for the applicable areas:
 - 1. Wear: Lifetime Limited Warranty
 - 2. Static: Lifetime Warranty
 - 3. Tuft Bind: Lifetime Warranty
 - 4. Edge Ravel: Lifetime Warranty
 - 5. Zippering: Lifetime Warranty, not to zipper wet or dry
 - 6. Piling and Fuzzing: Lifetime Warranty
 - 7. Delamination: Lifetime Warranty, under normal use
 - 8. Dimensional Stability: Lifetime Warranty

PART 2 – PRODUCTS

2.01 MANUFACTURER

- A. Subject to compliance with requirements of this Section manufacturer offering products that may be incorporated into the Work are not limited. This specification is based on the Side Stripe Collection from Mohawk Group. Other approved manufacturers are as follows:
 - 1. J & J Invision
 - 2. Shaw Industries Group, Inc.
 - 3. Tandus Inc.
 - 4. Bolyu Commercial Inc.

2.02 MATERIALS

- A. Carpet Tile (CPT): Tufted Textured Loop Pattern, manufactured in one color solution dye method.
 - 1. Tile Size: 24 x 24 inch, nominal.
 - 2. Color: Custom Color
 - 3. Yarn Content: Duracolor Tricolor Premium Nylon
 - 4. Pattern: Side Stripe
 - 5. Surface Flammability Ignition: Pass ASTM D 2859 (the "pill test").

2.02 ACCESSORIES

- A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.

- B. Base Cap: As recommended by flooring material manufacturer. Color to be selected by Architect from manufactures standard range.
- C. Edge Strips: As recommended by flooring material manufacturer.
- D. Adhesives: Acceptable to carpet manufacturers, compatible with materials being adhered; maximum VOC of 0 g/L based on no solvent for coating and material; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet tile.
- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are ready for carpet tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by carpet tile manufacturer and adhesive materials manufacturer.
- E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

- A. Remove existing carpet tile.
- B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.
- C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.
- D. Vacuum clean substrate.

3.03 INSTALLATION

- A. Install carpet tile in accordance with manufacturer's instructions and CRI 104.
- B. Blend carpet from different cartons to ensure minimal variation in color match.
- C. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- D. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- E. Locate change of color or pattern between rooms under door centerline.
- F. Fully adhere carpet tile to substrate.
- G. Adhere carpet tile as base finish up vertical surfaces to form base. Terminate top of base with cap strip.
- H. Trim carpet tile neatly at walls and around interruptions.

- I. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING AND PROTECTION

- A. Remove excess adhesive without damage, from floor, base, and wall surfaces.
- B. Remove and dispose of debris and unusable scraps.
- C. Vacuum carpet surfaces with commercial machine as recommended by flooring material manufacturer.
- D. Replace carpet where soils cannot be removed.
- E. Remove protruding face yarns.
- F. Clean and protect carpet from damage and wear during duration of construction period as per flooring material manufacturer recommendations, to ensure carpet is not damaged or soiled at time of substantial completion.

END OF SECTION 09685

SECTION 09840- ACOUSTICAL CEILING AND WALL PANELS (CEMENTITIOUS WOOD FIBER)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:

1. Cementitious wood fiber plank acoustical ceiling & wall system

B. Related Sections:

1. Section 09 20 00 – Plaster and Gypsum Board
2. Section 01 81 13 – Sustainable Design Requirements
3. Section 01 81 19 – Indoor Air Quality Requirements
4. Divisions 23 – HVAC Air Distribution
5. Division 26 – Electrical

C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.
2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
2. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
3. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
4. ASTM E 1264 Classification for Acoustical Ceiling Products

B. International Building Code

C. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

D. NFPA 70 National Electrical Code.

E. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010

F. L.E.E.D. - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings.

1.4 SYSTEM DESCRIPTION

Direct attached Wall acoustical systems manufactured from domestic cementitious wood fiber.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling and wall unit required.
- B. Samples: Minimum 6-inch x 6-inch samples of specified acoustical ceiling and wall panels.
- C. Shop Drawings: Layout and details of product show locations of items that are to be coordinated.
- D. Certifications: UL certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. Acoustical performance, products must be tested to the A, D-20, C-20, or C-40 method.
- E. Country of Origin: Submittals must be accompanied by letter, label or certification indicating the manufacturing country of origin. Comply with Made in USA requirements as applicable for the project.
- F. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 SUSTAINABLE MATERIALS

- A. Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.
- B. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.
- C. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).
- D. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).
- E. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
- F. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.
- G. Products meeting LEED V4 requirements including:
 - 1. Storage & Collection of Recyclables
 - 2. Construction and Demolition Waste Management Planning
 - 3. Building Life-Cycle Impact Reduction
 - 4. Building Product Disclosure and Optimization Environmental Product Declarations
 - 5. Building Product Disclosure and Optimization Sourcing of Raw Materials
 - 6. Building Product Disclosure and Optimization Material Ingredients
 - 7. Construction and Demolition Waste Management

1.7 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical wall components with appropriate markings of applicable testing and inspecting organization.
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.
- C. - Lines, as with other architectural features located wall, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
- D. Coordination of Work: Coordinate product manufacturer work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.8 DELIVERY, STORAGE & HANDLING

- A. Deliver acoustical wall units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Provide labels indicating brand name, style, size, and thickness.
- C. Before installing acoustical wall units, permit them to reach room temperature and a stabilized moisture content.
- D. Handle acoustical wall units carefully to avoid chipping edges or damaged units in any way.

1.9 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
- B. Do not install wall panels until building is closed in and HVAC system is operational.
- C. Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
- D. Maintain the following conditions in areas where acoustical materials are to be installed 24 hours before, during and after installation:
 - 1. Relative Humidity: 65 - 75%.
 - 2. Uniform Temperature: 55 - 70 degrees F (13 - 21 degrees C).

1.10 WARRANTY

- A. Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
 - 1. Defects in materials or factory workmanship.
- B. Product one source manufacturer is Thirty (30) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.11 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling and Wall Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

PART 2 PRODUCTS

2.1 Manufacturer

- A. Ceiling and Wall Panels:
1. Tectum® by Armstrong World Industries, Inc.
 2. All approved equals

2.2 ACOUSTICAL WALL UNITS

- A. Acoustical Panels Type AP-1:
1. Surface Texture: Coarse
 2. Composition: Aspen wood fibers bonded with inorganic hydraulic cement
 3. Color: To Be Selected from Standard Selection (To Be Chosen By Architect).
 4. Size: 24 x 24 x 1"
 5. Thickness: Standard: 1"
 6. Edge Profile: Standard: Beveled on direct-attach
 7. Noise Reduction Coefficient (NRC): ASTM C 423 (C-40 mounting) (Standard NRC 0.85) Classified with UL label.
 8. Flame Spread: ASTM E 1264; (Fire Class A)
 9. Dimensional Stability: Basis of Design HumiGuard Plus by Armstrong World Industries
 10. Sustainable: EPD (Environmental Product Declaration) and HPD (Health Product Declaration)
 11. USDA Certified Biobased Product, 98%
 12. Acceptable Product: – Lines Ceiling and Wall Panels
Standard:
Direct-Attach Ceiling & Wall Panels
24 x 24 x 1" Panel with Hatches Lines
- Accessories
2-1/4" Painted Head – CMU Screws

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.2 PREPARATION

- A. Measure each wall area and establish layout of ceiling and wall acoustical panel units. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

- A. Install - Lines system in accordance manufacturer's installation instructions. Follow the requirements of the International Building Code and in accordance with the local building code and the authorities having jurisdiction.

3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken ceiling and wall panels.
- B. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any ceiling and wall panel products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

END OF SECTION

SECTION 09900 - PAINTS AND COATINGS**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Exposed surfaces of steel lintels and ledge angles.
 - 3. Surfaces inside cabinets.
 - 4. Mechanical and Electrical:
 - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. In finished areas, paint shop-primed items.
 - c. On the roof and outdoors, paint all equipment that is exposed to weather or to view, including that which is factory-finished.
 - d. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - e. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 - 6. Marble, granite, slate, and other natural stones.
 - 7. Floors, unless specifically so indicated.
 - 8. Ceramic and other tiles.
 - 9. Glass.
 - 10. Concealed pipes, ducts, and conduits.

1.02 RELATED SECTIONS

- A. Section 02765 - Pavement Markings: Painted pavement markings.
- C. Section 05500 - Metal Fabrications: Shop-primed items.
- D. Section 05510 - Metal Stairs: Shop-primed items.

1.03 REFERENCES

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission

Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

- B. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2003.
- C. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 1992 (Reapproved 2003).
- D. GreenSeal GS-11 - Paints; 1993.

1.04 DEFINITIONS

- A. Conform to ASTM D 16 for interpretation of terms used in this section.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Samples: Submit two paper chip samples, four (4) x four (4) inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
- D. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on aluminum sheet, twelve (12) x twelve (12) inch in size.
- E. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.
- F. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.
- G. LEED Report: VOC content of all interior opaque coatings actually used.
- H. Manufacturer's Instructions: Indicate special surface preparation procedures.
- I. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- J. Maintenance Materials:
 1. See Section 01600 - Product Requirements, for additional provisions.
 2. Supply two (2) gallons of each color; store where directed.
 3. Label each container with color and room numbers in addition to the manufacturer's label.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five (5) years experience.

1.07 MOCK-UP

- A. See Section 01400 - Quality Requirements, for general requirements for mock-up.
- B. Provide panel, six (6) feet long by six (6) feet wide, illustrating special coating color, texture, and finish.
- C. Provide door and frame assembly illustrating paint coating color, texture, and finish.
- D. Locate where directed.
- E. Mock-up may remain as part of the work.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.09 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 – PRODUCTS

2.01 PAINTS AND COATINGS - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the

substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 4. Supply each coating material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
- C. Volatile Organic Compound (VOC) Content:
1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; www.otcair.org; specifically:
 - 1) Opaque, Flat: 50 g/L, maximum.
 - 2) Opaque, Nonflat: 150 g/L, maximum.
 - 3) Opaque, High Gloss: 250 g/L, maximum.
 - 4) Varnishes: 350 g/L, maximum.
 - c. Architectural coatings VOC limits of State in which the project is located.
 - d. USGBC LEED Rating System; for interior wall and ceiling finish (all coats), anti-corrosive paints on interior ferrous metal, clear wood stains and finishes, sanding sealers, other sealers, shellac, and floor coatings.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Chemical Content: The following compounds are prohibited:
1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.
- E. Flammability: Comply with applicable code for surface burning characteristics.
- F. Colors: As selected by Architect and approved by Owner.
1. Selection to be made by M3A Architects, PLLC. after award of

contract.

2. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Washington County.
3. Extend colors to surface edges; colors may change at any edge as directed by M3A Architects, PLLC..
4. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
5. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

2.02 MANUFACTURERS

- A. Subject to compliance with requirements of this Section manufacturers offering systems that may be incorporated into the Work are not limited. Specification is based on products by Sherwin Williams, Inc. Other suggested manufacturers are as follows:
 1. Benjamin Moore and Co.
 2. Devoe and Reynolds Co.
 3. PPG Industries, Pittsburgh Paints
 4. ICI Inc.
 5. Farrel Calhoun Paint Inc.

2.02 PAINT SYSTEMS – EXTERIOR

- A. Exterior Masonry: Elastomeric System
 - a. Flat Finish
 - 1st Coat: S-W Loxon BlockSurfacer, A24W200 (50-100 sq ft/gal)
 - 2nd Coat: S-W ConFlex XL Elastomeric High Build Coating, A5-400 Series
 - 3rd Coat: S-W ConFlex XL Elastomeric High Build Coating, A5-400 Series (16 mils wet, 7.5 mils dry per coat)
- B. Exterior Metals (Aluminum, Galvanized): Latex Systems
 - a. Semi-Gloss Finish
 - 1st Coat: S-W Metalatex Acrylic Semi-Gloss, B42 Series
 - 2nd Coat: S-W Metalatex Acrylic Semi-Gloss, B42 Series (4 mils wet, 1.5 mils dry per coat)
- C. Exterior Metal (Misc. Iron, Ornamental Iron, Structural Iron & Steel, Ferrous Metal) Latex Systems
 - a. Semi-Gloss Finish
 - 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series (5-10 mils wet, 2-4 mils dry)
 - 2nd Coat: S-W Metalatex Acrylic Semi-Gloss, B42 Series
 - 3rd Coat: S-W Metalatex Acrylic Semi-Gloss, B42 Series (4 mils wet, 1.5 mils dry per coat)

2.03 PAINT SYSTEMS – INTERIOR

- A. Interior Masonry: Epoxy System (Water Base)
 - a. Semi-Gloss/High Luster Finish
 - 1st Coat: S-W Heavy Duty Block Filler, B42W46 (18 mils wet, 10 mils wet)

2nd Coat: S-W Pro Industrial HB/ Waterbased Epoxy,
B71W111/B71W100 Series
3rd Coat: S-W Pro Industrial HB/ Waterbased Epoxy,
B71W111/B71W100 Series (4-6 mils dry per coat)

- B. Interior Metal (Aluminum, Galvanized): Epoxy Systems
- a. Semi-Gloss Finish
1st Coat: S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
(2-4 mils dry)
2nd Coat:S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy,
K46 Series
3rd Coat:S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46
Series (4 mils wet, 1.5 mils dry per coat)
- C. Interior Metal (Misc. Iron, Ornamental Iron, Structural Iron & Steel, Ferrous
Metal): Epoxy Systems (Water Base)
- a. Semi-Gloss Finish
1st Coat: S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
(2-4 mils dry)
2nd Coat:S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy,
K46 Series
3rd Coat:S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46
Series (4 mils wet, 1.5 mils dry per coat)
- D. Interior Drywall (Walls, Ceilings, Gypsum Board): Epoxy Systems (Water
Base)
- a. Semi-Gloss Finish
1st Coat: S-W PrepRite® 200 Latex Primer, B28W200
(4 mils wet, 1.2 mils dry)
2nd Coat:S-W Water Based Catalyzed Epoxy, B70/B60V25 Series
3rd Coat:S-W Water Based Catalyzed Epoxy, B70/B60V25 Series
(2.5-3 mils dry per coat)
- D. Interior Wood (Walls, Ceilings, Doors, Trim,) Latex Systems
- a. High Gloss Finish
1st Coat: S-W PrepRite® Classic Primer, B28W101
(4 mils wet, 1.6 mils dry)
2nd Coat:S-W ProClassic® Waterborne Acrylic High Gloss
Enamel, B21W351 Series
3rd Coat: S-W ProClassic® Waterborne Acrylic High Gloss
Enamel, B21W351 Series (4 mils wet, 1.5 mils dry per coat)
- E. Interior Wood (Walls, Ceilings, Doors, Trim, etc.): Stain & Varnish
- a. Clear Finish
1st Coat: S-W Minwax 250 VOC Oil Stain (Optional)
Or
S-W Wood Classics® Interior Oil Stain, A49 Series (Optional)
2nd Coat:S-W Wood Classics® Waterborne Polyurethane Varnish,
Gloss or Satin
3rd Coat:S-W Wood Classics® Waterborne Polyurethane Varnish,
Gloss or Satin (4 mils wet, 1.0 mil dry per coat)

2.04 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning

cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify M3A Architects, PLLC. of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.
 - 4. Concrete Floors and Traffic Surfaces: 8 percent.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

- H. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- I. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand wood and metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for general requirements for field inspection.
- B. Inspect and test questionable coated areas in accordance with manufactures specifications.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.
- B. At end of each Work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
- C. Upon completion of painting, clean glass and paint splattered surfaces with cleaner that complies with surface manufacturers specifications. Remove splattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

3.06 PROTECTION

- A. Protect work of other trades and disciplines, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove

temporary protective wrappings provided by others for protection of their Work after completion of painting.

- C. At completion of construction activities of other trades, touch up and restore damaged or defaced surfaces.

END OF SECTION 09900

SECTION 10430 - EXTERIOR SIGNAGE**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Exterior signage of the following types:
 - 1. Wall mounted signs.
 - 2. Channel letter signs.
 - 3. Cast metal signs.
 - 4. Formed plastic signs.

1.02 REFERENCES

- A. ASTM B 209/209M - Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM B 221/221M - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- B. ICC/ANSI A117.1 - Accessible and Useable Buildings and Facilities; 1998.
- C. USATBCB - Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.03 SYSTEM DESCRIPTION

- A. Design exterior signs to withstand positive and negative wind loads as calculated in accordance with applicable building code.
- B. Frame and Enclosure:
 - 1. Design, construct and install structural and non-structural support framing in conformance with applicable building code and with AISI Standards.
 - 2. Design to provide for movement of components without damage, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
 - 3. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.
 - 4. Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable building code.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Provide proof of listing with UL or CSA.
- D. Shop Drawings: Showing sign styles, lettering, locations and dimensions of

each sign.

1. Indicate component details including, framing, anchorage, design loading, and location of fasteners, and accessories or items required of related Work.
 2. Submit calculations for loadings and stresses of all framing under Professional Engineer's seal who is experienced in design of this Work and licensed at the Project location.
- E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- F. Verification Samples: Two full size samples, representing type, style and colors including method of attachment.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ICC/ANSI A117.1 and ADAAG.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results.
- B. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements of this Section manufacturers offering products that may be incorporated into the Work are not limited.

2.02 EXTERIOR SIGNS

- A. Standard Products: The following exterior sign systems shall be provided in locations indicated on Drawings and as directed by Owner/Architect.
1. Cast Aluminum Letter Series:
 - a. Type Face and Material:
 1. Type Face: To be selected by Architect
 2. Face: To be selected by Architect
 3. Cast Aluminum
 - b. Sizes: Twelve (12) inch overall height for main signage line

six (6) inch overall height for all other signage lines

- c. Finish: To be Selected by Architect
- d. Mounting:
 - 1. Rear mount projected spacers.
 - 2. Double Rail
- e. Text:
TBD

2.02 CONSTRUCTION AND MATERIALS GENERAL

- A. ASTM B 221/221M: Extruded aluminum, 6063T5 alloy, anodizing quality.
- B. ASTM B 209/209M: Aluminum sheet and plate, anodizing quality.
- C. Fasteners: Corrosion resistant stainless steel.
- D. Provide gaskets between exterior wall face and mountings, to prevent water and dust from seeping into the interior.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until surfaces to receive signs have been finished and finishes are dry and correctly cured.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify raceways and boxes are ready for installation.
- D. Verify electrical and required data connections are available, in the proper locations and ready for use.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Locate signs in accordance with approved shop drawings and ADA requirements.

3.04 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 10430

SECTION 10440 - INTERIOR SIGNAGE

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Interior signage of the following types:
 - 1. ADA compliant interior signage.

1.02 REFERENCES

- A. ICC/ANSI A117.1 - Accessible and Useable Buildings and Facilities; 1998.
- B. USATBCB - Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.03 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's descriptive literature.
 - 2. Installation methods.
- C. Shop Drawings: List sign styles, lettering, locations and dimensions of each interior sign.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: Two full size samples, representing type, style and colors including method of attachment.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ICC/ANSI A117.1 and ADAAG.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results.
- B. Do not install products under environmental conditions outside

manufacturer's absolute limits.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements of this Section, manufacturers offering products that may be incorporated into the Work are not limited.

2.02 INTERIOR SIGNS

- A. Standard Products: The following interior sign systems shall be provided in locations indicated.
- B. Interior Room Signage Type 1: Acrylic based with photo polymer sheet.
1. Composition: Plaque material shall be melamine plastic laminate, approximately 1/8" thick with contrasting core color. The melamine shall be non-static, fire-retardant and self-extinguishing. The plastic laminate will be impervious to most acids, alkalies, alcohol, solvents, abrasives and boiling water.
 2. Base thickness: 0.190 inch (4.8 mm).
 3. Color: To be selected from manufacturer's full color range by Architect.
 4. Additional Graphics: include Architect Approved school logo artwork
 5. Surface burning characteristics: Flame spread/smoke developed rating less than 75/120, tested to ASTM E84 and UL 723.
 6. Rate of burning: Tested to ASTM D635 at nominal 0.060 inch (1.5 mm) thickness with resulting Classification CC1.
 7. Rate of burning: Tested to ASTM D635 at nominal 0.060 inch (1.5 mm) thickness with resulting Classification CC1.
 8. Self ignition temperature: 800 degrees F (427 degrees C), tested to ASTM D1929.
 9. Tactile characters shall be raised the required 1/32" inches from sign face. Glue-on letters or etched backgrounds are not acceptable.
 10. All text shall be accompanied by Grade 2 braille. Braille shall be separated 1/2" from the corresponding raised characters or symbols. Grade 2 braille translation to be provided by signage manufacturer.
 11. Perimeter borders shall be 3/8". (optional)
 12. All letters, numbers and/or symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background. Characters and background shall have a non-glare finish.
 13. Size of letters and numbers shall be as follows:
 - a. Room numbers shall be 1".
 - b. Lettering for room ID signs shall be 3/4".
 - c. Symbol size shall be 4".
 - d. Standard Grade 2 braille shall be 1/2" below copy.
 13. Signage Sizes
 1. Room function signs, 4" x length as required.
 2. Classroom signs, will be 8" x 8" min. with verbal description placed directly below followed by Grade 2 braille.

3. Restroom signs shall be design size 10" x 10" with a 4" accessibility symbol, gender symbol and the verbal description placed directly below followed by Grade 2 braille.
 4. Corners: rounded
- C. Interior Building Letters
1. Formed Plastic Letters:
 - a. Type Face and Material:
 1. Type Face: To be selected by Architect
 2. Face: To be selected by Architect
 3. Formed Plastic
 - b. Sizes: Twelve (12) inch overall height for main signage line six (6) inch overall height for all other signage lines
 - c. Finish: To be Selected by Architect
 - d. Mounting:
 1. Free Standing
 - e. Text: As per drawings

2.03 ACCESSORIES

- A. Adhesive:
 1. Type recommended by sign manufacturer.
 2. Maximum volatile organic compound (VOC) content: 70 grams per liter.
- B. Tape: Double sided, waterproof, pressure sensitive.
- C. Fasteners: Chrome plated screws.
- D. Fasteners: Brass screws.
- E. Fasteners: Stainless steel screws.

2.04 FABRICATION

- A. Fabricate panel material in accordance with manufacturer's instructions and approved shop drawings.
- B. Fabricate signs by photo polymer process using film negatives to produce characters and graphics in contrasting color, raised. Refer to Signage Schedule.
- C. Pictograms: Architect to Provide Final Logo. See end for minimum requirements.
- D. Provide Grade II Braille indications for each character.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until surfaces to receive signs have been finished and finishes are dry and correctly cured.

- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Locate signs in accordance with approved shop drawings and ADA requirements.

3.04 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 10440

SECTION 15000 - GENERAL MECHANICAL**PART 1 - GENERAL CONDITIONS**

1.01 WORK INCLUDED

- A. The general conditions of the general specifications are made a part of these specifications and apply the same as if attached hereto. The contractor should, before bidding, read and thoroughly understand all general conditions, priority and scheduling.

1.02 SCOPE OF WORK

- A. This section calls for the furnishing of labor, materials, equipment, and all the services, and of performing all operations required for the complete mechanical systems as hereinafter specified and/or shown on the accompanying drawings.

1.03 GENERAL REQUIREMENTS

- A. Contractor shall install his work to meet the existing conditions as found at buildings and property, and to accommodate work of other trades. This contractor shall be responsible for timely placing of sleeves in forms before concrete is poured. Cooperate with the general contractor and place pipes and ducts in floors, walls, furred spaces, etc., so there will be no delay. Sheet metal or iron pipe sleeves shall be provided for pipes passing through floors, wall or partitions.
- B. Contractor shall furnish and properly install materials, devices, equipment, insulation, controls, appurtenances, etc., mentioned in these specifications and/or shown on plans or required to make a complete and satisfactory installation in working order whether fully shown or not.
- C. Contractor should visit the site and acquaint himself thoroughly with conditions governing installation of his work. The Contractor shall fully inform himself regarding any and all peculiarities and limitations of the spaces available for the installation of all work and materials furnished and installed under the Contract. He shall exercise due and particular caution to determine that all parts of his work are made quickly and easily accessible.
- D. All other plans shall be checked in relation to these plans so that all conditions will be furnished and installed in this contract to provide complete and satisfactory systems.
- E. It is intended that all HVAC devices, piping, etc. be located symmetrically with all architectural elements. Refer to Architectural, Structural, Electrical, Plumbing plan and details in completing the required coordination.

1.04 LAWS, RULES, REGULATIONS, FEES, ETC.

- A. The entire mechanical work shall comply with rules and regulations of the local and state authorities having jurisdiction including the State Fire Marshal, State Board of Health, and Department of Health and Hospitals. All modifications required by the said authorities at any time shall be made by the mechanical contractor without additional charge. In cases where alterations to or deviations from this specification and accompanying plans are required by the authorities, contractor shall report same to the Architect and obtain his approval before work is started.

1.05 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define structural conditions, specified requirements, pipe sizes, and manner of erecting work. Structural or other conditions may require certain deviations from manner of installation shown, and such deviations shall be made as required, but specified sizes and requirements necessary for satisfactory operation shall remain unchanged.
- B. It may be necessary to shift or to change routing of ducts and or piping and this shall be done, but such changes must be referred to Architect for approval before proceeding. Extra charges will not be allowed for these changes.
- C. Typical details are shown on plans, and in any cases where Contractor is not certain about the method of installation of this work, he shall ask for details, lack of details will not be an excuse for improper installation.
- D. Contractor bidding on this portion of the work must be fully experienced in installations of equal size, complexity and quality. In bidding, he acknowledges that he fully understands the scope of the work and design and has the ability, for the contract price to assemble and install the equipment, piping, and ductwork shown or specified, so as to mold same into a satisfactory workable system and arrangement, without responsibility for capacities and sizes set by these documents.
- E. Contractor shall recognize that the amount of information and detail that could be provided in Contract Documents is limitless and could extend into every minute detail, step, sequence, and operation to a point where only workmen would be required, without drawing on ability experience, and ingenuity of the Contractor.
- F. The drawings indicate required size and points of termination of piping and ductwork, and suggest proper routes to conform to structure avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the contractor to make the installation in such a manner as to conform to the structure, avoid obstructions, preserve headroom and keep openings and passageways clear, without further instructions or cost to the Owner.

1.06 MATERIALS

- A. Where directed by the Architect, Contractor shall submit sample for approval before proceeding.

1.07 STANDARDS

- A. In general, standards for products and workmanship shall be as described in each individual section.
- B. The standards referred to, except as modified in these specifications shall have full force and effect as though printed in these specifications. These standards are not furnished to bidders for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements. The Architect will furnish, upon request, information as to how copies of the standards referred to may be obtained.
- C. Notwithstanding any reference in this section of the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalogue number, such references shall be interpreted as establishing a standard

of quality and shall not be construed limiting competition and the Contractor in such cases, may at his option, use any article, device, product, material, fixture, form or type of construction which in the judgment of the Architect, expressed in writing, is equal to that specified.

1.08 MATERIALS SPECIFIED OR SUBSTITUTED (Prior Approvals)

- A. Refer to Instructions to Bidders.

1.09 SHOP DRAWINGS

- A. Before proceeding with the work, contractor shall make complete shop and working drawings of such apparatus or connections as directed by the Architect and/or hereinafter specified. These drawings shall show construction details and dimensions of each piece of equipment so drawn.
- B. Architects approval of shop drawings shall not relieve the Contractor from responsibility of incorrectly figured dimensions or any other errors in these drawings or specified even though approved by the Architect, shall not relieve this Contractor from furnishing and erecting same.
- C. Ten (10) sets of prints of shop drawings shall be submitted to Architect. These prints shall be supplied as part of this contract. Submit all shop drawings at the same time or as soon as practical after award of the contract. No separate items will be accepted.
- D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such accessories shall be furnished if no specific reference to them is made in the specifications.
- E. Contractor shall verify voltage of all equipment with Electrical prior to ordering.

1.10 CUTTING AND PATCHING

- A. All cutting necessary for this work will be done by this Contractor at his own expense, but all patching shall be done by the General Contractor. No beams or joists shall be cut without prior approval of Architect. After initial resurfacing has been done any further cutting, patching or painting shall be done at the expense of this Contractor.

1.11 INTERFERENCES

- A. The drawings are generally diagrammatic and this Contractor shall harmonize his work with that of the different trades so that interferences of the different equipment, piping, etc., shall be installed so as to function properly. In the case where interference develops, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.12 EXCAVATION AND BACKFILL

- A. This Contractor shall do all excavating required to lay the specified services and after same have been laid, he shall do all backfilling to the satisfaction of all parties concerned and shall cart away from the premises all unnecessary dirt, rubbish, etc., as directed. Backfill shall be well tamped. All backfill shall be done according to the "Compaction And Backfill" section of these specifications.

1.13 SPACE REQUIREMENTS

- A. Contractor shall check all plans pertaining to this job so as to be fully aware of the space limitations for all various items of equipment. Equipment is not to be bid on, submitted for preliminary approval nor placed on the job if it is so bulky and large that adequate access for proper maintenance and servicing cannot be achieved in the space provided.

1.14 FOUNDATIONS AND SUPPORTS

- A. This contractor shall furnish and install foundations and supports of concrete or steel shapes for equipment requiring same, unless specifically indicated otherwise or specified.
- B. All floor mounted mechanical equipment shall be mounted on 4" high concrete housekeeping pad unless specifically shown otherwise on plans. Refer to plans for special requirements for foundations and supports.

1.15 HANGERS, ESCUTCHEONS, ETC.

- A. See Section 15140 – Supports and Anchors.
- B. Mechanical Contractor shall furnish and install all thimbles, inserts and other requirements necessary for the support of his equipment and piping. Assist and cooperate with other trades in locating and placing these items.

1.16 CEILING AND WALL ACCESS PANEL

- A. Factory made access doors and frames, prime coat finish, screw driver latch(s) of suitable size as required.
- B. Access panels in rated ceiling to have same rating as ceiling.
- C. Where valves, dampers, controls, fire dampers, smoke dampers, and detectors, reheat coils, etc. are concealed in walls or non-accessible ceilings, install factory made access doors and frames.

1.17 DUCTWORK ACCESS PANELS

- A. Access panels in ductwork to be double wall type with insulation sandwiched in between, same insulation value as adjacent ductwork.

1.18 SIPHON PREVENTERS

- A. Furnish and install approved type siphon preventors on all equipment and fixtures in such a manner as to prevent water being siphoned back into the water supply in the event the water supply is shut off.

1.19 FLAME SPREAD PROPERTIES OF MATERIALS

- A. All materials and adhesives used for acoustical linings, jackets and insulation shall comply with requirements of NFPA 90A and 90B and UL guide # 40V.8.15. Products exceeding a flame spread rating of 25, or a smoke developed rating of 50, as determined by ASTM Test Method E-84 are prohibited. Adhesives and sealers shall be fire retardant and fire resistant when dry. Flame proofing treatments which are subject to decomposition, deterioration, or the effects of moisture are prohibited.

1.20 DOMESTIC AND FIRE WATER TIE-IN

- A. Contractor shall provide any necessary meters and tap fees for domestic or fire water tie-ins to utility companies. All domestic and fire water taps shall have

aboveground reduced pressure back flow preventors near the tie-in point. Coordinate with Engineer exact location.

- B. All backflow preventors shall be heat traced and insulated with 1-1/2" fiberglass insulation with water tight aluminum jacket.

1.21 PROTECTION OF EQUIPMENT

- A. See individual sections for protection of equipment.
- B. This Contractor shall at all times take such precautions as may be necessary to properly protect his equipment from damage. Failure on the part of the Contractor to comply with the above to the entire satisfaction of the Architect will be sufficient cause for the rejection of the particular piece of equipment in question.

1.22 TESTING

- A. All pressure lines, unless elsewhere specified, shall be tested under 150# hydrostatic pressure unless rated pressure is less for a minimum of 5 hours. Contractor shall provide valve at farthest point in line to bleed off air and for inspection.
- B. Notice shall be given the Architect before tests are made, the test is not to be drawn off pipes and pipes are not to be covered or insulated until filled pipes have been examined and testing approved by the Architect.
- C. In case of defects, they shall be made good to the satisfaction of the Architect and work retested. All such work shall be done by the Contractor with no additional expense to the Owner.
- D. Contractor shall make any other such tests as may be called for by the Architect, and all other tests so called for elsewhere in these specifications.

1.23 CLEANING AND ADJUSTING

- A. Before receiving final approval from the Architect, the Contractor shall clean out all lines; adjust all valves, control equipment and other equipment. Clean all pipe and equipment and leave the entire installation in good working order. All heaters, fans, grilles, controls, etc., shall be adjusted to perform in correct and satisfactory manner, with sequences, etc., as called for in the specifications hereinafter specified and on plans.

1.24 PAINTING

- A. Refer to Section 09900 – Painting and Coating and 15190– Mechanical Identification for painting requirements.

1.25 MOTORS, MOTOR STARTERS AND ELECTRICAL WORK

- A. Refer to Section 15170 - Motors.
- B. Motors shall be suitable for voltage indicated on the plans, plus or minus 10% and be designed for constant operation at 40 degrees C ambient, 65 degrees C rise for class A, 90 degrees C rise for Class B, etc. Electrical equipment furnished under this contract shall meet standards as set forth by NEMA and NEC requirements. All electrical equipment shall be UL labeled.

1.26 PARTS LIST AND INSTRUCTION MANUAL

- A. See individual sections for specific instructions.
- B. This Contractor shall deliver to the Architect three (3) copies of printed instructions relating to operating, proper maintenance and repair parts list indicating the various parts by name, number and diagram for each piece of equipment installed. Test and balance report shall also be included in parts list and instruction manual.
- C. The shop drawings, parts list, and maintenance and repair instructions shall be neatly bound in a canvas-covered notebook and turned over to the Architect before acceptance of the work.

1.27 BOILER TEST CERTIFICATES

- A. Each boiler, water heater (with a capacity equal to or greater than 50 gallons), and pressure vessels are to be inspected by a State of Louisiana certified inspector upon installation.
- B. Submit a copy of each report to the Architect and include one copy in each of the Close-out Manuals.

1.28 GUARANTEE

- A. Contractor shall guarantee materials, equipment and workmanship installed and performed under this contract for a period of one (1) year from date of the final completion and official acceptance of the contract unless otherwise stated.
- B. He shall furnish free of charge to the Owner all materials and labor necessary to comply with the above guarantee, which shall be based on defective materials and/or workmanship, and on such basis shall be responsible if a deficiency is found, for any adjustment, replacement, or correction which may be necessary to replace the project to first class condition. This guarantee shall include refrigerant charges, but shall not include the changing of filters.

1.29 RECORD DRAWINGS

- A. The Contractor shall maintain a set of record drawings on-site throughout the construction. The record drawings shall reflect accurate dimensional record of all underground, buried, above ceiling, or otherwise concealed work.
- B. The Contractor shall maintain these record documents and keep them up-to-date daily.

END OF SECTION 15000

SECTION 15050 - BASIC MECHANICAL MATERIALS AND METHODS**PART 1 - GENERAL**

1.01 SUMMARY

- A. This Section includes the following:
1. Piping materials and installation instructions common to most piping systems.
 2. Dielectric fittings.
 3. Mechanical sleeve seals.
 4. Sleeves.
 5. Escutcheons.
 6. Grout.
 7. Mechanical demolition.
 8. Equipment installation requirements common to equipment sections.
 9. Concrete bases.
 10. Supports and anchorages.

1.02 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.03 SUBMITTALS

- A. Welding certificates.

1.04 QUALITY ASSURANCE

- A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."
- B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

- C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 - PRODUCTS

2.01 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 15 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.01 JOINING MATERIALS

- A. Refer to individual Division 15 piping Sections for special joining materials not listed below.
- B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3.2-mm) maximum thickness unless thickness or specific material is indicated.
- C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.
- D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.
- F. Welding Filler Metals: Comply with AWS D10.12.
- G. Solvent Cements for Joining Plastic Piping:
 1. CPVC Piping: ASTM F 493.
 2. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

2.03 DIELECTRIC FITTINGS

- A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
- B. Insulating Material: Suitable for system fluid, pressure, and temperature.
- C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig (1725-kPa) minimum working pressure at 180 deg F (82 deg C).
- D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig (1035- or 2070-kPa) minimum working pressure as required to suit system pressures.
- E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).
- F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C).

2.04 MECHANICAL SLEEVE SEALS

- A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.
- B. Sealing Elements: NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
- C. Pressure Plates: Carbon steel. Include two for each sealing element.
- D. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.05 SLEEVES

- A. Galvanized-Steel Sheet: 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint.
- B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.
- C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with set screws.
- E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.
- F. PVC Pipe: ASTM D 1785, Schedule 40.
- G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.06 ESCUTCHEONS

- A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
- C. One-Piece, Cast-Brass Type: With set screw.
 - 1. Finish: Polished chrome-plated and rough brass.

2.07 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.
 - 1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.01 MECHANICAL DEMOLITION

- A. Refer to Division 1 Sections "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.

- B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - 2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
 - 3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - 4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
 - 5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - 6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - 7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.02 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Install piping according to the following requirements and Division 15 Sections specifying piping systems.
- B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping to permit valve servicing.
- G. Install piping at indicated slopes.
- H. Install piping free of sags and bends.
- I. Install fittings for changes in direction and branch connections.
- J. Install piping to allow application of insulation.
- K. Select system components with pressure rating equal to or greater than system operating pressure.
- L. Install escutcheons for penetrations of walls, ceilings, and floors.

- M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
- N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Install steel pipe for sleeves smaller than 6 inches (150 mm) in diameter.
 - 2. Install cast-iron "wall pipes" for sleeves 6 inches (150 mm) and larger in diameter.
 - 3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- O. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - 1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- P. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 7 Section "Through-Penetration Firestop Systems" for materials.
- Q. Verify final equipment locations for roughing-in.
- R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.02 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings according to the following requirements and Division 15 Sections specifying piping systems.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.
- E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

- F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
 2. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.
 3. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 4. PVC Nonpressure Piping: Join according to ASTM D 2855.
- J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.
- K. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.
- L. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
1. Plain-End Pipe and Fittings: Use butt fusion.
 2. Plain-End Pipe and Socket Fittings: Use socket fusion.
- M. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.03 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
1. Install unions, in piping NPS 2 (DN 50) and smaller, adjacent to each valve and at final connection to each piece of equipment.
 2. Install flanges, in piping NPS 2-1/2 (DN 65) and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 3. Edit dielectric connection types in two subparagraphs below for each fluid.
 4. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
 5. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.04 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.05 CONCRETE BASES

- A. Coordinate concrete work in this Article with Division 3 Section "Cast-in-Place Concrete" or "Cast-in-Place Concrete (Limited Applications)."
- B. Coordinate below with Division 15 Sections specifying equipment. Indicate dowel rod quantity, size, and spacing on Drawings.
- E. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
 - 1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
 - 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of the base.
 - 3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
 - 4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 5. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
 - 7. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement.

3.06 ERECTION OF METAL SUPPORTS AND ANCHORAGES

- A. Refer to Division 5 Section "Metal Fabrications" for structural steel.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.
- C. Field Welding: Comply with AWS D1.1.

3.07 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

- A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor mechanical materials and equipment.

- B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.
- C. Attach to substrates as required to support applied loads.

3.08 GROUTING

- A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.
- D. Avoid air entrapment during placement of grout.
- E. Place grout, completely filling equipment bases.
- F. Place grout on concrete bases and provide smooth bearing surface for equipment.
- G. Place grout around anchors.
- H. Cure placed grout.

END OF SECTION 15050

SECTION 15260 - PIPING AND EQUIPMENT INSULATION**PART 1 - GENERAL**

1.01 WORK INCLUDED

- A. Piping Insulation
- B. Jackets and Accessories
- C. Equipment Insulation
- D. Duct Insulation

1.02 RELATED WORK

- A. Section 15890 - Ductwork

1.03 REFERENCES

- A. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation
- B. ANSI/ASTM C552 - Cellular Glass Block and Pipe Thermal Insulation.
- C. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate
- D. ASTM E845 - Surface Burning Characteristics of Building Materials.
- E. NFPA 255 - Surface Burning Characteristics of Building Materials.
- F. UL 723 - Surface Burning Characteristics of Building Materials.

1.04 QUALITY ASSURANCE

- A. Applicator: Company specializing in application of piping insulation.
- B. Materials: Flame spread/fuel contributed/smoke developed rating of 25/50/50 in accordance with ASTM E84, NFPA 255.0, UL 723.

1.05 SUBMITTALS

- A. Submit product data for each application as per Section 01300.
- B. Submit manufacturer's installation instructions.

PART 2 - PRODUCTS

2.01 INSULATION

- A. After all work has been tested and found to be leak free and tight, and accepted by the Architect, insulate as follows:
 1. All chilled water, supply and return, piping above ground shall be covered with 2" thick molded cellular foam, foamglas or cell-u-glass type sectional pipe covering to be complete with F.R.J. jacket, with the exception of hot water run-outs - see item No. 2. Sections of covering shall be joined together, the mastic to be buttered on only one of the two adjoining surfaces at both the longitudinal and circumferential joints so that a complete seal at the joints is obtained. The piping insulation is to be secured in place with copper wire spaced not more than 12" on center.
 2. All heating water, supply and return, piping above ground shall be covered with 1- ½" thick molded cellular foam, foamglas or cell-u-glass

type sectional pipe covering to be complete with F.R.J. jacket, with the exception of hot water run-outs – see item No. 2. Sections of covering shall be joined together, the mastic to be buttered on only one of the two adjoining surfaces at both the longitudinal and circumferential joints so that a complete seal at the joints is obtained. The piping insulation is to be secured in place with copper wire spaced not more than 12" on center.

3. All domestic hot and cold piping above ground shall be covered with 1" thick fiberglass, molded type sectional pipe covering complete with FRJ jacket. Sections of pipe covering shall be joined together, the mastic to be buttered on only one of the two adjoining surfaces at both the Longitudinal and circumferential joints so that a complete seal at the joints is obtained. The piping insulation will be secured in place with copper wire spaced not more than 12 on center. All domestic water piping insulation shall be continuous. Contractor shall not cut insulation to fit around structural items. No exceptions.
4. Insulate the square to round connections on each air handling unit with 3" thick 3/4 lb. density insulation board using stick pins randomly spaced 18" apart. Insulation board shall have aluminum vapor barrier.
5. Fittings, flanges, valves, etc., shall be covered with molded or fabricate covers of same material as pipe covering and shall be finished with two (2) coats of white vapor barrier mastic reinforced with 20-20 mesh glass fabric.
6. Insulate all rectangular supply, return, exhaust, and fresh air ducts with 3" thick 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with duct tape.
7. All round and flat oval supply air ducts shall be wrapped with 3" thick, 3/4 lb. density fiberglass insulation with reinforced aluminum vapor barrier. Seal all joints with 2" duct tape.
8. Insulate cooling coil condensate drain lines from air handling units with 1/2" thick aerotube type insulation tied on and sealed over with tape.
9. Insulate back of all ceiling diffusers with 3" thick fiberglass with reinforced aluminum vapor barrier.
10. All chilled heating and water valves, and hot water pumps shall be insulated with a factory fabricated removable cover. Cover shall be fabricated of 1" close cell elastomeric insulation complete with Velcro closures.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Install materials in accordance with manufacturer's instructions.

3.02 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Continue insulation with vapor barrier through penetrations.
- C. On insulated piping with vapor barrier, insulate fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
- D. Neatly finish insulation at supports, protrusions, and interruptions.

END OF SECTION 15260

SECTION 15300 - FIRE PROTECTION SYSTEM**PART 1 - GENERAL**

1.01 WORK INCLUDED:

- A. The General Conditions of the Contract and Supplementary Conditions of the Contract shall govern the work under this Section of the Specifications. The Contractor is specifically directed to refer to said conditions.
- B. It is understood that these specifications, and the accompanying drawings, complement complete apparatus, fully erected and in successful operating condition. All work must be performed in the best and most substantial manner.
- C. These specifications are intended to provide complete, and in proper operation, all sprinkler system piping, equipment, heads, valves, controls, air compressor, and accessories, all as specified herein or shown on the accompanying drawings, or reasonably implied in either. The building shall be provided with complete coverage sprinkler system for the spaces designated on the drawings classification as required. System shall consist of a calculated dry system unless indicated otherwise. Verify all pertinent criteria. The systems shall conform to layout shown and meet all requirements of agencies listed under "REGULATIONS AND STANDARDS" below. Refer to plans and specifications for additional information.
- D. Pipe, fittings, valves, and connections for fire protection and sprinkler systems shall be furnished by fire protection contractor.

1.02 RELATED WORK:

- A. Section 15310 - Wet-pipe Sprinkler Systems.

1.03 SYSTEM LAYOUT:

- A. Where plans indicate layout of system components, the layout shall be verified to comply with "REGULATIONS AND STANDARDS" and shall be revised if required to comply. The location of the sprinkler system piping and components shall be coordinated with all other trades. Revisions to sprinkler system layout shall be at Sprinkler Contractor's expense. Any such revisions shall be verified with the Architect.

1.04 ELECTRICAL WORK:

- A. See "COORDINATION".

1.05 SPRINKLER SYSTEM CONTRACTOR:

- A. It is intended that the work under this section is to be performed by a qualified Fire Protection Piping Systems Contractor regularly engaged in this type of work. The Contractor is to hold a current license to perform this work and be certified by the State Fire Marshall. All documents shall bear this certification.

1.06 REGULATIONS, STANDARDS AND REFERENCES:

- A. It is the intention of these specifications and the accompanying drawings, that all elements and features of the fire protection system shall be in accordance with the standards of the National Fire Association (NFPA), the State Fire Marshall, all applicable building codes and Property Insurance Association of Louisiana whether

so indicated or not. NFPA standards are on file in office of Engineer and may be examined at the Contractor's request.

- B. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 150.
- C. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings, Class 150. Interior of building.
- D. Specifications for Qualification of Welding Procedures and Welders for Piping and Tubing.
- E. NFPA 13 - Installation of Sprinkler Systems.
- F. NFPA 14 – Standpipe and Hose Systems.

1.07 QUALITY ASSURANCE:

- A. Conform to NFPA 13 for sprinkler systems.
- B. Conform to NFPA 14 for standpipe hose systems.
- C. Welding Materials and Procedures: Conform to ASME Code.
- D. Employ certified welders in accordance with ANSI/ASME Section 9. AWS D10.9.
- E. Valves: Bear UL FM label or marking. Provide manufacturer's name and pressure rating marked on valve body.

1.08 SUBMITTALS:

- A. Submit product data under provisions of section 01300.
- B. Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals.
- C. Indicate valve data and ratings.

1.09 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver and store valves in shipping containers, with labeling in place, under provisions of Section 01600.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures. Maintain in place until installation.

1.10 AREAS SUBJECT TO FREEZING:

- A. For areas requiring protection and not receiving direct heating during times of potential freezing, such as building overhangs, porches, canopies, attics, etc. provide a compressed air dry pipe system for these areas only, see drawings for locations. Coordinate electrical requirements with contractor.

1.11 MANUFACTURER'S OR TRADE NAMES:

- A. Where the plans or specifications mention the names of manufacturers or the products of specific manufacturers, it is intended that the Contractor shall furnish the item or items as specified. Products of manufacturers that are not mentioned shall be subject to prior review by the Engineer and shall in any case mentioned shall be subject to prior review by the Engineer and shall in any case be in accordance with regulations and standards as state above.

1.12 SHOP DRAWINGS AND SUBMITTAL DATA:

- A. Within fifteen (15) days of award of the contract, the contractor shall submit six (6) copies of system piping shop drawings and six (6) copies of manufacturer's data and descriptive literature and drawings for all equipment and materials. Additionally, provide a reproducible (sepia) copy of the system piping shop drawings. All drawings, literature and data on all equipment shall be submitted at the same time; this material shall contain complete layout, capacity data, dimensions and other pertinent information necessary for the Architect to properly review and evaluate the item that necessary to meet the requirements for submittal to the State Fire Marshall.
- B. The contractor shall obtain approval of agencies listed under "REGULATIONS AND STANDARDS" before submitting to the Engineer, except that the date for State Fire Marshall's review shall be submitted to the Engineer prior submitting to the Fire Marshall. All required review fees and applicable requirements shall be by the contractor. No item of equipment or material shall be place on order until Final Review comments have been received from the Architect. See "DRAWINGS" below.

1.13 ORDINANCES, RULES AND REGULATIONS:

- A. All material and construction shall conform to the requirements of all building, plumbing and sanitary codes and laws in force in the locality in which the work is to be done. All materials and construction shall also conform to the rules and regulations listed above under "REGULATIONS AND STANDARDS".

1.14 DRAWINGS:

- A. The contractor shall submit detailed drawings for all sprinkler system showing exact locations and sizes of all elements in the system before fabrication is begun. Engineer shall have the prerogative of changing the position or configuration of these systems without changing the total scope of work involved to comply with "REGULATIONS AND STANDARDS".

1.15 GUARANTEE:

- A. The contractor shall guarantee all materials and workmanship under this contract for a period of one (1) year from date of final acceptance of his work and shall repair or replace any such defective materials and workmanship without cost to the Owner.
- B. The guarantee shall include complete service, including adjustment service and inspection, during the guarantee period as required by agencies listed under "REGULATIONS AND STANDARDS".

1.16 APPROVAL OF PRODUCT PRIOR TO BIDDING

- A. Refer to Instructions to Bidders, Page IB-3, Paragraph 4.3 Substitutions.

PART 2 - PRODUCTS

2.01 PIPE AND TUBE:

- A. See Section – 15310 Wet-pipe Sprinkler System
- B. Underground pipe shall be C900 to within 5' of building

2.02 PIPE FITTINGS:

- A. Steel Fittings: ANSI/ASME B16.9, wrought steel, butt welded. ANSI/ASME B16.25, buttweld ends. ASTM A234, wrought carbon steel and alloy steel. ANSI/ASME

- B16.5, steel flanges and fittings. ANSI/ASME B16.11, forged steel socket welded and threaded.
- B. Cast Iron Fittings: ANSI/ASME B16.1, flanges and fittings. B16.4, screwed fittings.
 - C. Malleable Iron Fittings: ANSI/ASME B16.3, screwed type. ANSI/ASTM A47.
- 2.03 JOINT MATERIALS:
- A. Solder: ANSI/ASTM B32, 95/5 alloy.
 - B. Brazing: ANSI/AWS A5.8.
 - C. Threaded Joint Compound.
- 2.04 UNIONS, FLANGES, AND COUPLINGS:
- A. Unions: 150 psi malleable iron for threaded ferrous piping.
 - B. Flanges: 150 psi forged steel slip-on flanges for ferrous piping.
- 2.05 ACCEPTABLE MANUFACTURER - GATE VALVES:
- A. Nibco 637-31
 - B. Central 722 U Series
 - C. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.06 GATE VALVES:
- A. Bronze, rising stem, inside screw, solid wedge.
- 2.07 ACCEPTABLE MANUFACTURERS - GLOBE OR ANGLE VALVES:
- A. Nibco GS-132-U
 - B. Crane 143
 - C. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.08 GLOBE OR ANGLE VALVES:
- A. Bronze, rising stem, inside screw, renewable composition disc.
- 2.09 ACCEPTABLE MANUFACTURERS - CHECK VALVES:
- A. NIBCO CS-172
 - B. Crane 147
 - C. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.10 CHECK VALVES:
- A. Iron body, bronze trim, swing disc, renewable disc and seat.
- 2.11 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES:
- A. Nibco LD 3510-2 Series
 - B. Central Fig. 570 or 580

- C. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.12 BUTTERFLY VALVES:
- A. Iron body, bronze stainless steel disc and stem extended for insulated work, resilient replaceable liner seat.
- 2.13 ACCEPTABLE MANUFACTURERS - DRAIN VALVES:
- A. Nibco F-667-0 Series
 - B. Central 722 U Series
 - C. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.14 DRAIN VALVES:
- A. Brass ball valve with cap and chain, 3/4 inch (19 mm) hose thread.
- 2.15 VALVE OPERATORS:
- A. Provide handwheels for gate, globe or angle, and drain valves.
 - B. For butterfly valves provide gear operators for sizes 8 inches and larger. For smaller sizes provide level lock handle with toothed plate.
- 2.16 VALVE CONNECTIONS:
- A. Provide valve connections to match pipe joints. Use valves of pipe size.
 - B. For copper tube, provide threaded solder adapters for connection to valve.
 - C. Provide butterfly valve with tapped lug body when used for isolating service.
- 2.17 SIAMESE FIRE DEPARTMENT CONNECTIONS:
- A. Provide two-way standard siamese fire department connection with chrome plated finish, local fire department threads, dust caps and chains, 3/4" automatic drip, marked "SPRINKLER - FIRE DEPARTMENT CONNECTION".
- 2.18 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS:
- A. Reliable Automatic Sprinkler
 - B. Viking Corp.
 - C. Tyco-Fire
 - D. Substitutions: Under provisions of Instruction To Bidders, Page IB-3, Paragraph 4.3.

PART 3 - INSTALLATION

- 3.01 GENERAL:
- A. Furnish and install in a neat workmanlike manner, all piping shown on drawings or that is specified or required to provide a complete, properly operating installation. All piping and accessories shall conform to standards as applicable.
 - B. Run piping parallel with the lines of the building, unless specifically shown or noted otherwise. All pipe, fittings, valves, etc., shall have sufficient clearance from other work to finish at least 1/2 inch from other work or finished covering of other piping.

- C. Provide all necessary hangers, anchors, thrust blocks, etc., to properly support and protect piping system, as required by agencies listed under "REGULATIONS AND STANDARDS".
- D. Under no circumstances is the contractor to attach to or support from any bar joist bridging. Any supports to the bar joists or any structural systems are to be approved by the Architect/Engineer. All supplement angle or channel iron required to support equipment of this specification is to be furnished by the contractor and is to be independent of any other supports.

3.02 DESIGN:

- A. The sprinkler systems shall be designed as required for occupancies specified by experienced personnel have competency in the execution of such work. Sprinkler system design shall be performed only by licensed sprinkler contractors.
- B. Sprinkler piping shall be protected from freezing.
- C. NFPA rules and regulations governing the design shall be scrupulously adhered to.
- D. Piping shall be installed in accordance with NFPA 13.

3.03 EXECUTION:

- A. Run piping concealed above furred ceiling and in joists to minimize obstructions. Expose only heads.
- B. Coordinate sprinkler piping routing and heads with all trades.
- C. Protect sprinkler heads against mechanical injury.
- D. Include all costs of shop drawings review and approval from authorities in price.
- E. Locate outside alarm on wall of building adjacent to siamese department connections.
- F. Provide cabinet containing required number of spare heads as per NFPA 13, of each type, along with wrench suitable for each type of head.
- G. Provide flow switch on leaving side of main valve and monitoring switch on main valve. Flow switch shall sense flow and sound appropriate zone of fire alarm system monitoring switch on each main valve; when valve is started to its "closed" position shall indicate trouble on appropriate zone of fire alarm system and sound local audible alarm. Wiring between flow switches and monitoring switches and fire alarm system shall be provided under Division 16.
- H. Furnish and install sprinkler zone valves and flow switches where indicated on the drawings for the zoning of the system. Each of these devices shall be connected into the fire alarm system as indicated for the main valve, including local alarming.
- I. Provide all test and drain valves as required per NFPA 13.
- J. Support sprinkler piping in accordance with NFPA 13.
- K. Provide new water service as shown on the drawings.
- L. Install air compressor on vibration isolators, as required.
- M. Screw joint steel piping up to and including 1-1/2 inch diameter. Screw or Roll Goove 2 inch diameter and larger. PER NFPA 13.

- N. Die cut screw joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.
- O. Coat threaded ends with pipe lubricant compound.
- P. Steel piping, main sized saddle branch connections or direct connection of branch lines to mains is permitted if main is one pipe size larger than the branch for up to 6 inch mains and if main is two pipe sizes larger than branch for 8 inch and larger mains.
- Q. Solder Braze copper tubes.
- R. Install piping in accordance with NFPA 13 for sprinkler systems and NFPA 14 for standpipe and hose systems.
- S. Do not penetrate building structural members unless indicated.
- T. Provide sleeves when penetrating footings floors and walls.
- U. Seal pipe and sleeve penetration to achieve fire resistance equivalent to fire separation required.

3.04 INSTALLATION - VALVES:

- A. Install valves with stems upright or horizontal, not inverted.
- B. Provide gate valves for shut-off or isolating service.
- C. Where approved, butterfly valves may be used instead of gate valves.
- D. Provide drain valves at main shut-off valves, low points of piping and apparatus.

3.05 SLEEVES AND PLATES:

- A. Wherever pipes pass through concrete slabs, furnish and install sleeves, properly located for the work.
- B. Use sleeves of sufficient size to allow the specified pipe covering to pass through the sleeves and finish sleeves flush with walls and ceiling.
- C. Sleeves shall be galvanized steel not lighter than 24 gauge.
- D. Seal spaces between sleeve and pipe. Use packing device or material for UL rating to match rating of wall or floor/ceiling as rated under UL File R9658.

3.06 ESCUTCHEONS:

- A. Where pipes passing through floors, walls or ceiling exposed to view in finished areas, provide pressed steel split plates which cover the opening and fit snugly to pipe.

3.07 COORDINATION:

- A. All interlock and signal wiring runs to the annunciator panel will be furnished and installed and as part of the Electrical Work.
- B. This contractor shall provide for all switches and interlocking devices on all valves as required.

3.08 UNDERGROUND PIPING:

- A. Underground fire protection system piping shall be installed in accordance with the requirements of NFPA 24, Private Fire Service Mains and Their Appurtenances.

Provide concrete thrust blocking at each change of direction of the piping and at all tees, plugs, and caps in accordance with NFPA 24. Where thrust blocking is impractical, fittings with a mechanical joint retainer gland, approved for the piping material utilized, may be used in lieu of thrust blocking.

END OF SECTION 15300

SECTION 15310 - WET-PIPE SPRINKLER SYSTEMS**PART 1 - GENERAL**

- 1.01 WORK INCLUDED:
 - A. Revision of existing sprinkler piping & head location for renovated building areas.
- 1.02 WORK INSTALLED BUT SPECIFIED UNDER OTHER SECTIONS
 - A. Section 15300 - Fire Protection Piping: Piping and valves.
- 1.03 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS:
 - A. Furnish sleeves to General Contractor.
- 1.04 RELATED WORK:
 - A. Section 15140 - Supports and Anchors.
 - B. Section 15242 - Vibration Isolation.
- 1.05 REFERENCES:
 - A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volt maximum).
 - B. NFPA 13 - Installation of Sprinkler Systems.
- 1.06 SYSTEM DESCRIPTION:
 - A. System to provide coverage for entire new building area.
 - B. Interface system with building control system. Building fire and smoke alarm system.
 - C. Provide system per NFPA 13 hazard requirement.
- 1.07 QUALITY ASSURANCE:
 - A. Design and installation to conform to NFPA 13.
 - B. Equipment and components: Bear UL FM label or marking.
 - C. Specialist Firm: Company specializing and licensed in sprinkler systems.
- 1.08 REGULATORY REQUIREMENTS:
 - A. Hydraulic Calculations, Product Data, Shop Drawings: Bear stamp of approval of Fire Marshal.
 - B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.
 - C. Submit shop drawings product data hydraulic calculations to Fire Marshal. Submit proof of approval to Architect. Include check for review fee with submittal to Fire Marshal's office.
- 1.09 PROJECT RECORD DOCUMENTS:
 - A. Submit documents under provisions of Section 01700.
- 1.10 OPERATION AND MAINTENANCE DATA:

- A. Submit manufacturer's operation and maintenance data under provisions of Section 01700.
 - B. Include written maintenance data on components of system, servicing requirements, and record drawings.
 - C. Include maintenance, inspection data, replacement part numbers and availability, and location and numbers of service depot.
- 1.11 DELIVERY, STORAGE, AND HANDLING:
- A. Deliver and store materials in shipping containers with labeling place under provisions of Section 01600.
 - B. Provide suitable wrenches for each head type.
 - C. Maintain caps in place until installation.
- 1.12 EXTRA STOCK:
- A. Provide extra sprinkler heads under provisions of NFPA 13 and Section 01700.
 - B. Provide suitable wrenches for each head type.
 - C. Provide storage cabinet, size and type as per NFPA-13

PART 2 - PRODUCTS

- 2.01 PIPING MATERIALS:
- A. Above Ground Inside Building Piping: Pipe diameter smaller than and up to 2" shall be Steel Schedule 40 pipe, Pipe diameters 2-1/2" and larger shall be Steel Schedule 10 or Steel Schedule 40 pipe, As permitted by NFPA 13.
- 2.02 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS:
- A. Reliable Automatic Sprinkler
 - B. Viking Corp.
 - C. Tyco-Fire
 - D. Substitutions: Under provisions of Instruction To Bidders, Page IB-3, Paragraph 4.3.
- 2.03 SPRINKLER HEADS:
- A. Exposed Area Type: Standard upright type with brass finish.
 - B. Sidewall Type: Brass Chrome plated finish with matching escutcheon.
 - C. Fusible Link: Temperature rated for specific area hazard.
 - D. Guards: finish to match sprinkler head.
 - E. Finished ceilings: Pendent sprinklers - concealed type with white cover plates. Unless otherwise noted on plans.

PART 3 - EXECUTION

- 3.01 PREPARATION:
- A. Place pipe runs to minimize obstruction to other work.
- 3.02 INSTALLATION:

- A. Run piping concealed above furred ceiling and in joists to minimize obstructions. Expose only heads.
- B. Coordinate sprinkler piping routing and heads with all trades.
- C. Protect sprinkler heads against mechanical injury.
- D. Include all costs of shop drawings review and approval from authorities in price.
- E. Locate outside alarm on wall of building adjacent to siamese fire department connections.
- F. Provide cabinet containing required number of spare heads as per NFPA 13, of each type, along with wrench suitable for each type of head.
- G. Provide flow switch on leaving side of main valve and monitoring switch on main valve. Flow switch shall sense flow and sound appropriate zone of fire alarm system monitoring switch on each main valve; when valve is started to its "closed" position shall indicate trouble on appropriate zone of fire alarm system and sound local audible alarm. Wiring between flow switches and monitoring switches and fire alarm system shall be provided under Division 16.
- H. Furnish and install sprinkler zone valves and flow switches where indicated on the drawings for the zoning of the system. Each of these devices shall be connected into the fire alarm system as indicated for the main valve, including local alarming.
- I. Provide all test and drain valves as required for system per NFPA 13.
- J. Support sprinkler piping in accordance with NFPA 13.
- K. Provide new water service as shown on the drawings.

3.03 CLEANING:

- A. Flush entire piping system of foreign matter.

3.04 SYSTEM TESTS:

- A. Hydrostatically test entire system.
- B. Test shall be witnessed by Fire Marshal and Architect.

END OF SECTION 15310

SECTION 15410 - PLUMBING PIPING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Pipe and Pipe Fittings
- B. Valves
- C. Sanitary Sewer Piping System
- D. Domestic Water Piping system
- E. Service Connections

1.02 RELATED WORK

- A. Section 15000 - General Mechanical
- B. Section 15140 - Supports and Anchors
- C. Section 15260 - Piping and Equipment Insulation
- D. Section 15430 - Plumbing Specialties
- E. Section 15440 - Plumbing Fixtures and Trim

1.03 REFERENCES:

- A. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings Class 150 NS 300.
- B. ANSI/ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV.
- C. ANSI/ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.
- D. ANSI/ASME Sec. 9 - Welding and Brazing Qualifications.
- E. ANSI/ASTM B32 - Solder Metal.
- F. ANSI/ASTM C443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- G. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
- H. ASTM A74 - Cast Iron Soil Pipe and Fittings.
- I. ASTM A234 - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
- J. ASTM B88 - Seamless Copper Water Tube.
- K. ASTM B306 - Copper Drainage Tube (DWV).
- L. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- M. AWS A5.8 - Brazing Filler Metal.
- N. AWWA C601 - Standard Methods for the Examination of Water and Waste Water.
- O. CISPI 301 - Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary System.
- P. CISPI 310 – Standard for cast iron couplings

- Q. LSPC – The latest addition of the Louisiana State Plumbing Code.
- 1.04 QUALITY ASSURANCE:
- A. Valves: Manufacturer's name and pressure rating market on valve body.
 - B. Welding Materials and Procedures: Conform to ASME Code and applicable state labor regulations.
 - C. Welders Certification: In accordance with ANSI/ASME Sec. 9. ANSI/AWS D 1.1.
 - D. Cast iron pipe and fittings shall be marked with CISPI's collective trademark.
- 1.05 SUBMITTALS:
- A. Submit shop drawings and product data under provisions of Section 01300.
 - B. Include data on pipe material, pipe fittings, valves and accessories.
- 1.06 WATER PIPE AND FITTING MATERIALS STANDARD
- A. Plastic Water Pipe and Fittings
 1. ABS and PVC Plastic Tubular Fittings: ASTM F 409, ANSI/NSF 24, ANSI/NSF 14
 2. Joints for IPS PVC pipe using solvent cement: ASTM D 2672
 3. Chlorinated poly (vinyl chloride) (CPVC) plastic pipe, Schedule 80, 2" and under: ASTM F 441, listed
 4. Chlorinated poly (vinyl chloride) (CPVC) plastic pipe (SDR-PR): ASTM F 442
 5. CPVC Pipe and fittings: ASTM D 2846, Listed
 6. Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene (PEX-AL-PEX) pressure pipe and fittings: ASTM F 1281
 7. Cross-linked Polyethylene (PEX) plastic hot and cold water distribution system: ASTM F 877, Listed
 8. Cross-linked Polyethylene (PEX) tubing: ASTM F 876
 9. Cross-linked Polyethylene (PEX) tubing systems for pressure: CAN/CSA-B137.5M89, listed
 10. Flexible Elastomeric pressure joints: ASTM D 3139, See 308.8
 11. Metal insert fittings for PB tubing: ASTM F 1380
 12. Polyethylene/Aluminum/Polyethylene (PE-AL-PE) pressure pipe and fittings: ASTM F 1282
 13. Polyethylene pipe and tubing (PE) Number 2305, 2306, 3306, 3406, 3408: ASTM D 2104, ASTM D 2239, ASTM D 2737, Listed, See 303.8.2
 14. Poly (vinyl chloride) (PVC) plastic pipe fittings, Schedule 40: ASTM D 2466
 15. Pressure rated ABS-fittings: ASTM D 2468, Listed
 16. Pressure rated ABS-pipe Number 1210, 2112, 1316: ASTM D 1527, ASTM D 2282, Listed, See 303.8.2
 17. PVC injection molded gasketed fittings for pressure applications: CAN/CSA-B137.2-M89, Listed
 18. PVC Pipe, Number 1120, 1220: ASTM D 1785, ASTM D 2241, listed, See 303.8.2
 19. PVC socket-type fittings, Schedule 80: ASTM D 2467, listed
 20. Socket-type chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Schedule 80, 2" and under: ASTM F 439, listed
 21. Threaded chlorinated poly (vinyl chloride) (CPVC) plastic pipe fittings, Schedule 80, 2" and under: ASTM F 437, listed
 - B. Ferrous Water Pipe and Fittings

1. Cast Iron fittings (threaded): ASTM A 126
 2. Cast iron pipe (threaded): ANSI A40.5
 3. Cast iron water pipe: ASTM A377
 4. Ductile-iron water pipe: ANSI/AWWA C 151/A 21.51
 5. Ductile-iron water fittings: ANSI/AWWA C 110/A 21.10
 6. Malleable iron fittings (threaded): ASTM A 197
 7. Nipples pipe (threaded): FS WW-N-351a
 8. Stainless steel water pipe Grade H: ASTM A 268, See 303.8.4
 9. Steel couplings, threaded, black and galvanized: ASTM A 865
 10. Steel pipe black and galvanized: ASTM A 53
 11. Welded and seamless steel pipe: ASTM A 53
- C. NonFerrous Pipe and Fittings
1. Cast bronze fittings for flared copper tube: ANSI B16.26
 2. Cast bronze threaded fittings: ASME B16.15
 3. Cast bronze solder-joint pressure fittings: ANSI B16.18
 4. Cast copper alloy fittings for flared copper tubes: ASME B 16.26
 5. Pipe flanges and flanged fittings: ANSI B16.5
 6. Seamless brass tube: ASTM B 135
 7. Seamless copper pipe: ASTM B 42
 8. Seamless copper tube: ASTM B 75
 9. Seamless copper water tube types K, L, & M: ASTM B 88
 10. Seamless red brass pipe: ASTM B 43
 11. Seamless and welded copper distribution tube (type D): ASTM B 641
 12. Threadless copper pipe (TP): ASTM B 302
 13. Welded brass tube: ASTM B 587
 14. Welded copper tube: ASTM B 447
 15. Welded copper alloy UNS # C21000 water tube: ASTM B 642
 16. Wrought copper and copper-alloy solder-joint pressure fittings: ASME B 16.22 for copper water tube
 17. Wrought seamless copper and rectangular copper-alloy pipe and tube: ASTM B 251, square and tubing not applicable
 18. Valves-flanged threaded, and welding end: ANSI B 16.34
- D. Backflow Prevention Devices Materials Standard
1. Air gap standards: ASME A112.1.2
 2. Backflow preventers, double check valve assembly: ASSE 1015, ANSI/AWWA C510
 3. Backflow preventers with intermediate atmospheric vent: ANSI/ASSE 1012
 4. Backflow preventers, double check detector assembly: ANSI/ASSE 1048
 5. Backflow preventers, hose connection: ANSI/ASSE 1052
 6. Backflow preventers, reduced pressure detector assembly: ANSI/ASSE 1047
 7. Backflow preventers, reduced pressure principle assembly: ANSI/AWWA C511, ASSE 1013
 8. Dual check valve type backflow preventer: ASSE 1032, for carbonated beverage dispensers-post mix type
 9. Field test procedures for backflow preventer assemblies: ASSE 5010
 10. Manual for the selection, installation, maintenance, and field testing of backflow prevention devices: CAN/CSA B64.10
 11. Vacuum breakers, Anti-Siphon, pressure type assembly (outdoor use): ASSE 1020

12. Vacuum breakers-atmospheric pipe applied: ANSI/ASSE 1001
 13. Vacuum breakers, back siphonage, pressure type assembly (spill resistant): ANSI/ASSE 1056
 14. Vacuum breakers, hose connections: ANSI/ASSE 1011
 15. Vacuum breakers, laboratory faucet: ANSI/ASSE 1035
 16. Vacuum breaker wall hydrants, fronts resistant automatic draining: ASSE 1019
 17. Water closet flush tank fill valves (ballcocks): ASSE 1002
- E. Valves Material Standards
1. Valves, bronze gate: MSS SP-80
 2. Valves, cast iron gate: ASTM A 126
 3. Valves, ball: MSS SP-72, MSS SP-110
 4. Valves, resilient-seated gate: ANSI/AWWA C509
- F. Temperature Control Device Standards
1. Individual shower control valves, anti-scald: ASSE 1016
 2. Temperature actuated mixing valves for primary domestic use: ASSE 1017
 3. Water supply valves, mixing valves and single control mixing valves: ASSE 1029
- G. Potable Water Piping
1. All potable water pipes, pipe related products, and materials that join or seal pipes conform to ANSI/NSF 61.

1.07 DRAINAGE SYSTEM MATERIALS STANDARDS

- A. NonMetallic Piping
1. Concrete drain tile: ASTM C 412
 2. Concrete perforated: ASTM C 444
 3. Concrete reinforced culverts: ASTM C 76, for storm drains only
 4. Concrete reinforced sewer pipe: ASTM C 361, for storm drains only
 5. Concrete sewer pipe: ASTM C 14, for storm drains only
 6. Sewer manholes: ASTM C 478
 7. Concrete (steel cylinder type): FS SS-P-381
- B. Plastic Pipe and Fittings
1. Coextruded composite pipe: ASTM F 1488, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
 2. Coextruded composite drain, waste, and vent pipe (DWV): ASTM F 1499, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
 3. Coextruded PVC plastic pipe: ASTM F 891, See 303.8.3, 303.8.5, 704.1, 1101.5, 1103.2, 1103.4
 4. Flexible elastomeric non-pressure joints: ASTM D 3212, See 303.8
 5. Large diameter ribbed PVC sewer pipe and fittings: CAN/CSA-B182.4
 6. Polyolefin laboratory drainage systems: CAN/CSA-B181.3
 7. PVC-DWV pipe and fittings: ASTM D 2665, listed, See 303.8.3
 8. Type PS 46 and type PS 115 sewer pipe (for outside building sewers, storm drains): ASTM F 789, See 704.1, 1101.4, 1103.2, 1103.4, ASTM D 2321, installation
 9. Type PSM PVC sewer pipe and fittings (for outside building sewers, storm drains, and storm sewers): ASTM 3034, See 704.1, 1101.5, 1103.2, 1103.4, ASTM D 2321, installation
 10. Type PSP PVC sewer pipe and fittings (for outside building sewers, storm

drains, and storm sewers): ASTM D 2321, Installation

11. All plastic piping pipes, plastic plumbing piping components and related materials shall be listed as conforming with ANSI/NSF Standard 14.

C. Ferrous Pipe and Fittings

1. Cast iron soil pipe and fittings: ASTM A 74, CISPI HS
2. CI NO-HUB pipe and fittings: ASTM A 888, CISPI Std. 301
3. Ductile-iron gravity sewer pipe: ASTM A 746
4. Hubless cast iron sanitary system: CISPI Std. 310
5. Manhole top frames and covers: ASTM A 48

D. NonFerrous Pipe and Fittings

1. Cast copper alloy solder-joint drainage fittings: ASME B 16.23, for plumbing drainage waste and vents
2. Cast copper alloy solder-joint fittings for solvent drainage systems: ANSI B 16.32
3. Copper drainage tube DWV: ASTM B 306
4. Welded copper and copper alloy heat exchanger tube: ASTM B 543
5. Wrought copper and wrought copper alloy solder-joint drainage fittings for plumbing drainage waste and vents: ASME B 16.29
6. Wrought copper and wrought copper alloy solder-joint fittings for solvent drainage systems: ANSI B 16.43

E. Glass pipe

1. Borosilicate glass pipe and fittings for DWV applications: ASTM C 1053

PART 2 - PRODUCTS

2.01 SANITARY SEWER PIPING - BURIED BEYOND 5 FEET OF BUILDING:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.02 SANITARY SEWER PIPING - BURIED WITHIN 5 FEET OF BUILDING:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.03 SANITARY SEWER PIPING, ABOVE GRADE:

- A. Schedule 40 PVC/DWV
Fittings: Same as piping
Joints: Solvent welded

2.04 WATER PIPING, ABOVE GRADE: Exterior water piping buried beyond 5' of building to be schedule 40 PVC.

- A. Copper Tubing: ASTM B88, Type L, hard drawn.
Fittings: ANSI/ASME B16.18, cast bronze solder-joint pressure fittings, or ANSI/ASME B16.22, wrought copper.
- B. All potable water pipes, pipe related products and materials that join or seal pipes and pipe related products shall be evaluated and listed as conforming with a national consensus product or material standard and ANSI/NSF Standard 61.

2.05 WATER PIPING, TRAP PRIMERS: Piping for trap primer piping below slab only.

- A. Soft Copper Tube: ASTM B 88, Types K and L, water tube, annealed temper.
- 2.06 FLANGES, UNION, AND COUPLINGS:
- A. Pipe Size two (2) Inches and Under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, solder joints.
 - B. Pipe Size Over two (2) Inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping; neoprene gaskets for gas service.
 - C. Dielectric Connections: Unions with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
- 2.07 GATE VALVES
- A. Up to two (2) Inches: Bronze body, non-rising or rising stem and handwheel, inside screw, single double wedge or disc, solder or threaded ends. Nibco Model 113 Series, Crane Model 438 Series, Powell Model 2700, Hammond 2B 617 or approved equal.
 - B. Over two (2) Inches: Iron body, bronze trim, non-rising or rising stem and handwheel, OS&Y, single wedge, flanged ends. Red and White 415/421, NIBCO F619/F617, Crane 461/465 1/2 or approved equal.
- 2.08 GLOBE VALVES:
- A. Up to 2 Inches: Bronze body, rising stem and handwheel inside screw, renewable composition disc, solder screwed ends, with backseating capacity. Nibco Model 211 Series, Crane Model 1 Series, Powell Model 150, Hammond 1.413, Red White 211/212 or approved equal.
 - B. Over 2 Inches: Iron body, bronze trim, rising stem and handwheel, OS&Y, plug-type disc, flanged ends. Red and White Fig 400 or NIBCO F718-B, Crane 351 or approved equal.
- 2.09 BALL VALVES:
- A. Up to 2 Inches: Bronze or stainless steel body, stainless steel ball, teflon seats and stuffing box ring, lever handle and balancing stops, solder threaded ends with union. Nibco Model 580 Series, Crane Model 2330 Series, Red White 5092/5095 or approved equal.
 - B. Over 2 inches: Cast steel body, chrome plated steel ball teflon seat and stuffing box seals, lever handle or gear drive handwheel for sizes 10 inches and over, flanged.
- 2.10 BUTTERFLY VALVES:
- A. Iron body, bronze disc, resilient replaceable seat for service to 180-degrees F, or lug end butterfly, 10 position over handle or infinite position lever handle with memory stop.
- 2.11 SWING CHECK VALVES:
- A. Up to 2 inches: Bronze 45 degree swing disc, solder or screwed ends. Nibco Model 413 Series, Crane Model 37 Series, Red White 236/237 or approved equal.
 - B. Over 2 inches: Iron body, bronze trim, 45 degrees swing disc, renewable disc and seat, flanged ends. Red White 435, Nibco F918, Crane 373 or approved equal.
- 2.12 SPRING LOADED CHECK VALVES:

- A. Iron body, bronze trim, spring loaded, bronze disc, wafer.
- B. Red White 442, Nibco W920W, Stockham W6-970 or approved equal.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Ream pipe and tube ends. Remove burrs. Bevel end Ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATIONS:

- A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Route piping in orderly manner and maintain gradient.
- C. Install piping to conserve building space and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- F. Provide clearance for installation of insulation and access to valves and fittings.
- G. Provide access where valves and fittings are not exposed.
- H. Slope water piping and arrange to drain at low points.
- I. Establish elevations of buried piping outside the building to insure not less than 3 feet of cover.
- J. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- K. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.
- L. Establish invert elevations, slope all drainage piping 4 inches and larger to 1/8 inch per foot minimum. All drainage piping 3 inches and smaller shall be sloped to 1/4 inch per foot minimum.
- M. Install bell and spigot pipe with bell end upstream.
- N. Install valves with stems upright or horizontal, not inverted.
- O. Provide one plug cock wrench for every ten plug cocks sized 2 inches and smaller, minimum of one. Provide one plug cock wrench for each plug cock sized 2-1/2 inches and larger.
- P. In pipe 3 – inch nominal diameter or less, cleanouts shall be located at not more than 50ft.intervals
- Q. In pipe 4 – inches nominal diameter through 6 inches nominal diameter, cleanouts shall be located at not more than 80ft. intervals
- R. Each building drain shall be provided with a cleanout within 6ft. of the junction of the building drain and building sewer.

3.03 APPLICATION:

- A. Grooved mechanical couplings and fasteners not allowed.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe. All joints in potable lines to be lead free.
- D. Install gate, ball, butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- E. Install globe, ball, butterfly valves for throttling, bypass, or manual flow control services.
- F. Provide spring loaded check valves on discharge of water pumps.

3.04 TEST

- A. Upon completion of the domestic water piping system, it shall be tested and proved tight under a water pressure not less than 200 psi. The water used for testing shall be obtained from a potable source of supply. This pressure test shall be performed before the disinfection of the domestic water piping system is started. This test shall conform to the Louisiana State Plumbing Code
- B. Upon completion of the sanitary sewer piping system the contractor shall perform a water test to prove that the system is tight and with out leaks. No section of the piping system shall be tested with less than 10 ft head of water. The pressure shall be kept on the system for a time no less that 1 hour. This test shall conform to the Louisiana State Plumbing Code.
- C. Upon completion of the sanitary vent piping system the contractor shall perform a pressure test to prove that the system is tight and is with out leaks. This test shall conform to the Louisiana State Plumbing Code.
- D. Prior to any test, the contractor shall notify the Architect in writing a minimum of 5 business days, the date and time the test will take place. No exceptions. After the completion of the test but before the building is substantially complete the contractor shall submit a written report with the following information for each test performed.
 1. Project Name
 2. Project Location
 3. Plumbing Contractor Name, Address and Contact Information
 4. Identification of test performed.
 5. Time and Date test was started
 6. Time and Date test was completed.

3.05 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM:

- A. Prior to starting work, verify system is complete, flushed and clean.
- B. Option 1: The system shall be filled with a solution containing 50 ppm of available chlorine and allowed to stand 6 hours before flushing and returning to service.
- C. Option 2: The system shall be filled with a solution containing 100 ppm of available chlorine and allowed to stand 2 hours before flushing and returning to service.
- D. Prior to the disinfection of the domestic water piping system the contractor shall inform the architect in writing the date and time the disinfection will take place. After the completion of the disinfection of the domestic water piping system but before the building is substantially completed the contractor shall submit a

written report with the following information.

1. Project Name
2. Project Location
3. Plumbing Contractors Name, Address, and contact information
4. Chemicals used in the disinfection process.
5. Time and Date disinfection process was started
6. Time and Date disinfection process was completed

3.06 SERVICE CONNECTIONS:

- A. Provide new sanitary sewer services and tie into existing as shown on plans. Before commencing work check invert elevations required for sewer connections, confirm inverts and insure that these can be properly connected with slope for drainage and cover to avoid freezing. Contractor to tie in existing services as shown on drawings.
- B. Tie domestic water into existing services as shown on drawings. Provide sleeve in wall for service main and support at wall with reinforced concrete bridge. Caulk enlarged sleeve and make watertight with pliable material. Provide 18-gauge galvanized sheet metal sleeve around service main to 6 inches above floor and 6 feet minimum below grade. Size for minimum of 2 inches of loose batt insulation stuffing. Contractor shall utilize and tie in existing water lines as indicated on the drawings.

END OF SECTION 15410

SECTION 15510 - HYDRONIC PIPING**PART 1 - GENERAL**

- 1.01 WORK INCLUDED
 - A. Pipe and Pipe Fittings
 - B. Heating Water Piping System
 - C. Chilled Water Piping System
- 1.02 RELATED WORK
 - A. Section 15000 - General Mechanical
 - B. Section 15140 - Anchors and Supports
 - C. Section 15190 - Mechanical Identification
 - D. Section 15260 - Piping and Equipment Insulation
- 1.03 REFERENCES
 - A. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
 - B. ASTM A234 - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
- 1.04 REGULATORY REQUIREMENTS
 - A. Conform to ANSI/ASME B31.9.
- 1.05 QUALITY ASSURANCE
 - A. Valves: Manufacturer's name and pressure rating marked on valve body.
 - B. Welding Materials and Procedures: Conform to ANSI/ASME Sec. and applicable State Labor Regulations.
- 1.06 SUBMITTALS
 - A. Submit shop drawing and product data under provisions of Section 01300– Administrative Requirements.
 - B. Include data on pipe materials, pipe fittings, valves, and accessories.
- 1.07 DELIVERY, STORAGE, AND HANDLING
 - A. Deliver products to site under provisions of Section 01600 – Product Requirement.
 - B. Store and protect products under provisions of Section 01600.

PART 2 - PRODUCTS

- 2.01 HEATING WATER PIPING
 - A. Steel Pipe: ASTM A53, ASTM A-120, Schedule 40, ERW
 - B. Piping terminal heating coils (3' max.) Type M hard drawn copper, ASTM 88, wrought copper fittings.

- 2.02 CHILLED WATER PIPING –(ABOVE GROUND)
- A. Steel pipe: ASTM A 53, ASTM A-120, Schedule 40, ERW
- 2.03 EQUIPMENT DRAINS AND OVERFLOWS
- A. For piping materials see piping section.
- B. All A.H. unit drains shall have cleanouts.
- C. All A.H. unit auxiliary drains shall be piped separately from primary drains to floor drains.
- D. Drain piping (A.H. units) copper tubing type M, hard drawn, ASTM 88 wrought copper fittings.
- 2.04 FLANGES, UNIONS, AND COUPLINGS
- A. Pipe Size 2 inches and under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, soldered joints.
- B. Pipe size over 2 inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping; 1/16 inch thick preformed neoprene.
- 2.05 VALVES
- A. For valves in hydronic systems, see Valve Section 15100.
- 2.06 RELIEF VALVES
- A. Bronzed body, teflon seat, stainless steel stem and springs, automatic.

PART 3 - EXECUTION

- 3.01 PREPARATION
- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- D. After completion, fill, clean, and treat systems.
- 3.02 INSTALLATION
- A. Route piping in orderly manner, plumb and parallel to building structure, and maintain gradient.
- B. Install piping to conserve building space, and not interfere with use of space and other work.
- C. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- D. Provide clearance for installation of insulation, and access to valves and fittings.
- E. Provide access where valves and fittings are not exposed.
- F. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.
- G. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

- H. Prepare pipe and fittings, supports, and accessories for finish painting. Refer to Section 09900 – Painting and Coating.

3.03 APPLICATION

- A. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe.
- B. Install ball or butterfly valves for throttling, bypass, or manual flow control services.
- C. Provide spring loaded check valves on discharge of condenser water pumps.
- D. Use plug cocks for throttling service. Use non-lubricated plug cocks only when shut-off or isolating valves are also provided.
- E. Use lug end butterfly valves to isolate equipment.
- F. Provide 3/4 inch gate or ball drain valves at main shut-off valves, low points of piping, bases of vertical risers, and at equipment. Pipe to drain if specified on drawings.

END OF SECTION 15510

SECTION 15890 - DUCTWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Low pressure duct.
- B. Fire and Smoke Dampers

1.02 RELATED WORK

- A. Section 15140 - Supports and Anchors
- B. Section 15260 - Piping and Equipment Insulation
- C. Section 15936 - Air Inlets and Outlets
- D. Section 15954 - Testing and Balance

1.03 REFERENCES

- A. ASHRAE, 2009 Fundamentals, Chapter 21.
- B. ASHRAE, 2008 Equipment, Chapter 18.
- C. NFPA 90A, 90B.
- D. H.V.A.C. Duct Construction Standards - SMACNA 1995.

1.04 DEFINITIONS

- A. Duct sizes: All duct sizes are indicated on the plans as metal to metal.
- B. Low Pressure: Three pressure classifications: 1/2" WG positive or negative static pressure and velocities less than 2,000 fpm, 1" WG positive or negative static pressure and velocities less than 2,500 fpm and 2" WG positive or negative static pressure.
- C. Medium Pressure: Three pressure classifications: 3 inch WG positive or negative static pressure and velocities less than 4,000 fpm, 4" WG positive static pressure and velocities greater than 2,000 fpm. 6" WG positive static pressure and velocities greater than 2,000 fpm.

1.05 REGULATORY REQUIREMENTS

- A. Construct ductwork to NFPA 90A and NFPA 90B Standards.
- B. Store and protect products under provisions of Section 01600.
- C. Construct ductwork to International Mechanical Code Standards

PART 2 - PRODUCTS

2.01 LOW PRESSURE DUCTWORK

- A. Furnish and install all ducts for the air conditioning, heating and ventilating systems. Ductwork shall be complete with grilles, vanes splitters, flashings, hangers, flexible connections, manual dampers, fresh air inlet louvers, reinforcing angles, transitions to equipment, etc.
- B. All low pressure ductwork (mean velocity less than 2,000 FPM and static pressure in duct 2" of water or less) shall be constructed as per SMACNA Standards, 1995

Edition, Chapter 1, and shall be of the gauge metal and reinforced as per SMACNA Standards, 1995 Edition.

- C. Flashing shall be of the same material as specified under the roofing and flashing section of these specifications, or of 16-ounce sheet copper and shall be furnished and installed around all outside openings used for ducts or fans where required. Roof flashing shall extend at least 8" above roof. Cooperate with roofing contractor when installing flashing.
- D. All duct connections to equipment shall be made with fire and mildew resistant flexible connections of canvas or other acceptable materials. Connections shall have suitable metal collar frames at each end and shall not be less than 4" long with at least 1" of slack in the connection. Flexible connections shall be heat resistant to 500 degrees F continuously.
- E. Duct dimensions shown are metal sizes. All edges shall be straight and true.
- F. All flexible connections, duct liner and adhesives shall be U.L. listed as having a maximum flame spread of 50, fuel contribution of 25 and smoke contribution of 25.
- G. This Contractor shall furnish and install in ductwork all dampers, vanes splitters, etc.. as shown on the drawings or necessary to make the system complete. Where dampers or splitters can not be accessed through lay in ceiling, Contractor shall provide lockable 24" x 24" access door. Contractor shall coordinate location with Architect.
- H. Shafts shall be marked to show position of dampers, vanes, splitters, etc.
- I. Ductwork shall be supported in accordance with SMACNA Plate No. 17 and No. 18, up to and including band iron hangers attached to duct by means of screws or rivets per hanger.
- J. Access doors shall be provided in ductwork for all automatic dampers and each manual damper 3 square feet in area or larger, and shall be so located that damper can be completely serviced through the access door. Access door shall be provided with felt gaskets and suitable hinges and locks. Where access doors occur in insulated duct, double skin insulated doors shall be used.
- K. Where square ducts are shown, provide single vane elbows as per Plate 22, Figure A, SMACNA Standards, 1995 Edition. For all ductwork over 18" provide double vane square elbow as shown in Figure C of the Plate.
- L. All low pressure ductwork joints shall be sealed with hard cast "iron grip".
- M. Flexible air duct for connections between low pressure rectangular duct and ceiling diffusers shall be pre- insulated and listed by Underwriters Laboratories under U.L Standard 181 as a Class 1 flexible air duct and complying with NFPA Standards 90A and 90B.
- N. All flex duct 45 degree and 90 degree turns shall be metal hard duct.

2.02 INSULATED ACOUSTICAL LOW PRESSURE FLEXIBLE DUCT

- A. The duct shall be constructed of a CPE fabric supported by helical wound galvanized steel.
- B. Provide where indicated on drawings Flexmaster Type 8M UL181 Class I Air Duct.

- C. Fabric shall be mechanically locked to the steel helix without the use of adhesives or chemicals.
- D. The internal working pressure rating shall be at least 6" w.g. positive and 4" w.g. negative with a bursting pressure of at least 2½ time the working pressure.
- E. The duct shall be rated for a velocity of at least 4000 feet per minute.
- F. The duct must be suitable for continuous operation at a temperature range of -20° F to +250°
- G. Acoustical performance, when tested by an independent laboratory in accordance with the Air Diffusion Council's Flexible Air Duct Test Code FD 72-R1, Section 3.0, Sound Properties, shall be as follows:

The insertion loss (dB) of a 10 foot length of straight duct when tested in accordance with ASTM 477, at a velocity of 2500 feet per minute, shall be at least:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	7	31	40	38	40	27
8" diameter	13	29	36	35	38	22
12" diameter	21	28	29	33	26	12

The radiated noise reduction (dB) of a 10 foot length of straight duct when tested in accordance with ASTM E477, at a velocity of 2500 feet per minute, shall be at least:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	5	8	7	8	11	15
8" diameter	10	7	7	8	10	13
12" diameter	9	6	6	5	9	13

The self generated sound power levels (LW) dB re 10⁻¹² Watt of a 10 foot length of straight duct for an empty sheet metal duct when tested in accordance with ASTM E477, at a velocity of 1000 feet per minute, shall not exceed:

Octave Band	2	3	4	5	6	7
Hz.	125	250	500	1000	2000	4000
6" diameter	42	31	23	18	17	21
8" diameter	41	34	27	19	18	21
12" diameter	54	45	38	31	27	23

Factory insulate the flexible duct with fiberglass insulation. The R value shall be at least 5.0 at a mean temperature of 75° F. (R-4.2 is not acceptable)

- H. Cover the insulation with a fire retardant metalized vapor barrier jacket reinforced with crosshatched scrim having a permeance of not greater than 0.05 perms when tested in accordance with ASTM E96, Procedure A.
- I. Maximum length to be 6'-0"
ALL FLEX CONNECTIONS TO CEILING DIFFUSERS MUST BE FACTORY DESIGNED TO HAVE NO DIMENSIONAL CONTORTION WHEN CONNECTED TO THE DIFFUSER. A HARD METAL 90-DEGREE ELBOW OR A PLASTIC "CRUTCH" ELBOW IS REQUIRED FOR OTHER FLEX DUCTS THAT MAY BE SUPPLIED

2.03 FIRE AND SMOKE DAMPERS

- A. Round and oval fire dampers shall be designed for high pressure duct systems.
- B. Rectangular fire dampers shall be designed for low pressure duct systems.
- C. All fire dampers must be NFPA 90A and UL approved.
- D. Furnish and install access doors in ductwork, walls, and ceilings where required to service all fire dampers, smoke dampers and detectors. All fire and smoke dampers shall be installed by the sheet metal contractor. All smoke detectors shall be furnished by the electrical Sub-contractor. Control of smoke dampers shall be coordinated with fire alarm system and building automation system.
- E. Rectangular Smoke Dampers - Louvers Dampers Inc. Model SD-400-UD or Ruskin FSD-35 tight seal parallel blade smoke dampers with low leakage and felted blades.
- F. Round and Oval Smoke Dampers - Shall be same as above but complete with welded round or oval collars. Units shall be capable of handling pressures up to 6" W.G.
- G. Smoke dampers shall be Class I rated as per UL 555.
- H. Sheet metal contractor shall provide and install all smoke dampers and actuators. Dampers shall be provided with end switches
- I. Approved Manufacturers: Pottorff, Ruskin, Price, Nailor Industries, Greenheck, or prior approved equal.

2.04 LOW LOSS TAP

- A. All round low pressure connections to rectangular ducts shall be made with a factory fabricated 45 degree low loss entry "shoe" tap with damper constructed of minimum 26 gage galvanized steel. The damper shall have a 2" raised handle with a high quality locking quadrant. A 3/8" continuous rod with "U" bolts connects the damper to the rod. Nylon end bearings are required where the rod penetrates the spin collar barrel.
- B. Provide Flexmaster #STOD-BO3, Dace # 26 ga STOD-C03, or prior approved equal.
- C. For medium pressure systems where used upstream of VAV terminals, the damper can be eliminated (use Flexmaster #STO or Dace 24 ga STO). Gauge shall be 24 gauge on medium pressure systems.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. See details of ductwork symbols and connections on drawing.

END OF SECTION 15890

SECTION 15936 - AIR OUTLETS AND INLETS**PART 1 - GENERAL**

- 1.01 WORK INCLUDED
 - A. Diffuser boots.
 - B. Registers/grilles.
 - C. Louvers.
- 1.02 RELATED WORK
 - A. See Mechanical Plans for wall louvers.
- 1.03 REFERENCES
 - A. ADC 1062 - Certification, Rating and Test Manual.
 - B. AMCA 500 - Test Method for Louvers, Dampers, and Shutters.
 - C. ANSI/NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
 - D. ARI 650 - Air Outlets and Inlets.
 - E. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
 - F. SMACNA - Low Pressure Duct Construction Standard.
- 1.04 QUALITY ASSURANCE
 - A. Test and rate performance of air outlets and inlets in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
 - B. Test and rate performance of louvers in accordance with AMCA 500.
- 1.05 REGULATORY REQUIREMENTS
 - A. Conform to ANSI/NFPA 90A.
- 1.06 SUBMITTALS
 - A. Submit shop drawings and product data under provisions of Section 01300.
 - B. Provide product data for items required for this project.
 - C. Submit schedule of outlets and inlets indicating type, size, application, and noise level.
 - D. Review requirements of outlets and inlets as to size, finish, and type of mounting prior to submitting product data and schedules of outlets and inlets.
 - E. Submit diffuser, grille and register color data to Architect for approval.

PART 2 - PRODUCTS

- 2.01 GENERAL
 - A. See mechanical schedules and drawings for diffuser types, sizes and configuration. See architectural plans - room finish schedules for type of ceiling and wall construction.

- B. Substitutions: Under provisions of Instructions To Bidders, Page IB-3, Paragraph 4.3.
- 2.02 ACCEPTABLE MANUFACTURERS - Ceiling Diffusers
- A. Titus TMSA Series, Krueger Series 1400 Adjustable
 - B. All diffusers shall have opposed blade volume dampers and adjustable horizontal to vertical four way throw operable from face of grille. All diffusers must be aluminum.
- 2.03 ACCEPTABLE MANUFACTURERS - Ceiling Exhaust Grilles
- A. Titus - Model 50F Code C 1/2" x 1/2" x 1" Cube Core, Krueger EGC-10, Nailor Industries Model 51EC
 - B. All exhaust registers shall have opposed blade dampers.
 - C. Grilles shall have baked enamel white finish.
 - D. All dampers shall be operable from grille face.
- 2.04 ACCEPTABLE MANUFACTURERS - Ceiling Return Air Grilles
- A. Titus - 50F Code C, Krueger EGC-10, Nailor Industries
 - B. All return air shall have opposed blade dampers. See plans for filter backed grille requirements.
- 2.05 ACCEPTABLE MANUFACTURERS - Wall Supply Registers.
- A. Titus 1700 Series, Krueger ULTRA-FLO
 - B. All registers shall have adjustable blade dampers on all registers.
 - C. Furnish and install opposed blade damper on all registers.
 - D. Finish to be approved by Architect.
- 2.6 ACCEPTABLE MANUFACTURERS - DOOR RETURN GRILLES
- A. Titus Model CT-700, Krueger Series 5600, Nailor Industries
 - B. Substitutions: Under provisions of Instructions To Bidders.
 - C. All aluminum construction & design.
 - D. Finish to be approved by Architect.

PART 3 - EXECUTION

- 3.01 INSTALLATION
- A. Install items in accordance with manufacturer's instructions.
 - B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement. Refer to Section 09900.
 - C. Install diffusers to ductwork with air tight connection.
 - D. Provide balancing dampers on duct take-off to diffusers, and grilles and register, regardless of whether dampers are specified as part of the diffuser, or grille and register assembly.

- E. Furnish and install necessary frames, bucks, sponge rubber gasketed, etc. to make a neat setting job.
- F. Diffusers shall be placed to insure that air does not blast against columns and lights.
- G. All diffusers, registers, etc. shall have external volume controls and deflecting grids.
- H. Ceilings in areas where plaster or gypsum board ceiling are used, shall be surface mounted.

END OF SECTION 15936

SECTION 15954 - TESTING, ADJUSTING, AND BALANCING**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. All division 15 specification sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.02 SCOPE OF WORK

- A. The Contractor shall obtain the services of an independent Test and Balance (TAB) Company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s).
- B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems as described in these specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. The testing, adjusting and balancing agency shall act as a reporting agency; that is, list and report each piece of equipment as to identification number, manufacturer, model number, serial number, proper location, specified performance, and report actual performance of all equipment as found during testing. The report is intended to be used during the life of the building as a ready reference indicating original conditions, equipment components, etc.
- C. Representatives of the Test and Balance Company shall visit the job site during installation of the HVAC equipment, piping and ductwork as required.
- D. Upon completion of the HVAC system installation, the Test and Balance Company shall perform all required testing and balancing with the full cooperation of the Contractor and his Sub-contractors. The Contractor shall make changes and/or adjustments to the HVAC system components that are required by the Test and Balance Company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work is by the Contractor and shall be performed at no additional cost to the Owner.
- E. The test and balance report complete with a summary page listing all deficiencies shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. The test and balance report must be complete and must be accepted by the Mechanical Engineer prior to acceptance of the project. Any outstanding test and balance items shall be placed on the punch list and a monetary value shall be assigned to them.
- F. After all deficiencies have been corrected the Mechanical Engineer shall sign the testing and balancing report, and the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.
- G. The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

AIR SYSTEMS

Supply Fans

Zone, Branch, & Main Ducts

Diffusers, registers, & grilles

Coils

1.03 DEFINITIONS, REFERENCES, STANDARDS

- A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.04 QUALIFICATIONS

- A. Agency Qualifications: The TAB Agency shall be a current member of the AABC or the NEBB and must be in good standing with FP&C. A list of these firms shall be obtained from FP&C. Falsification of a TAB report shall be grounds for removal from the FP&C list and the firm's actions shall be reported to the appropriate certification agency. The contractor may use any FP&C approved TAB firm on a state project.

1.05 SUBMITTALS

- A. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.
- B. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

1.06 TAB PREPARATION AND COORDINATION

- A. Shop drawings, submittal data, up-to-date revisions, change orders, fan curves, pump curves and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days after the Designer has returned the final approved submittal data to the Contractor.
- B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.
- C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution.
- D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.
- E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

1.07 REPORTS

- A. Final TAB Report - The TAB agency shall submit the final TAB report for review by the Architect. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified (including manufacturer, model number, serial number, motor manufacturer, HP, drive type, fan and motor sheaves and belt number), along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC "National Project Performance Guaranty" (or similar NEBB Guaranty) assuring that the project systems were tested, adjusted and balanced in accordance with the project specifications and AABC National Standards (or similar NEBB Standards). The Designer shall certify his approval on the Performance Guaranty.
- B. Submit 4 copies of the Final TAB Report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

- A. All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC National Standards (or similar NEBB Standards).

PART 3 - EXECUTION

3.01 GENERAL

- A. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC National Standards (or similar NEBB Standards). Adjustment tolerances shall be + or - 10% unless otherwise stated.
- B. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.
- C. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.
- D. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.
- E. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.02 AIR SYSTEMS

- A. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

For supply fans:

1. Fan speeds - Test and adjust fan RPM to achieve design CFM requirements.
2. Current and Voltage - Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
3. Pitot-Tube Traverse - Perform a Pitot-tube traverse of main supply and return ducts, as applicable to obtain total CFM. If a Pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
4. Outside Air - Test and adjust the outside air on applicable equipment using a Pitot-tube traverse. If a traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. If a traverse is not practical use the mixed-air temperature method if the inside and outside temperature difference is at least 20 degrees Fahrenheit or use the difference between Pitot-tube traverses of the supply and return air ducts.
5. Static Pressure - Test and record system static pressure, including the static pressure profile of each supply fan.

For exhaust fans:

1. Fan speeds - test and adjust fan RPM to achieve design CFM requirements.
2. Current and Voltage - Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure motor is not in or above the service factor.
3. Pitot-Tube Traverse - Perform a Pitot-tube traverse of main exhaust ducts to obtain total CFM. If a Pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
4. Static Pressure - Test and record system static pressure, including the static pressure profile of each exhaust fan.

For zone, branch and main ducts:

1. Adjust ducts to within design CFM requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.

For diffusers, registers and grilles:

1. Tolerances - Test, adjust, and balance each diffuser, grille, and register to within 10% of design requirements. Minimize drafts. Include required CFM, initial test CFM and final CFM.
2. Identification - Identify the type, location, and size of each grille, diffuser, and register. This information shall be recorded on air outlet data sheets.

For coils:

1. Air Temperature - Once air flows are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry-bulb temperature shall be taken on the entering and leaving side of each heating coil.

3.05 PROCEDURES FOR COOLING TOWERS

- A. Shut off makeup water for the duration of the test, and verify that makeup and blow down systems are fully operational after tests and before leaving the equipment. Perform the following tests and record the results:
1. Measure condenser-water flow to each cell of the cooling tower.
 2. Measure entering- and leaving-water temperatures.
 3. Measure wet- and dry-bulb temperatures of entering air.
 4. Measure wet- and dry-bulb temperatures of leaving air.
 5. Measure condenser-water flow rate recirculating through the cooling tower.
 6. Measure cooling tower pump discharge pressure.
 7. Adjust water level and feed rate of makeup-water system.

3.06 ADDITIONAL TAB SERVICES

- A. Job Site Inspections: During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems as required.
- B. Verification of HVAC Controls: The TAB agency shall be assisted by the building control systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
1. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
 2. Verify that all controlling instruments are calibrated and set for design operating conditions.
- C. Temperature Testing: To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than two degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.
- D. TAB Report Verification: At the time of final inspection, the TAB agency may be required to recheck, in the presence of the owner's representative, specific and random selections of data, air quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10% of the total number tabulated in the report.

END OF SECTION 15954

SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS**PART 1 - GENERAL**

1.01 SCOPE

- A. The scope of work is as indicated on electrical drawings and includes but is not limited to the following:
- B. Demolition:
1. Disconnect and remove all lighting, controls, and associated wiring/conduit in area of work unless otherwise indicated on plan.
 2. Disconnect and remove all fire alarm devices in area of work unless otherwise indicated on plan.
 3. Disconnect and remove all telecommunication equipment in area of work unless otherwise indicated on plan.
 4. Disconnect and remove all existing interior/exterior electrical devices including but not limited to receptacles and junction boxes unless otherwise indicated on plan.
 5. Disconnect and remove all interior/exterior electrical equipment
- C. Site:
- Alternate #2:
1. Provide a diesel emergency generator and associated emergency feeders and branch circuits to generator accessories.
- D. Power:
1. Provide panel, safety disconnect switches and associated feeder(s).
 2. Provide new breaker(s) in existing switchboard. Provide new feeders to new equipment in broadcast studio.
 3. Provide receptacles, special outlets, junction boxes, and their associated branch circuits.
 4. Provide branch circuits associated with all mechanical and plumbing system equipment, including all accessories such as motorized dampers, valves, fan interlocks, ionization, etc.
- Alternate #1:
1. Provide new Uninterruptable Power Supply
 2. Provide new Enclosed Circuit Breaker with shunt trip module. Connect shunt trip per manufacturer instructions as required per UPS manufacturer specs.
- E. Lighting:
1. Provide interior light fixtures, wall switches, wall dimmers, and occupancy sensors and associated branch circuits.
 2. Provide exit light fixtures and interior emergency light fixtures.
- F. Telecommunications:
1. Provide junction boxes and conduit for phone and data outlets. Provide (2) CAT 6 cables to each data outlet shown unless otherwise indicated. Route to existing data rack. Provide additional patch panels as required.
- G. Fire Alarm:
1. Provide new fire alarm devices as required per NFPA 101 and 72. Connect new devices to existing fire alarm system.

1.02 GENERAL CONDITIONS

- A. The General Conditions and Supplementary General Conditions are a part of this section of these Specifications. The Contractor is cautioned to read and be thoroughly familiar with all provisions of the General Conditions. These conditions shall be complied with in every aspect.

1.03 DEFINITIONS:

- A. The word "shall" where used, is to be understood, as mandatory and the word "should" as advisory. "May" is used in the permissive sense.
- B. Concealed: Concealed areas are those areas that cannot be seen by building occupants.
- C. Exposed: Exposed areas are all areas that are exposed to view by building occupants, including areas below counter tops, inside cabinets and closets, inside all equipment rooms, and areas outside the building exterior envelope.
- D. Feeder: Feeder consists of both conduit and wiring installed above or below grade
- E. Provide: Provide shall including furnishing, installing, and connecting the item or items referenced unless specifically indicated otherwise.

1.04 QUALITY ASSURANCE

- A. General:
1. Every effort has been made by the Engineer to clearly indicate all devices/equipment requiring an electrical/data connection. It is the intent of the Engineer that all light fixtures be powered and controlled, that all devices and equipment be circuited to a panelboard of appropriate voltage and breaker of MOCP not exceeding manufacturer's specifications. That all communications, security, and fire alarm devices are installed, wiring, and functioning properly.
 2. Where there is a conflict between the contract document and an applicable Code. The Code shall govern except where the requirements of the contract documents are more stringent. The most stringent requirement shall apply.
 3. All work shall be concealed unless specifically noted to be exposed.
 4. Coordinate the exact locations of electrical outlets and equipment with building features and equipment as indicated on architectural, structural, mechanical, plumbing, landscape, and food service drawings. Review any/all proposed changes in electrical device/equipment locations with Architect prior to rough-in. Architect may direct relocation of outlets before rough-in, up to ten (10) feet from the position indicated, without additional cost. Remove and relocate outlets placed in unsuitable locations when requested by the Architect, at no additional cost.
 5. Resolve, in writing, any code violation discovered in contract documents with the Engineer prior to bidding. After award of the contract, Contractor shall make any correction or addition necessary for compliance with applicable codes at no additional cost.
- B. An approved contractor for the work under this division shall be:
1. A licensed electrical contractor in the jurisdiction in which the work shall be performed.

2. Able to furnish evidence of having contracted for and installed not less than three (3) systems of comparable size and type that have served their Owners satisfactorily for no less than three (3) years.
- C. All work, materials and equipment shall comply with the latest applicable codes, local ordinances, and UL requirements.
- D. Provide new products of manufacturers regularly engaged in production of such equipment. Provide the manufacturer's latest standard design for the type product specified. All new products shall be listed for the use shown on drawings.
- E. Equipment shall be delivered with a factory-applied finish so that no additional field painting is required.
- F. Equipment shall be selected to conform the building space limitations. Do not provide equipment that cannot meet the arrangement requirements shown on plans. Contractor shall submit room layouts with submitted items shown drawn to scale. Submittals will be rejected without floor plan Drawings showing submitted items.
- G. All equipment included in the service and distribution specifications shall be provided by the same manufacturer.
- H. Manufacturer names and model numbers are subject to change. Contractor shall verify them with manufacturer's representative prior to ordering any product or equipment.

1.05 GENERAL REQUIREMENTS

- A. The Contractor is referred to all of the Drawings for building construction as well as the electrical Drawings.
- B. The Contractor shall examine the site and shall verify to his own satisfaction the location of all utilities, and shall adequately inform himself as to their relation to his work before entering into a Contract and he shall base his bid on any conditions, which may be encountered during the progress of the work.
- C. The Contractor shall furnish and install properly all materials, devices, equipment, supports, controls, appurtenances, etc., mentioned or required to make complete or satisfactory installations in working order whether shown or not. All electrical equipment shall be connected in accordance with manufacturer's instructions. All work shall be executed in a workmanlike manner and shall present a neat and mechanical appearance when completed.
- D. The Contractor shall provide finished to match approved samples; all exposed finishes shall be approved by the Architect. Submit color samples as required.

1.06 APPLICABLE GENERAL CODES AND REGULATIONS

- A. All electrical work and equipment, in whole or in part, shall conform to the applicable portions of the following specifications, codes and regulations in effect on that date of invitation for bids, and shall form a part of this specification.
- B. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition.

- C. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
1. NFPA 70, National Electrical Code
 2. National Fire Codes:
 - a. NFPA 70E, Electrical Safety Requirements for Employee Workplaces
 - b. NFPA 72, National Fire Alarm Code
 - c. NFPA 77, Static Electricity
 - d. NFPA 101, Life Safety Code
 - e. NFPA 110, Emergency and Standby Power Systems
 3. Occupational Safety and Health Regulations (OSHA).
 4. NFPA Standards in effect shall be as listed or adopted by the appropriate authority having jurisdiction.
 5. American National Standards Institute (ANSI)
 6. Institute of Electrical and Electronics Engineers (IEEE)
 7. Local, City and State Codes and Ordinances
 8. Regulations and standards of the Electric Utility Company
 9. National Electrical Safety Code (NESC)
 10. National Electrical Manufacturers Association (NEMA)
 11. Insulated Power Cable Engineers Association (IPCEA)
 12. International Building Codes (IBC)
 13. International Energy Conservation Codes (IECC)
- B. Equipment that has been inspected and approved by the Underwriter's Laboratory shall bear its label or appear on its list of approved apparatus.

1.07 DRAWINGS

- A. Plans and detail sketches are submitted to limit, explain, and define conditions, specified requirements, conduit sizes, and manner of erecting work. The Contractor is cautioned to field check and verify all existing conditions before bidding, as no extra compensation will be allowed for conditions found different than represented in the construction drawings and/or specifications. Written approval of the Architect shall be obtained prior to any alterations or additions to specified work.
- B. Structural or other conditions may require certain modifications from the manner of installation shown, and such deviations are permissible and shall be made as required, but specified sizes and requirements necessary for satisfactory operations shall remain unchanged.
- C. The drawings and these specifications are complementary to each other and what is called for by one shall be binding as if called for by both.
- D. General arrangement of work is indicated on plans. Due to the small scale of the drawings, offsets, fittings, and boxes required are not all indicated; provide fittings, boxes, etc., as needed in accordance with codes and accepted practices.

1.08 SUPERVISION

- A. The Contractor shall personally or through an authorized and competent representative, constantly supervise the work from beginning to completion and final acceptance. So far as possible, he shall keep the same foreman and workmen throughout the project duration.

- B. During its progress, the work shall be subject to inspection by representatives of the Architect or Engineer, at which times the Contractor shall furnish required information.
- C. It is not the Architect's or Engineer's duty to direct or guarantee the work of the Contractor, but to assist the Owner in obtaining a complete building in accordance with plans, specifications and addenda and to furnish engineering services in accordance with recognized practices.

1.09 PRIOR APPROVALS

- A. The Contractor shall base his proposal on materials as specified herein. Any references to a specific manufacturer or trade name is made to establish a standard of quality and to define a type of product and in no way is intended to indicate a preference for a particular manufacturer. It is the intent of these specifications to allow all manufacturers of equipment, products, etc., judged equal to the specified product to bid on a competitive basis.

1.10 MEASUREMENTS

- A. The Contractor shall verify all measurements and shall be responsible for the correctness of same, before ordering any materials or doing any work. No extra charge or compensation will be allowed for any differences between the actual measurements and those indicated on the drawings.

1.11 LAWS, PERMITS AND FEES

- A. The entire electrical work shall comply with the rules and regulations of the City, Parish, and State, including the State Fire Marshal and State Board of Health, whether so shown on plans or not. The Contractor shall pay fees for permits, inspections, etc., and shall arrange with the inspecting authorities all required inspections.

1.12 SITE INSPECTION

- A. The Contractor shall visit the site and familiarize himself with difficulties attendant to the successful execution of the work before bidding. Failure to visit the site shall not relieve the Contractor of the extent or conditions of the work required of him.

1.13 TEMPORARY facilities

- A. The Contractor shall provide all temporary power and lighting for construction purposes. Installation of temporary power shall be in accordance with NEC Article 527.
- B. Temporary facilities, wire, lights, and devices are the property of the contractor and shall be removed by the Contractor at the completion of the Contract.

PART 2 - PRODUCTS

2.01 MATERIAL AND EQUIPMENT

- A. All materials, equipment, and accessories installed under this Contract, whether approved or not, shall be new and shall conform to all rules, codes, etc., as recommended or adopted by the National Association(s) governing the manufacture, rating and testing of such materials, equipment, and accessories.
- B. Product Substitutions

1. If item of equipment or device offered as Substitution differs in dimension or configuration from that indicated in the Contract Documents, provide, as part of the substitution submittal, a drawing that shows that the equipment or devices proposed for Substitution can be installed in the space available without interfering with other trades or with access requirements for operations and maintenance in the completed project. Drawings shall be of appropriate scale but shall not be smaller than a scale of 1/4-inch equals one foot.
2. Where substitute equipment or devices requires different arrangement or connections from that indicated in the Contract Documents, install the equipment or devices to operate properly and in accordance with the requirements of the Contract Documents. Make incidental changes necessary in piping, ductwork or wiring which results from the inclusion of the substitute equipment or device without any additional cost to the Owner. Pay all additional costs incurred by other trades in connection with changes required by the inclusion of the substituted equipment or device in the Work.

2.02 SHOP DRAWINGS & SUBMITTALS

- A. Shop drawings shall be taken to mean detailed drawings with dimensions, schedules, weights, capacities installation details, and pertinent information that will be needed to describe the material or equipment in detail.
 1. Shop drawings shall be prepared using computerized digital software compatible with AutoDesk's AutoCAD
 2. Submit hardcopy of Shop Drawings in the quantity as required under Division 01. Hardcopies of Shop Drawings shall have each sheet clearly labeled with a unique sheet identification number.
 3. In addition to hardcopies required by Division 01, submit one copy of Shop Drawings in electronic format on Flash Drive. Files contained shall be named to correspond with the sheet names contained in the hardcopy set. Files on shall include both AutoCAD compatible source files and files printed to Portable Document Format (.pdf).
- B. Submittals shall be taken to mean catalog cuts, general descriptive information, catalog numbers, and manufacturer's name.
- C. Review of submittals or shop drawings shall not remove the responsibility for furnishing materials or equipment of proper dimensions, quantity and quality; nor will such review remove the responsibility for error in the shop drawings or submittals.
- D. Assume all costs and liabilities, which may result from the ordering of any material, or equipment prior to the review of the shop drawings or submittals, and no work shall be done until the shop drawings or submittals have been reviewed. In case of correction or rejection, resubmit until such time as they are accepted by the Owner's representative and such procedures will not be cause for delay. After the final review, 6 copies will be supplied if requested.
- E. Shop drawings and submittals will be returned unchecked if the specific items proposed are not clearly marked, or if the general Contractor's approval stamp is omitted.
- F. Shop drawings, unless mark-ups are very trivial, will not be returned, "No Exception Taken". They will be returned for re-submittal as many times as

necessary, however, the Contractor shall be back charged for engineering review time beginning with the second resubmittal. Therefore, the Contractor should make every effort to comply with the requirements of this Project on the first submittal in order to avoid project delays.

- G. The Contractor shall submit to the Architect complete descriptive and dimensional data on the following items for review and approval when specified or provided:
1. Cable Tray
 2. Disconnect Switches
 3. Electrical Contactors
 4. Electrical Controls and Time Switches
 5. Emergency/Standby generator set and transfer switches
 6. Enclosed Circuit Breakers
 7. Fire Alarm System Initiation Devices and Annunciation Devices
 8. Fire Rated Cables and Connectors
 9. Lighting Controls and Occupancy Sensors
 10. Lighting Fixtures
 11. Panelboards and enclosures
 12. Surface Raceways
 13. Surge Protection Devices
 14. Transformers
 15. Wiring Devices

PART 3 - METHODS OF INSTALLATIONS

3.01 CONTRACTOR COORDINATION

- A. The Drawings are diagrammatic in nature. Cooperate with other trades so the interferences of facilities and equipment will be avoided.
- B. Contractor to coordinate with architectural millwork shop drawings prior to rough-in for locations of under counter lighting to be installed in and around millwork. No receptacles shall be installed in an enclosed cabinet unless noted on the drawings. Outlets for refrigerators, microwaves, etc. shall be installed in the space identified on the millwork shop drawings.
- C. Space allocations for materials, equipment and devices have been made on the basis of present and known future requirements and the dimensions of items of equipment or devices of a particular manufacturer. Verify that all materials, equipment and devices proposed for use on this Project are within the constraints of the allocated space.
- D. Coordinate arrangement, mounting, and support of electrical equipment:
1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 3. To allow right of way for piping installed at required slope. So, connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- E. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

3.02 OPENINGS, CUTTING AND PATCHING

- A. Cut all openings as required for the electrical work. Patching will be done by the various crafts whose work is involved. Furnish and install all necessary sleeves, thimbles, hangers, inserts, etc., at such times and in such a manner as not to delay or interfere with the work of other Contractors. Caulk, flash or otherwise make weatherproof all penetrations through the roof and exterior walls.
- B. Where conduit, cable or other items that are provided for under this contract penetrate fire rated walls or floors, the Contractor is to seal around the item to maintain the integrity of the rated system.

3.03 PAINTING

- A. Painting shall be performed as described in the painting specifications. No painting will be required by the Contractor except for touch-up of factory finishes on equipment furnished under this contract.

3.04 INSTALLATION

- A. Housekeeping Pads: All floor and ground mounted electrical equipment - panels, switchboards, motor control centers, transformers, etc. shall be installed with a reinforced concrete housekeeping pad, whether shown on the drawings or not. The pad shall extend 4" above either the finished floor or final grade (as applicable), have 45 degree chamfered edges, and be constructed of 3000psi concrete. The pad shall extend 4" beyond the edge of the respective electrical equipment. Concrete shall have smooth steel trowel finish.
- B. Equipment must be leveled and set plumb. Use corrosion resistant mounting hardware. For sheet metal enclosures mounted against a wall provide corrosion-resistant spaces to separate the wall by 1/4 inch or by 3 inches of air for freestanding units.
- C. Unused knockouts on panels and boxes shall be covered with approved cover plates manufactured for the purpose.

3.05 TESTS AND INSPECTIONS

- A. The Contractor shall assist in making periodic inspections or tests required by the Architect or Engineer. When requested, the Contractor shall provide the assistance of foremen and qualified craftsmen for reasonable duration of each test, etc.
- B. The contract will not be declared to be substantially complete until all of the following conditions are satisfied.
 - 1. the functional operation of the subsystems have been demonstrated and verified and reports have been provided, reviewed and accepted.
 - 2. The "As-Built" drawings have been submitted, reviewed and accepted by the Architect / Owner / Owner's Construction Representative.

3.06 SAFETY PRECAUTIONS DURING CONSTRUCTION

- A. It shall be the Contractor's responsibility to furnish and install proper guards and instruction signs for prevention of accidents and to provide and maintain for the duration of construction any installations needed for safety of life and property.

3.07 CONNECTIONS

- A. This Contractor shall be responsible for providing electrical service to all devices of the heating and air conditioning system, and is referred to the mechanical plan for the exact location of the various devices.
- B. Mechanical Controls: Provide 120VAC power connections as required to components of Mechanical Control system. Coordinated quantity of circuits, connection requirements and locations between trades and with provisions of Divisions 21, 22, and 23 sections.
- C. Security and Access Control: Where the Drawings indicate a 120VAC circuit in a general area labeled for security or access control use, the intent is for this circuit to be extended and connected to the security or access control device in that general area in coordination with other trades. Coordinated connection requirements and locations between trades and with Owner's Security vendor prior to installation.
- D. Motors and Motor Connections: Motors for driven equipment are specified in Divisions 21, 22, and 23. Provide connections as follows, unless otherwise indicated:
 - 1. Equipment provided with factory installed disconnecting means: Upon installation of motor and associated equipment, Provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.
 - 2. Equipment furnished with factory disconnecting means: Upon installation of motor and associated equipment, Install factory furnished disconnecting means and provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.
 - 3. Equipment not furnished with factory installed disconnecting means: Provide disconnect switch required in accordance with NFPA 70 or as indicated on the Drawings. Provide the electrical installation in accordance with approved wiring diagrams and manufacturer's written instructions.

3.08 LOAD BALANCING

- A. Balance load on all phases in each panel to within 10% of respective phase loads.

3.09 IDENTIFICATION OF EQUIPMENT

- A. Identification of Equipment: Refer to specification 26 05 53 Identification for Electrical Equipment.

3.11 COMPLETION

- A. The Contractor shall leave all electrical equipment with proper connections, and in proper working order. He shall test the entire electrical system to show that it is properly installed. Contractor shall leave all panels and switches completely fused or complete with circuit breakers.

3.12 RECORD DRAWINGS

- A. The Contractor shall furnish one (1) complete set of drawings on which any changes in the work shall be shown. In addition to changes in work contractor shall clearly indicate routing of all feeders both above and below ground. All underground conduit shall be noted on drawings to show "as built" locations.

These drawings must be turned over to the Architect prior to final acceptance of the work.

3.13 GUARANTEE

- A. The Contractor shall guarantee to keep the entire electrical system as installed by him or his subcontractors in repair and in perfect working order for one (1) year from the date of the final Certification of Final Acceptance, and shall furnish free of cost to the Owner, all material and labor necessary to comply with the above guarantee; said guarantee shall be based upon defective material and workmanship. In any case where equipment has a factory warranty exceeding this one-year limit, the full extent of the warranty shall apply.

3.14 CLEANING

- A. When all work has been finally tested, the Contractor shall clean all fixtures, equipment, conduits, ducts, and all exposed work. All cover plates and other finished products shall be thoroughly cleaned.

3.15 VANDAL RESISTANT DEVICES

- A. Where vandal resistant screws or bolts are employed on the project, deliver to the Owner 2 suitable tools for use with each type of fastener used, and 25 percent spare fasteners.
- B. Proof of delivery of these items to the Owner shall be included in the Operating and Maintenance Manuals.

3.16 INSTRUCTION MANUALS

- A. The Contractor shall provide three (3) operating and maintenance instruction manuals on all systems and equipment installed in the electrical work.
- B. The Contractor shall provide (3) copies of all warranties and guarantees for systems, equipment, devices, and materials.

3.17 ADDITIONAL DEVICES

- A. The Contractor shall include in the price for this project the costs to furnish and installed devices/systems with described below. Any device/system not used shall be returned to the owner at the completion of construction. A credit shall be given for the un-used labor and materials at the completion of the project.
- B. The additional devices/systems included in bid pricing are as follows:
1. Fire Alarm: All devices below shall be complete with conduit, wiring any/all associated programming and any applicable submittal documents for State Fire Marshal Review.
 - a. Five (5) speaker/strobe alarm devices
 - b. Two (2) manual pull stations
 - c. Two (2) smoke detectors
 - d. Four (4) control modules
 2. Lighting:
 - a. Twelve (12) lighting switches
 - b. Fixtures:
 - 1) Provide 10% spare fixtures or six whichever is greater.

3. Conduit and Wire: All of the below shall be provided with elbows, supports, couplers, connectors and boxes.
 - a. 1,000 feet of 3/4" EMT conduit with 4#10,
 - b. 300 feet of 1"EMT conduit with 4#6, 1#10

3.18 CONTRACTOR SPECIAL NOTE

- A. The Contractor is again cautioned to refer to all parts of these Specifications and all Drawings, not just electrical sections, and the individual cross references made to other standard specifications or details describing any electrical work, which may be required under these other sections. The Contractor is cautioned to note carefully any other sections which may reference electrical work in order for this Contractor to fully understand the wiring requirements and electrical work that is required. Any conflicts found between the electrical sections of these Specifications or Drawings shall be immediately directed to the General Contractor for clarification.
- B. These Specifications and the electrical Drawings size equipment, wire, conduit, etc. based on the horsepower of motors and/or wattages of equipment as shown on the plans or specified herein. The Contractor shall install electrical raceways, conductors, fuses, safety switches, breakers, contactors, starters or any other electrical equipment with the capacities to suit the horsepower and/or wattages of the equipment actually furnished and installed. The Contractor shall not furnish or install any electrical raceways, conductors, safety switches, contactors or motor starters of sizes smaller than those shown on the Drawings or specified herein. The Contractor shall coordinate with the various sections of the Specifications and/or Drawings and with the various Sub-Contractors to provide the properly sized equipment without additional cost to the Owner.

END OF SECTION 16010

SECTION 16020 - ELECTRICAL DEMOLITION**PART 1 - GENERAL**

1.01 SUMMARY

A. Section Includes:

1. Provide all labor, material and equipment to perform all electrical demolition as specified and as shown on the Drawings.
2. All equipment selected for demolition shall have power and communication cables de-energized and disconnected. All disconnected cables shall be removed.
3. All Power and Lighting panels circuit breakers shall be relabeled as spare where power was once fed to demolished equipment.
4. All conduit shall be disconnected and removed from demolished equipment.
5. All concrete encased conduit and underground conduit shall remain in place. All concrete encased conduit and underground conduit that stubs through floors and walls shall be cut flush and concrete shall be patched.
6. Contractor is responsible for making equipment scheduled for demolition safe for removal.

B. Related Documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Owner's General Requirements, apply to this Section.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION**

3.01 EXAMINATION

- A. Verify that field measurements and circuitry arrangements are as shown on the Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition work indicated on drawings are based on casual field observation and existing record documents. Report discrepancies to Engineer before disturbing any existing installation.
- D. The Contractor accepts existing conditions by starting demolition work.
- E. Contractor shall familiarize himself with the existing electrical site systems and with the work of all other trades and include all work necessary to comply with the intent of this section.
- F. It shall be understood that field conditions may be encountered during the execution of this contract which will require extension or relocation of existing systems or equipment which are not specifically shown on the drawings, but, which are required to meet the stated intent that the existing electrical system continue to function unaffected by the demolition and associated new construction. Contractor shall include such work as would normally be expected to accomplish the work.

- G. The bidder is required to visit the project site prior to submitting bid to verify the exact configuration of the electrical items being removed, relocated, or modified. No claims for extra work shall be accepted after awarding of bids for discrepancies between verifiable field conditions and the items shown on drawings if these items are readily verifiable.
- H. Should this contractor encounter field conditions which, in their opinion, were not verifiable by visual inspection of the site prior to submitting bids, they shall notify the Engineer immediately, in writing, and request a decision as to the scope of work. The Engineer shall provide the necessary interpretations and instructions in a reasonable time.

3.02 PREPARATION

- A. Coordinate electrical power outages with appropriate utility company and Owner. All outages must be scheduled with owner a minimum of 2-weeks in advance. Outages shall be scheduled as to minimize disruption and outage duration.
- B. Investigate the existing conditions of electrical system in walls, floors and ceilings scheduled for removal.
- C. Disconnect and deliver to the Owner those items requested to remain the Owner's property.
- D. Provide temporary wiring and connections to maintain existing systems in service where needed. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- E. Prior to any digging, boring, drilling or excavating on or adjacent to this site, identify location of existing utility lines through the services of a utility location outfit.

3.03 DEMOLITION OF ELECTRICAL FACILITIES

- A. Demolish electrical work under provisions of this section. All electrical items indicated to be removed shall remain Owner's property unless stated otherwise. All removed electrical items that the Owner does not wish to keep shall become Contractor's property and removed from the site.
- B. For demolition in buildings that are to be removed as part of demolition work:
 - 1. Remove abandoned wiring to source of supply.
 - 2. Disconnect electrical devices and equipment serving equipment that has been (or will be) removed.
 - 3. Fill with compacted soil any trench, hole or cavity created by the relocation or removal of any existing conduit, and pole concrete base.
- C. For demolition in buildings that are to remain in service after completion of demolition work:
 - 1. Remove exposed abandoned raceways.
 - 2. Repair adjacent construction and finishes damaged during demolition and extension work.
 - 3. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
 - 4. Where new construction conflicts with existing electrical work which is to remain, relocate the electrical work involved.
 - 5. Where existing circuits are interrupted by demolition or new work,

extend and reconnect those systems. Where those systems must remain in service during the execution of this contract, provide temporary connections until final connections are complete.

6. Any parts of existing construction which are to remain and which are damaged during demolition and preparatory work or new construction work on the project shall be patched to match existing adjacent surfaces. Patching and finishing of such areas shall conform with all applicable requirements of other technical sections of these specifications, and shall match existing work in material, type, finish, etc.
7. Equipment, circuits and utilities that remain, but that are served by feeders or circuits being removed or altered shall be reconnected in accordance with the methods required by this specification and the NEC, without extra cost to the Owner.
8. All materials and equipment noted to be reused or relocated shall be cleaned, retested, repaired if necessary, modified if required, prepared for reuse, and be stored and protected from the outdoor environment on the site until it is time for re-installation.
9. Fill with compacted soil any trench, hole or cavity created by the relocation or removal of any existing conduit, and pole concrete base.
10. Remove all abandoned data cabling located above ceilings that are exposed during demolition.
11. Where demo of electrical equipment is shown this shall include demolition of any unused supports, housekeeping pads, and associated conduit/conductor.
12. Disconnect and remove all abandoned equipment including but not limited to panelboards, and disconnect switches.
13. Where labeling is required by project specifications contractor shall trace and label all circuits to remain that are affected by construction or demolition.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Transport demolished materials off Owner's property and legally dispose of them.

3.05 CLEANING AND REPAIR (FOR FACILITIES TO REMAIN IN SERVICE)

- A. General
 1. Clean and repair existing materials and equipment which remain or are to be reused.

END OF SECTION 16020

SECTION 16050 - IDENTIFICATION FOR ELECTRICAL SYSTEMS**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Furnish and install items for identification of electrical products installed under Division 26.

1.02 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.
- B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.
- C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.03 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes and standards. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.01 RACEWAY AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Color for Printed Legend:
 - 1. Power Circuits: Black letters on an orange field.
 - 2. Legend: Indicate system or service and voltage, if applicable.
 - a. Typical:
 - 1) Type: Example – AC 60 Hertz
 - 2) Load: Example – Lighting and Power
 - 3) Voltage: Example – 120VA / 1 Phase
 - b. As Required
 - 1) If more than one type of power is available in a conduit, then it shall be marked with the title "Electrical" on orange background.
 - 2) If used for control of HVAC conduit shall be marked with the title "Control" on an orange background
 - c. Conduit that contains communication systems shall have the exact content and title on blue background.

- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches (50 mm)wide; compounded for outdoor use.

2.02 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm)thick by 1 to 2 inches (25 to 50 mm) wide.
- B. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.03 UNDERGROUND-LINE WARNING TAPE

- A. Description: Permanent, bright-colored, continuous-printed, polyethylene tape.
 1. Not less than 6 inches (150 mm) wide by 4 mils (0.102 mm) thick.
 2. Compounded for permanent direct-burial service.
 3. Embedded continuous metallic strip or core.
 4. Printed legend shall indicate type of underground line.

2.04 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145
- B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.
- C. Baked-Enamel Warning Signs: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application. 1/4-inch grommets in corners for mounting. Nominal size, 7 by 10 inches.
- D. Warning label and sign shall include, but are not limited to, the following legends:
 1. Warning label and sign shall include, but are not limited to, the following legends:
 2. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD -EQUIPMENTHAS MULTIPLE POWER SOURCES."
 3. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR ## INCHES." Verify work space required for specific project conditions with NFPA 70 and replace "##" in previous sentence with appropriate distance.
 4. Arc Flash Warning and Instructions: "WARNING – ARC FLASH AND SHOCK HAZARD. WEAR APPROPRIATE PPE. Determine appropriate protective clothing and personal protective equipment (PPE) for the task from NFPA 70E.

2.05 INSTRUCTION SIGNS

- A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.
- B. Engraved legend with black letters on white face.

- C. Punched or drilled for mechanical fasteners.
- D. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.06 ONE-LINE DIAGRAM NAMEPLATE

- A. Preprinted engraved, laminated acrylic or melamine plastics sign. Nominal size, 12 by 12 inches (305 by 305 mm) by 1/8 inch (3.2 mm) thick. Engraved legend with black letters on white face. Image on sign depicting equipment components in single-line diagram format, using symbols and letter designations consistent with final one-line bus diagram. Produce a concise visual presentation of principal equipment components and connections.

2.07 EQUIPMENT IDENTIFICATION LABELS

- A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch. Lettering and Background colors as indicated below:
 1. Power Circuits:
 - a. Normal: White lettering on Black background.
 - b. Emergency Optional Standby: White lettering on Purple background.
 - c. UPS: Black lettering on Orange background.
 2. Fire Alarm System: Black lettering on Red background.
 3. Fire-Suppression Supervisory and Control System: Yellow lettering on Red background.
 4. Combined Fire Alarm and Security System: Blue lettering on Red background.
 5. Security System: Blue lettering on Yellow background.
 6. Mechanical and Electrical Supervisory System: Green lettering on White background.
 7. Telecommunication System: Blue lettering on White background.
 8. Control Wiring: Green lettering on White background.
 9. Public Address / Intercom: White lettering on Black background
 10. CATV / MATV: White lettering on Black background

2.08 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties : Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 1. Minimum Width: 3/16 inch (5 mm)
 2. Tensile Strength: 50 lb (22.6 kg), minimum
 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 4. Color: Black, except where used for color-coding.
- B. Paint: Paint materials and application requirements are specified in Division 09 painting Sections.
- C. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use color-coding conductor tape. Identify each ungrounded conductor according to source and circuit number.
- B. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source and circuit number.
- C. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, signal, sound, intercommunications, voice, and data connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 - 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and Operation and Maintenance Manual.
- D. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- E. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.
 - 1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - 2. Equipment Requiring Workspace Clearance According to NFPA 70: Unless otherwise indicated, apply to door or cover of equipment but not on flush panelboards and similar equipment in finished spaces.
 - 3. Arc Flash Warning Labels: Apply label to door or cover at all access point of equipment including, but not limited to, the following:
 - a. Disconnect switches
 - b. Electrical switchgear and switchboards
 - c. Enclosed circuit breakers
 - d. Panelboards
 - e. Power transfer equipment (ATS/MTS)
 - f. Transformers
 - g. Uninterruptible power supply equipment
- F. Junction Boxes and Pull Boxes: Identify voltage, source, and circuit number(s) on cover of pull and junction boxes with hand-written legible block lettering using black permanent marking pen.
- G. Instruction Signs:
 - 1. Operating Instructions: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
 - 2. Emergency Operating Instructions: Install instruction signs with minimum 3/8-inch- (10-mm-) high letters for emergency instructions

at equipment used for power transfer load shedding, Kirk Key Controlled Breakers.

- H. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. This applies to existing equipment that is modified during this project. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where 2 lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - 2. Equipment to Be Labeled Shall Include But Not Be Limited To:
 - a. Panelboards, electrical cabinets, and enclosures.
 - b. Access doors and panels for concealed electrical items.
 - c. Electrical switchgear and switchboards.
 - d. Transformers.
 - e. Emergency system boxes and enclosures.
 - f. Disconnect switches.
 - g. Enclosed circuit breakers.
 - h. Power transfer equipment. (ATS/MTS)
 - i. Contactors.
 - j. Motor Starters
 - k. Motor-control centers
 - l. Fire-alarm control panel and annunciators
 - m. Power-generating units.
 - n. Uninterruptible power supply equipment
 - o. All junction boxes. Label to include circuit numbers (panel and number).
 - p. All receptacle device plates shall be etched with circuit numbers. (panel and number).
 - q. All lighting switch plates shall have circuit numbers on the back of the plate. (panel and number).

Examples:

NORMAL 'HA' 480Y/277V FED FROM 'MDP'	EMERGENCY SYSTEM 'ATS-LS' 480Y/277V FED FROM 'MDP' NORMAL FED FROM 'EMSB' EMERGENCY FEEDS 'LS-HA'	NORMAL 'T-LA' 75KVA, 480V to 208Y/120V FED FROM 'HA' FEEDS 'LA'
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- 3. Provide for each feeder overcurrent protective device in each switchgear, switchboard, distribution panelboard, motor control

center, and any other similar equipment furnished under this Division, identification as to the specific load that it serves.

- I. Existing Panel Schedules: Any existing panel where a circuit was removed, relocated or added, the contractor shall provide a new panel schedule with updated information.

3.02 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach non-adhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.
- F. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- G. Color-Coding for Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.
 - 1. Color shall be factory applied or for sizes larger than No. 1 AWG, if authorities having jurisdiction permit, field applied.
 - 2. Colors for Grounding Conductors:
 - a. Equipment Grounding Conductor: Green.
 - b. Isolated Equipment Grounding Conductor: Green with Yellow Stripe.
 - 3. Colors for 208/120-V Wye Systems:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Grounded Conductor (Neutral): White
 - 4. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- H. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.
- I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches (400 mm) overall.

- J. Painted Identification: Prepare surface and apply paint according to Division 09 painting Sections.

END OF SECTION 16050

SECTION 16060 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**PART 1 - GENERAL**

1.01 SUMMARY

- A. NFPA 70 and IEEE C2 include basic grounding requirements for electrical safety. This Section supplements the minimum safety requirements of the Code with requirements for additional grounding and with optional grounding methods and materials for both power and electronic systems.
- B. This Section includes methods and materials for grounding systems and equipment, plus the following special applications:
 - 1. Underground distribution grounding.
 - 2. Common ground bonding with lightning protection system.

1.02 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For independent agency as defined in Division 26 Section "Common Work Results for Electrical".
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with UL 467 for grounding and bonding materials and equipment.
- D. Comply with NFPA 70
- E. Comply with IEEE C2
- F. Comply with ANSI/EIA/TIA-607

PART 2 – PRODUCTS

2.01 CONDUCTORS

- A. Insulated Conductors: Copper or Tinned-Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
 - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 6. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - 7. Main Bonding Jumper: stranded copper conductors sized as indicated on Drawings.
 - 8. Grounding Electrode Conductor: stranded copper conductors sized as indicated on Drawings.
 - 9. Common Grounding Electrode Conductor: stranded copper conductors sized as indicated on Drawings.

- C. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 4 inches (6 by 100 mm) in cross section, unless otherwise indicated; with insulators. Length as indicated on Drawings.

2.02 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.03 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 5/8 inch (16 mm) diameter by 120 inches (3000 mm) long, unless otherwise indicated.

PART 3 - EXECUTION

3.01 APPLICATIONS

- A. Conductors: Install insulated solid conductor for No. 10 AWG and smaller, and insulated stranded conductors for No. 8 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 3/0 AWG minimum, unless otherwise indicated.
 - 1. Bury at least 30 inches (762 mm) below grade.
 - 2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct bank installation.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Grounding Bus: Install in electrical and telephone/communications equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
 - 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.
- E. Conductor Terminations and Connections: Use the following connectors styles, unless otherwise indicated.
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Exothermic Welded connectors, except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Exothermic Welded connectors.
 - 5. Connections to Ufer Ground: Exothermic Welded connectors.

- F. Comply with ANSI-607 requirements for telephone/communications grounding riser

3.02 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
 - 1. Bond to each device, box, or luminaire, unless otherwise indicated.
 - 2. Conductor insulation of the same rating as the phase conductors, for all feeders and branch circuits. Install the grounding conductors in the raceway with related phase and neutral conductors.
 - 3. Where parallel conductors in separate raceways occur, provide a grounding conductor in each raceway that meets requirements of NFPA 70.
- B. Dry-Type Transformers: Install an insulated grounding conductor from the common point of connection of the transformer secondary neutral point and the transformer enclosure to the following:
 - 1. The nearest grounding electrode per NFPA 70, including but not limited to building steel where available.
 - 2. The grounding bus of the common electrode grounding system, located in the electrical equipment room.
- C. Enclosures: Install an insulated grounding conductor from grounding bushings to the frame of the enclosure, ground bus, and equipment grounding strap where each occurs. Install grounding bushings on all raceways terminating within electrical enclosures constructed of separate enclosure panels, which are not integrally welded together.
- D. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including but not limited to air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- E. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- F. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4 (6-by-1000) grounding bus. Length as indicated on the drawings.
 - 2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

3.03 INSTALLATION

- A. Provide permanent service neutral and equipment grounding in accordance with NFPA 70 and subject to the following additional requirements.

- B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- C. Comply with mounting and support requirements specified in Division 16 Section "Hangers and Supports for Electrical Systems."
- D. Connect the service neutral and equipment ground to a common point within the metallic enclosure containing the main service disconnecting means. Equipment grounds and the identified neutral of the wiring system shall not be interconnected beyond this point in the interior wiring system. From the common point of connection of the service neutral and the equipment ground, run in non-magnetic conduit a grounding electrode conductor without joint or splice to the grounding electrode system and connect it with an approved bolted pressure clamp.
- E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
 - 4. Where expansion joints or telescoping joints occur, provide bonding jumpers.
- F. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- G. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- H. Ground Rods: Drive rods until tops are 12 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor a minimum of 30-inches below grade unless otherwise indicated. Make connections without exposing steel or damaging coating, if any.
 - 2. For grounding electrode system, install at least three rods spaced at least two-rod lengths from each other and located at least the same distance from other grounding electrodes, and connect to the service

grounding electrode conductor.

- I. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches (300 mm) deep, with cover.
 - 1. Test Wells: Install at least three test wells for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- J. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.

3.04 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components as specified in Division 16 Section "Identification for Electrical Systems."

3.05 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare certified test reports:
 - 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 - 2. Test completed grounding system at each location where a maximum at service disconnect enclosure grounding terminal, at ground test wells, at individual ground rods and locations where a ground-resistance level is specified,. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
- B. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.
 - 1. Report measured ground resistances that exceed the following values:
 - a. Building's Grounding Triad: 2 ohms or less.
 - b. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
 - c. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: 5 ohms.
 - d. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
 - e. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
 - f. Substations and Pad-Mounted Equipment: 5 ohms.
 - g. Manhole/Handhole Grounds: 10 ohms.
- C. Correct Deficiencies, Retest and Report:
 - 1. Correct unsatisfactory conditions, and retest to demonstrate

compliance; replace conductors, units, and rods as required to bring system into compliance.

2. Prepare a report, certified by testing agency, which identifies components checked and describes results. Include notation of deficiencies detected, remedial action taken, and observations and test results after remedial action.

END OF SECTION 16060

SECTION 16070 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.03 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. IMC: Intermediate metal conduit.
- D. RMC: Rigid metal conduit.
- E. RAC: Rigid aluminum conduit.
- F. RNC: Rigid nonmetallic conduit.
- G. RSC: Rigid Steel conduit.

1.04 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, raceways using NFPA 70 criteria and performance requirements and design criteria indicated.
 - 1. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
 - 2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- B. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.05 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel slotted support systems.
 - 2. Nonmetallic slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers. Include Product Data for components.
 - 2. Steel slotted channel systems. Include Product Data for components.
 - 3. Nonmetallic slotted channel systems. Include Product Data for components.
 - 4. Equipment supports.

- 5. Concrete Based for Equipment.
 - C. Welding certificates.
- 1.06 QUALITY ASSURANCE
- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - B. Comply with NFPA 70.
- 1.07 COORDINATION
- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
 - B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 07 Section "Roof Accessories."

PART 2 - PRODUCTS

- 2.01 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - 4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 5. Channel Dimensions: Selected for applicable load criteria.
 - B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c., in at least 1 surface.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. Fabco Plastics Wholesale Limited.
 - d. Seasafe, Inc.
 - 2. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
 - 3. Fitting and Accessory Materials: Same as channels and angles, except metal items may be stainless steel.

4. Rated Strength: Selected to suit applicable load criteria.
- C. Device Box Mounting Brackets and Stabilizer: Factory-fabricated sheet steel brackets for support of device boxes adjacent to or between studs.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.
- D. Through-Stud Cable and Raceway Support Clips: Factory-fabricated spring steel clip for cables or raceways were run horizontally through metal studs.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.
- E. Roof-mounted Raceway Support Blocking: Factory-fabricated support blocking for use under roof-mounted raceways. Wedge-shaped blocking constructed of 100% recycled UV-resistant Rubber with integral galvanized steel strut to accept raceway support clips.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.
- F. Tee Bar Grid Box Hanger: Factory-fabricated metal electrical box hanger for supporting boxes at locations between ceiling system t-grid components. Height adjustable for various electrical box depths. Attached to ceiling tee bar with screws or integral clamp for stability. Includes tab for independent support wire attachment.
 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cooper B-Line, Inc.; a division of Cooper Industries.
 - b. ERICO International Corporation.
- G. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- H. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- I. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleableiron.
- J. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- K. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hilti Inc.
 - 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.02 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

- B. Maximum Horizontal and Vertical Support Spacing for Raceway(s): Space supports for EMT, IMC, and RMC as required by NFPA 70, but in no case less than listed below:
1. For raceways 1" diameter and larger, provide one hanger at 8'-0" on center.
 2. For raceways less than 1" diameter, provide one hanger at 5'-0" on center.
- C. Minimum Hanger Rod Size for Raceway Supports: Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- D. Single Raceways or Cables:
1. For Raceways 1-1/4-inch (32mm) and smaller: Install adjustable steel band hanger suspended on threaded rod.
 2. For Raceways larger than 1-1/4-inch (30mm): Install trapeze-type supports fabricated with steel slotted support system suspended on threaded rods. Size trapeze members, including the suspension rods, based on the support required for the size, and loaded weight of the conduits.
 - a. Secure raceway or cable to support with two-bolt conduit clamps or single-bolt conduit clamps using spring friction action for retention in support channel.
- E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
1. Secure raceways and cables to these supports with two-bolt conduit clamps single-bolt conduit clamps using spring friction action for retention in support channel.
- F. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
- G. Corrosive Areas: Provide non-metallic slotted support systems for supports installed in corrosive areas. Corrosive areas include, but are not limited to the following:
1. Pools and Pool Equipment Areas.
 2. Within 25-feet (7.62-m) of Cooling Towers and Air Cooled Chillers.

3.02 SUPPORT INSTALLATION

- A. Comply with NFPA 70, NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC RMC EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Fasten junction, pull and devices boxes securely to the building construction, independent of raceway system.
- D. Install Device Box Mounting Brackets supported between two studs. Do not attached Receptacle boxes directly to a single stud.

- E. Install Through-Stud Cable and Raceway Support Clips where cables or raceways run horizontally through metal studs.
- F. Support raceways at a distance above suspended ceilings to permit removal of ceiling panels and luminaires.
- G. Locate raceways so as not to hinder access to mechanical equipment.
- H. Do not secure conductors, raceways, or supports to suspended ceiling hanger rods or wires.
- I. Install Tee Bar Grid Box Hanger supported between two ceiling grid tee bars where devices boxes are located flush in recessed suspended ceilings.
 - 1. Install at least one independent support rod from box hanger to structure.
- J. Install Roof-mounted Raceway Support Blocking where raceways run on across roofing.
 - 1. Coordinate installation of roof supports with items specified in Division 07 Section "Roof Accessories." Provide products compatible with rooftop materials included in the Work.
- K. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- L. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
 - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69 or Spring-tension clamps.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- M. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.04 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.05 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 16070

SECTION 16120 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**PART 1 – GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 1. building wires and cables rated 600V and less
 2. Connectors, splices and terminations rated 600 V and less
 3. Sleeves and sleeve seals for cables

1.03 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70- Latest edition or edition enforced by state and local code authority.

PART 2 – PRODUCTS

2.01 CONDUCTORS AND CABLES

- A. Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.
- C. Conductor Material: Copper unless indicated otherwise on Drawings; stranded conductor or solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.
- D. Conductor Insulation Types: Comply with NEMA WC 70 for Types THHN-THWN, XHHW, and SO, as indicated.
- E. Multiconductor Cables: Comply with NEMA WC 70; Exterior sheath color coded to differentiate cable voltages and quantity of phase conductors.
 1. Health Care Facilities armored cable, Type AC-HCF; Comply with UL 4 and UL 1479; with green grounding conductor(s) in addition to Armor/Bond Wire ground combination; with exterior sheath colored green.
- F. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.
- G. Conductor Temperature Rating: Provide conductors with 75 degree C rating. For high temperature applications, provide conductors with temperature ratings in accordance with NDPA 70 for ambient condition.

PART 3 – EXECUTION

3.01 CONDUCTOR AND INSULATION APPLICATIONS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.

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- C. Feeders Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and in Crawlspace: Type THHN- THWN, single conductors in raceway.
- E. Exposed Branch Circuits, including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway .
- G. Branch Circuits Concealed in Concrete and below Slabs-on-Grade: Type THHN-THWN, single conductors in raceway.
- H. Branch Circuits Installed below Raised Flooring: Type THHN-THWN, single conductors in raceway.
- I. Fire Alarm Cabling: Plenum rated, exposed. Secured per NFPA 70-760.
- J. Contractor to provide metal raceway in Patient Care Areas per 517.13. Raceway shall be installed as a redundant ground.
- K. Combining of more than three circuits in a conduit is not allowed. IE no more than three phase conductors.
- L. Single Phase Circuits: Provide a dedicated neutral. Sharing of neutrals is not allowed.
- M. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.02 INSTALLATION

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Run feeders in continuous lengths, without joints or splices. Where continuous runs are impractical; obtain Engineer's approval for splice locations and application.
- C. Make joints in branch circuits only where circuits divide.
- D. Do not use gutters of panelboards as raceways, junction boxes, or pull boxes for conductors not terminating in said panelboards.
- E. Run conduits for emergency power conductors separate from all other wiring.
- F. Bundling Conductors: Bundle conductors in switchboards, panelboards, cabinets, and the like, using nylon ties made for the purpose. Bundle conductors larger than No. 10 in individual circuits. Smaller conductors may be bundled in larger groups.
- G. Terminations of multiple branch circuit conductors on a single circuit breaker is not acceptable.
- H. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours. Install all conductors in raceways, unless specifically noted otherwise.
- I. Support cables according to Section "Basic Electrical Materials and Methods."

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- J. Identify and color-code conductors and cables according to Section “Identification for Electrical Equipment”
- K. Sizes:
 - 1. Provide conductors no smaller than No. 12 AWG, except for signal or control circuits.
 - 2. Use #10 AWG conductors for 20 amperage 120V circuits when the circuit conductors are longer than 75 feet.
 - 3. Use #10 AWG conductors for 20 amperage 277V circuits when the circuit conductors are longer than 200 feet.
 - 4. Provide neutral conductors of the same size as the phase conductor(s) for individual branch circuit homeruns.

3.03 WIRE PULLING

- A. Pull no conductors into conduits until all Work of a nature which may cause injury to conductors is completed.
- B. Follow manufacturers’ recommendations for regulating temperature conditions of conductors prior to installation.
- C. Exercise care in handling and installing cables to avoid damage. Carefully form cables in equipment pull boxes. Form bends in cables larger than the minimum radii shown in the cable manufacturer's published data for minimum bends such that bends will not reduce the cable life.
- D. Provide suitable installation equipment to prevent abrasion and cutting of conductors by raceways during the pulling of conductors. Use ropes of polyethylene, nylon or other suitable non-metallic material to pull in feeders. Metallic ropes are prohibited.
- E. Before any wire is pulled into any conduit, thoroughly swab the conduit to remove all foreign material and to permit the wire itself to be pulled into a clean, dry conduit.
- F. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- G. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.04 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque- tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B
- B. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.
- C. Provide temperature ratings of connectors and splices to match wire rating.

END OF SECTION 16120

SECTION 16130 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS**PART 1 - GENERAL**

- 1.01 Related Documents
- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions Specification Sections, apply to this Section.
- 1.02 Summary
- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
1. Refer to architectural for firestopping materials and installation at penetrations through walls, ceilings, and other fire-rated elements.
 2. "Wiring Devices" for devices installed in boxes and for floor-box service fittings.
- 1.03 Definitions
- A. EMT: Electrical metallic tubing.
- B. ENT: Electrical nonmetallic tubing.
- C. FMC: Flexible metal conduit.
- D. IMC: Intermediate metal conduit.
- E. LFMC: Liquidtight flexible metal conduit.
- F. LFNC: Liquidtight flexible nonmetallic conduit.
- G. RNC: Rigid nonmetallic conduit.
- 1.04 Submittals
- A. Product Data: For surface raceways, floor boxes, and cabinets.
- B. Coordination Drawings: Submit Coordination Drawings in accordance with Division 26 Section "Basic Electrical Requirements". Include the following:
1. Raceway routing plans, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - a. Proposed cable pull points.
 - b. Structural members in the paths of conduit groups with common supports.
 - c. HVAC, plumbing items, and architectural features in the paths of conduit groups. Denote where systems share common supports.
 - d. Purposed splice locations.
- 1.05 Quality Assurance
- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70-Latest edition or edition enforced by state and local code

authority.

1.06 Coordination

- A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 – PRODUCTS

2.01 Metal Wireways

- A. Material and Construction: Sheet metal sized and shaped as indicated.
1. Indoors: NEMA-1
 2. Outdoors: NEMA-3R
- B. Fittings and Accessories:
1. Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
 2. Provide spring nuts or guards on all screws installed toward the inside to prevent wire insulation damage.
- C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70 and UL 870.
- D. Wireway Covers:
1. Hinged type unless access restrictions require screw-cover type.
 2. Flanged-and-gasketed as required for NEMA type
- E. Finish: Manufacturer's standard enamel finish.

2.02 Surface Raceways

- A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer's standard prime coating and two coats of paint. Color by Architect.
- B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors.
- C. Surface raceways used together with couplings, clips, bushings, straps, connectors, connection covers, elbows, boxes, extension boxes, fixture boxes, extension adapters, blank covers and all other required fittings; size to accommodate the conductors to be installed therein in each case.

2.03 Boxes, Enclosures, And Cabinets

- A. Floor Boxes: Cast metal, fully adjustable, rectangular with four separate wiring compartments for power outlets, phone and data outlets as indicated on the drawing.
1. Provide products by the following manufactures or submit prior approval for equals.
 - a. Wiremold RFB4E Series
 - b. T&B 665 Series
 2. Covers shall be UL Listed to U.S. and Canadian safety standards for tile, carpet, wood, bare concrete and terrazzo floors. Covers shall be

selected by the architect.

- B. Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- C. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum, type FD with gasketed cover.
- D. Hinged-Cover Enclosures: with continuous hinge cover and flush latch.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
 - 3. Ratings:
 - a. Indoor Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
- E. Cabinets:
 - 1. Hinged door in front cover with flush latch and concealed hinge.
 - 2. Key latch to match panelboards.
 - 3. metal barriers to separate wiring of different systems and voltage and
 - 4. Accessory feet where required for freestanding equipment.
 - 5. Feet: Provide accessory feet for free standing equipment.
 - 6. Ratings:
 - a. Indoor Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
- F. In Grade Enclosures, Boxes And Covers:
 - 1. required to conform to all test provisions of the most current ANSI/SCTE 77 for Tier 22 applications.
 - 2. When multiple "Tiers" are specified the boxes must physically accommodate and structurally support compatible covers while possessing the highest Tier rating.
 - 3. All covers are required to have the Tier level rating embossed on the surface. In no assembly can the cover design load exceed the design load of the box.
 - 4. Cover to be labeled per use of box, ie "Electrical, Communications, etc". Communications pull boxes shall be a minimum of 24"W X 36"L X 36 "D.

2.04 Factory Finishes

- A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard prime- coat finish ready for field painting.

2.05 Metal Conduit And Tubing

- A. Rigid Steel Conduit: Comply with ANSI C80.1 and UL 6; Galvanized rigid steel, each length with a coupling on one end and thread protector on opposite end.
- B. Aluminum Rigid Conduit: Comply with ANSI C80.5 and UL 6A; Rigid aluminum, each length with a coupling on one end and thread protector on opposite end.
- C. IMC: Comply with ANSI C80.6. and UL 1242.
- D. Plastic-Coated Steel Conduit and Fittings: Comply with NEMA RN 1; PVC-coated RSC with 0.040 inch (1 mm), minimum coating thickness.
- E. EMT and Fittings: ANSI C 80.3 and UL 797

- F. FMC: Aluminum
- G. LFMC: Comply with UL 360; Flexible steel conduit with neoprene jacket and copper grounding strand.
- H. Conduit fittings for Hazardous (Classified) Locations: Comply with UL 886.
- I. Fittings for RSC, RAC and IMC: Provide factory made threaded couplings of same material as the conduit.
 - 1. Molded thermoplastic insulating bushing at all boxes and cabinets, with locknuts inside and outside box or cabinet. In wet locations, provide watertight hubs for conduit entry into enclosures.
 - 2. Thermoplastic insulated grounding bushing on all conduits where grounding bushings are required, with locknuts inside and outside the enclosure. In wet locations provide watertight hubs for conduit entry into enclosures.
 - 3. Provide bushings on all conduits 1" or larger.
- J. Fittings for EMT:
 - 1. Steel, set-screw or compression couplings.
 - 2. Steel, set-screw or compression insulated throat box connectors with molded thermoplastic insulating bushing at all boxes and cabinets, with locknuts inside box or cabinet.
 - 3. Steel, set-screw or compression insulated throat box connectors with thermoplastic insulated grounding bushing on all tubing where grounding bushings are required.
 - 4. Insulated throat material for fittings to be of a color that is easily distinguishable; clear thermoplastic throats are not acceptable.
 - 5. Provide bushings on all conduits 1" or larger.
 - 6. Provide thermoplastic bushings on all conduits for telecommunications, data, fire alarm cabling and similar.
- K. Fittings for FMC and LFMC:
 - 1. Adapters at connections between flexible and rigid conduit.
 - 2. Thermoplastic insulated throat, steel connectors at box or cabinet terminations.
 - 3. Insulated throat material for fittings to be of a color that is easily distinguishable; clear thermoplastic throats are not acceptable.
- L. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable:NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
- M. Joint Compound for RSC or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

PART 3 – EXECUTION

3.01 Raceway Application

- A. Outdoors:
 - 1. Exposed: RSC, RAC, or IMC.
 - 2. Concealed: RSC, RAC, or IMC.
 - 3. Underground, Single Run: RNC.
 - 4. Underground, Grouped: RNC.
 - 5. Emergency Feeders: RSC

6. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 7. Boxes and Enclosures: NEMA 250, Type 3R, unless otherwise indicated.
- B. Indoors:
1. Exposed, Not Subject to Physical Damage: EMT. Concealed: EMT.
 2. Exposed and Subject to Physical Damage: RSC, or IMC.
 3. Conductors over 600 volts: RAC, RSC, or IMC.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except use LFMC in damp or wet locations.
 5. Damp or Wet Locations above Ground: RAC, RSC, or IMC
 6. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
 - a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
- C. Minimum Raceway Size:
1. Branch Circuits: 3/4-inch (21mm) trade size
 2. Feeder Circuits: 3/4-inch (21mm)
- D. Provide minimum 1/2-inch (16-mm) conduit for controls circuiting.
- E. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. RAC, RSC and IMC: Use threaded fittings, unless otherwise indicated.
- F. Contractor to provide metal raceway in Patient Care Areas per 517.13. Raceway shall be installed as a redundant ground. Raceway shall be a considered a ground.
- G. Junction and Pull Boxes: Sheet steel boxes, unless noted or required otherwise.
1. Provide boxes no smaller than 4 inches square and 1-1/2 inches deep.
 2. Size all junction and pull boxes in accordance with the NFPA 70, unless project conditions dictate use of larger boxes.
- H. Outlet and Device Boxes: Sheet steel boxes, unless noted or required otherwise.
1. For Lighting Fixture Outlets: 4 inch square with raised fixture ring.
 2. For Wall Switches, Receptacles, and Communication Use: 4 inch square, one-piece. Use boxes with plaster rings in all plastered walls where wall thickness permits. Use boxes less than 1-1/2 inch deep only in locations where deep boxes cannot be accommodated by construction.
 3. Boxes Used Outdoors or in Damp/Wet Locations: Cast metal boxes with gasketed covers and threaded hubs.
- 3.02 Installation
- A. Install raceways a minimum of 6-inches (150 mm) away from parallel runs of flues, steam pipes, hot-water pipes, and other objects operating at high temperatures
 - B. Install horizontal raceway runs above water and steam piping. Install raceways a minimum of 1-inch (25.4-mm) from pipe insulation.
 - C. Complete raceway installation before starting conductor installation.
 - D. Support raceways as specified in "Basic Electrical Requirements."

- E. Install temporary closures to prevent foreign matter from entering raceways.
- F. Recessed Boxes in Fire-Rated Partitions: For boxes located on opposite sides of same partition do not install boxes back-to-back; separate boxes with a minimum of 24 inch separation
- G. Recessed Boxes in partitions around Acoustically-Sensitive Spaces: For boxes located on opposite sides of same partition do not install boxes back-to-back; separate boxes with a minimum of 24 inch separation. Acoustically-Sensitive Spaces include, but are not limited to, the following:
 - 1. Exam Rooms
- H. Do not install aluminum conduits in contact with concrete.
- I. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.
- J. Conceal conduit:
 - 1. EMT shall be installed within finished walls, ceilings, and floors, unless otherwise indicated.
 - 2. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.
 - 3. On concealed conduit systems where boxes are not otherwise accessible, set boxes flush with finished surfaces for access, and provide overlapping covers.
- K. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches (50 mm) of concrete cover.
 - 1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
 - 2. Space raceways laterally to prevent voids in concrete.
 - 3. Run conduit larger than 1-inch trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
- L. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.
 - 1. Run parallel or banked raceways together on common supports.
 - 2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
- M. Join raceways with fittings designed and approved for that purpose and make joints tight.
 - 1. Use insulating bushings to protect conductors.
- N. Terminations:
 - 1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
 - 2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.
- O. Stub-up Connections:

1. Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor.
 2. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.
 3. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.
 4. Change from ENT to RAC, RSC, or IMC before rising above the floor.
- P. Flexible Conduit Connections:
1. Use minimum of 72 inches at final connections to equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 2. Use LFMC in damp or wet locations subject to severe physical damage including mechanical equipment rooms, at motor or equipment locations at or near pumps, and when installed outdoors.
 3. Use LFMC in damp or wet locations not subject to severe physical damage.
- Q. Install covers on junction boxes and conduit bodies after wiring and connections are completed.
- R. Run conductors over 48 Volts in raceway, unless otherwise indicated.
- S. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.
- T. Pull Boxes:
1. Install no more than the equivalent of three 90-degree bends and a maximum of 150 feet between pull points in any conduit run except for communications conduits, for which fewer bends are allowed.
 2. Provide boxes where shown and where necessary for the installation and pulling of cables and wires.
- U. Pull Wires:
1. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength.
 2. Leave at least 12 inches (300 mm) of slack at each end of pull wire.
- V. Install hinged-cover enclosures and cabinets plumb. Support at each corner.
- 3.03 Protection
- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.
- 3.04 Cleaning
- A. After completing installation of exposed, factory-finished raceways and boxes,

inspect exposed finishes and repair damaged finishes.

END OF SECTION 16130

SECTION 16140 - WIRING DEVICES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Receptacles, receptacles with integral GFCI, and associated device plates.
 - 2. Tamper-proof receptacles.
 - 3. Twist-locking receptacles.

1.03 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. GFCI: Ground-fault circuit interrupter.
- C. PVC: Polyvinyl chloride.
- D. RFI: Radio-frequency interference.
- E. TVSS: Transient voltage surge suppressor.
- F. UTP: Unshielded twisted pair.

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Receptacles, switches, plates, floor outlets, poke through assemblies, service poles and multioutlet assemblies.
- B. Samples: One for each type of device and wall plate specified, in each color specified.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NFPA 70 latest edition or edition enforced by state or local code authority.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Receptacles: Duplex 125 V, 20 A:
 - a. Hubbell - HBL 5362.

- b. Leviton Mfg. Company Inc.-5362.
- c. Pass & Seymour-CRB5362.
- d. Pass & Seymour -PT5362A (Plug Tail Device).
- 2. GFI Receptacles: Weather Resistant 125 V, 20 A:
 - a. Hubbell Incorporated- BR20WR
 - b. Leviton Mfg. Company Inc.-WBR20
 - c. Pass & Seymour- WR5362.
- 3. GFI Receptacles: Weather Resistant and Tamper Resistant 125 V, 20 A:
 - a. Hubbell - BR2WRTR.
 - b. Leviton Mfg. Company Inc.-TWR20
 - c. Pass & Seymour- WR20TR.
- 4. Receptacles: Tamper Resistant 125 V, 20 A:
 - a. Hubbell - BR20TR.
 - b. Leviton Mfg. Company Inc.-TWR20
 - c. Pass & Seymour- TR5362.
- 5. Switches-Single Pole:
 - a. Hubbell- HBL 1221.
 - b. Pass & Seymour - PS20AC1.
 - c. Leviton Mfg. Company, Inc.- 1221-1
- 6. Switches-Three Pole:
 - a. Hubbell- HBL1223
 - b. Leviton Mfg. Company, Inc.-1223-2.
 - c. Pass & Seymour-PS20AC3.
- 7. Switches – Occupancy Sensor Wall Type:
 - a. Hubbell - LH-MT
 - b. Leviton - OD15-ID
 - c. Sensor Switch - WSD-PD
 - d. Watt Stopper - WA-200
- 8. Switches – Key Operated / Security Switches:
 - a. Hubbell - HBL1221RKL.
 - b. Leviton - 1221-2KL
 - c. Pass & Seymour - PS20AC1-KL.
- 9. Dimmer Switches Line Voltage:
 - a. Lutron Nova T
 - b. Pass & Seymour CD2000

* Dimmer must be compatible with Ballast or LED Driver.
- 10. Dimmer Switches 0-10V:
 - a. Synergy ISD
 - b. Cooper SF10P

* Dimmer must be compatible with Ballast or LED Driver.

2.02 RECEPTACLES

- A. Straight-Blade-Type Receptacles: Comply with UL 498, 20 amp.
- B. Straight-Blade and Locking Receptacles: Heavy-Duty grade 20 amp.
- C. GFCI Receptacles: Straight blade, feed-through type, Heavy-Duty grade, with integral NEMA WD 6, Configuration 5-20R duplex receptacle; complying with UL 498 and UL 943. Design units for installation in a 2-3/4-inch- (70-mm-) deep outlet box without an adapter.
- D. Tamper resistant in all public areas.

2.03 CORD AND PLUG SETS

- A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.
 - 1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
 - 2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.04 SWITCHES

- A. Single- and Double-Pole Switches: Comply with UL 20, 20 amp.
- B. Snap Switches: Heavy-Duty grade, quiet type 20 amp, 120/277 volt.
- C. Live Voltage Dimmer: 120V, 2000 watt, slide to-off. Dimmer must be compatible with ballast or driver.
- D. 0-10V Dimmer: 120/277VAC, capable of three way, max wattage 1200 w 120VAC, 150000 277 VAC, Dimmer must be compatible with ballast or driver. 100% to 1% continuous.

2.05 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
 - 1. Plate-Securing Screws: Metal with head color to match plate finish.
 - 2. Material for Finished Spaces: As selected by Architect.
 - 3. Material for Unfinished Spaces: Galvanized steel.
 - 4. Material for Wet Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."
- B. Wet-Location, Weatherproof Cover Plates:
 - 1. NEMA 250, complying with type 3R weather-resistant while-in-use metal or impact-resistant thermoplastic with lockable cover; non-removable gasket between the mounting plate/base and cover; stainless steel hinges and mounting hardware

2.06 SPECIAL CONFIGURATION & TWIST-LOCKING RECEPTACLES

- A. General: NEMA and Non-NEMA configurations as indicated on Drawings.
 - 1. Comply with NEMA WD 1, NEMA WD 6; and UL 498.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hubbell
 - b. Leviton
 - c. Pass & Seymour

2.07 MULTIOUTLET ASSEMBLIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hubbell Incorporated; Wiring Device-Kellems.
 - 2. Wiremold Company
- B. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles. Power receptacles meeting the requirements for receptacles listed in this section above, unless otherwise indicated.
- C. Raceway Material: As indicated on Drawings.

- D. Finish: As selected by Architect
- E. Wire: No. 12 AWG, unless otherwise noted.
- F. Power Receptacle: Devices as indicated on Drawings
- G. Voice and Data Communication Outlet: Devices as Indicated on Drawings.

2.08 FINISHES

- A. Color:
 1. Wiring Devices Connected to Normal Power System: As selected by Architect, unless otherwise indicated or required by NFPA 70.2.
 2. Wiring Devices Connected to Emergency Power System: Red.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install devices and assemblies level, plumb, and square with building lines.
- B. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.
- C. Remove wall plates and protect devices and assemblies during painting.
- D. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.
- E. Mounting Heights: Comply with applicable codes and requirements of Authorities Having Jurisdiction. Mount devices as indicated on Drawings, including but not limited to Architectural elevations. Coordinate all above counter receptacles with backsplash to avoid interferences. All dimensions are given to centerline of box above finished floor (AFF), unless otherwise indicated.
- F. Device Plates and Covers:
 1. Do not use oversized or extra-deep plates.
 2. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.
 3. Install weather-proof-while-in-use covers over receptacles in wet, damp and exterior locations.
 4. Group adjacent devices under single, multigang wall plates.
- G. Floor Service Outlets, Service Poles and Poke-Thru Device
 1. Adjust locations of floor service outlets, service poles, and Poke-Thru devices to suit arrangement of partitions and furnishings. Coordinate revised location with Structural Engineer.

3.02 APPLICATION

- A. GFCI Receptacles: Install in locations as indicated but in no case less than those listed below:
 1. Where device is located on the exterior of the building, provide with Wet-Location Weatherproof Cover Plate.
 2. Where device is located within 6 feet (2-m) of a lavatory or sink

3.03 CONNECTIONS

- A. Ground equipment according to Division 16 Section "Grounding and Bonding."

- B. Connect wiring according to Division 16 Section "Conductors and Cables."
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

3.04 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. After installing wiring devices and after electrical circuitry has been energized, test for proper polarity, ground continuity, and compliance with requirements.
 - 2. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
- B. Remove malfunctioning units, replace with new units, and retest as specified above.

3.05 CLEANING

- A. On completion of wall plate installation, inspect exterior surfaces and perform the following:
 - 1. Remove paint splatters and other spots.
 - 2. Remove all temporary markings and labels.
 - 3. Replace cracked or damaged wall plates.
 - 4. Wipe down all wall plates with approved cleaning agent to remove fingerprints and dust.

END OF SECTION 16140

SECTION 16263 - DIESEL GENERATOR SETS**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes packaged engine-generator sets. Engine generators will be used as the Standby power source for the system, but shall be capable of providing reliable power with no run-time limitations while the primary source of power is unavailable.

1.03 DEFINITIONS

- A. Emergency Standby Power (ESP): Per ISO 8528: The maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200 hours of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output (Ppp) over 24 hours of operation shall not exceed 70 percent of the ESP unless otherwise agreed by the RIC engine manufacturer.
- B. Prime Power (PRP): Per ISO 8528: The maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as a prescribed by the manufacturer. The permissible average power output (Ppp) over 24 hours of operation shall not exceed 70 percent of the PRP unless otherwise agreed by the RIC engine manufacturer.
- C. Limited Time running Power (LTP): Per ISO 8528: The maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers.
- D. Continuous Operating Power (COP): Per ISO 8528: The maximum power which a generating set is capable of delivering continuously whilst supplying a constant electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as a prescribed by the manufacturer.
- E. Data Center Continuous (DCC): The maximum power which a generating set is capable of delivering continuously whilst supplying a variable or constant electrical load when operated for an unlimited number of hours in a data center application under the agreed operating conditions with the maintenance intervals and procedures being carried out as a prescribed by the manufacturer. The permissible average power output (Ppp) over 24 hours of operation shall not exceed 100 percent of the DCC rating.
- F. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time-current characteristic curves for generator protective device.
 - 3. Sound test data, based on a free field requirement.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, and location and size of each field connection.
 - 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
 - 2. Wiring Diagrams: Control interconnection, Customer connections.
- C. Certifications:
 - 1. Submit statement of compliance which states the proposed product(s) is certified to the emissions standards required by the location for EPA, stationary emergency application.

1.05 INFORMATIONAL SUBMITTALS

- A. Source quality-control test reports.
 - 1. Certified summary of prototype-unit test report. See requirements in Part 2 "Source Quality Control" Article Part A. Include statement indicating torsional compatibility of components.
 - 2. Certified Test Report: Provide certified test report documenting factory test per the requirements of this specification, as well as certified factory test of generator set sensors per NFPA110 level 1.
 - 3. List of factory tests to be performed on units to be shipped for this Project.
 - 4. Report of exhaust emissions and compliance statement certifying compliance with applicable regulations.
- B. Warranty:
 - 1. Submit manufacturer's warranty statement to be provided for this Project.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 100 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.
- C. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.
- D. Comply with NFPA 37 (Standard For the Installation and Use of Stationary Combustion Engines and Gas Turbines).
- E. Comply with NFPA 70 (National Electrical Code. Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702).
- F. Comply with NFPA 110 (Emergency and Standby Power Systems) requirements for Level 1 emergency power supply system.
- G. Comply with UL 2200.

1.07 PROJECT CONDITIONS

- A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
1. Ambient Temperature: 4.44 deg C (40.0 deg F) to 51.11 deg C (124.0 deg F).
 2. Relative Humidity: 0 to 95 percent.
 3. Altitude: Sea level to 60.0 feet (18.29 m).

1.08 WARRANTY

- A. Base Warranty: Manufacturer shall provide base warranty coverage on the material and workmanship of the generator set for a minimum of twenty-four (24) months for Standby product and twelve (12) months for Prime/Continuous product from registered commissioning and start-up.
- B. Extended Warranty: Manufacturer shall offer extend coverage of 5 years from date of registered commissioning and start-up.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: The following are approved for use on this project all others shall submit for prior approval.
1. Cummins Power Generation
 2. MTU
 3. Taylor Power
 4. Caterpillar

2.02 ENGINE-GENERATOR SET

- A. Factory-assembled and -tested, engine-generator set.
- B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.
1. Rigging Information: Indicate location of each lifting attachment, generator-set center of gravity, and total package weight in submittal drawings.
- C. Capacities and Characteristics:
1. Power Output Ratings: Electrical output power rating for Standby operation of not less than 100.0KW, at 80 percent lagging power factor, 208/120, Series Wye, Three phase, 4 -wire, 60 hertz. Output breaker rating shall be: 350A/3P
 2. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component. The engine-generator nameplate shall include information of the power output rating of the equipment.
- D. Generator-Set Performance:
1. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage from no load to full load.
 2. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 seconds.
 3. Steady-State Frequency Operational Bandwidth: 0.25 percent of rated frequency from no load to full load.
 4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no

- hunting or surging of speed.
5. Transient Frequency Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within 3 seconds.
 6. Output Waveform: At full load, harmonic content measured line to line or line to neutral shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.
 7. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 8 seconds without damage to generator system components. For a 1-phase, bolted short circuit at system output terminals, system shall regulate both voltage and current to prevent over-voltage conditions on the non-faulted phases.
 8. Start Time: Comply with NFPA 110, Level 1, Type 10, system requirements.
 9. Ambient Condition Performance: Engine generator shall be designed to allow operation at full rated load in an ambient temperature under site conditions, based on highest ambient condition. Ambient temperature shall be as measured at the air inlet to the engine generator for enclosed units, and at the control of the engine generator for machines installed in equipment rooms.

2.03 ENGINE

- A. Fuel: ASTM D975 #2 Diesel Fuel
- B. Rated Engine Speed: 1800RPM.
- C. Lubrication System: The following items are mounted on engine or skid:
 1. Lube oil pump: shall be positive displacement, mechanical, full pressure pump.
 2. Filter and Strainer: Provided by the engine manufacturer of record to provide adequate filtration for the prime mover to be used.
 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- D. Engine Fuel System: The engine fuel system shall be installed in strict compliance to the engine manufacturer's instructions
- E. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
- F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity and performance.
 1. Designed for operation on a single 120 VAC, Single phase, 60Hz power connection. Heater voltage shall be shown on the project drawings.
 2. Installed with isolation valves to isolate the heater for replacement of the element without draining the engine cooling system or significant coolant loss.
 3. Provided with a 24VDC thermostat, installed at the engine thermostat housing

- G. Governor: Adjustable isochronous, with speed sensing. The governing system dynamic capabilities shall be controlled as a function of engine coolant temperature to provide fast, stable operation at varying engine operating temperature conditions. The control system shall actively control the fuel rate as appropriate to the state of the engine generator. Fuel rate shall be regulated as a function of starting, accelerating to start disconnect speed, accelerating to rated speed, and operating in various isochronous states.
- H. Cooling System: Closed loop, liquid cooled
1. The generator set manufacturer shall provide prototype test data for the specific hardware proposed demonstrating that the machine will operate at rated standby load in an outdoor ambient condition of 40 deg C.
 2. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 3. Size of Radiator overflow tank: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
 4. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
 5. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 6. Duct Flange: Generator sets installed indoors shall be provided with a flexible radiator duct adapter flange.
- I. Muffler/Silencer: Selected with performance as required to meet sound requirements of the application, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements. For generator sets with outdoor enclosures the silencer shall be inside the enclosure.
- J. Air-Intake Filter: Engine-mounted air cleaner with replaceable dry-filter element and restriction indicator.
- K. Starting System: 12 or 24V, as recommended by the engine manufacturer; electric, with negative ground.
1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
 2. Cranking Cycle: As required by NFPA 110 for level 1 systems.
 3. Battery Cable: Size as recommended by engine manufacturer for cable length as required. Include required interconnecting conductors and connection accessories.
 4. Battery Compartment: Factory fabricated of metal with acid-resistant finish.
 5. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation. The battery charging alternator shall have sufficient capacity to recharge the batteries with all parasitic loads connected within 4 hours after a normal engine starting sequence.
 6. Battery Chargers: Unit shall comply with UL 1236, provide fully regulated, constant voltage, current limited, battery charger for each battery bank. It will include the following features:

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- a. Operation: Equalizing-charging rate based on generator set manufacturer's recommendations shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
- b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 20 deg C to plus 40 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
- c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
- d. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
- e. Provide LED indication of general charger condition, including charging, faults, and modes. Provide a LCD display to indicate charge rate and battery voltage. Charger shall provide relay contacts for fault conditions as required by NFPA110.
- f. Enclosure and Mounting: NEMA, Type 1, wall-mounted cabinet.

2.04 FUEL OIL STORAGE

- A. Comply with NFPA 30.
- B. Sub Base-Mounted Fuel Oil Tank: Provide a double wall secondary containment type sub base fuel storage tank. The tank shall be constructed of corrosion resistant steel and shall be listed and labeled. The fuel tank shall include the following features:
 1. Capacity: Fuel for 12 Hour(s) continuous operation at 100 percent rated power output.
 2. Tank rails and lifting eyes shall be rated for the full dry weight of the tank, genset, and enclosure.
 3. Electrical stub up(s)
 4. Normal & emergency vents
 5. Lockable fuel fill
 6. Mechanical fuel level gauge
 7. High and low level switches to indicate fuel level
 8. Leak detector switch
 9. Sub base tank shall include a welded steel containment basin, sized at a minimum of 110% of the tank capacity to prevent escape of fuel into the environment in the event of a tank rupture.
 10. Fill port with overfill prevention valve (OFPV)
 11. 5 gallon fill/spill dam or bucket
 12. Tank design shall meet the regional requirements for the Project location

2.05 CONTROL AND MONITORING

- A. Engine generator control shall be microprocessor based and provide

automatic starting, monitoring, protection and control functions for the unit.

- B. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. (Switches with different configurations but equal functions are acceptable.) When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of the local (generator set-mounted) and/or remote emergency-stop switch also shuts down generator set.
- C. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of the local (generator set-mounted) and/or remote emergency-stop switch also shuts down generator set.
- D. Configuration: Operating and safety indications, protective devices, system controls, engine gages and associated equipment shall be grouped in a common control and monitoring panel. Mounting method shall isolate the control panel from generator-set vibration. AC output power circuit breakers and other output power equipment shall not be mounted in the control enclosure.
- E. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 1 system, and the following:
1. AC voltmeter (3-phase, line to line and line to neutral values).
 2. AC ammeter (3-phases).
 3. AC frequency meter.
 4. AC kW output (total and for each phase). Display shall indicate power flow direction.
 5. AC kVA output (total and for each phase). Display shall indicate power flow direction.
 6. AC Power factor (total and for each phase). Display shall indicate leading or lagging condition.
 7. Ammeter-voltmeter displays shall simultaneously display conditions for all three phases.
 8. Emergency Stop Switch: Switch shall be a red "mushroom head" pushbutton device complete with lock-out/tag-out provisions. Depressing switch shall cause the generator set to immediately stop the generator set and prevent it from operating.
 9. Fault Reset Switch: Supply a dedicated control switch to reset/clear fault conditions.
 10. DC voltmeter (alternator battery charging).
 11. Engine-coolant temperature gauge.
 12. Engine lubricating-oil pressure gauge.
 13. Running-time meter.
 14. Generator-voltage and frequency digital raise/lower switches. Rheostats for these functions are not acceptable. The control shall adjustment of these parameters in a range of plus or minus 5% of the voltage and frequency operating set point (not nominal voltage and frequency values.) The voltage and frequency

- adjustment functions shall be disabled when the paralleling breaker is closed.
15. Fuel tank derangement alarm.
 16. Fuel tank high-level shutdown of fuel supply alarm.
 17. AC Protective Equipment: The control system shall include over/under voltage, reverse kVAR, reverse kW, over load (kW) short circuit, over current, loss of voltage reference, and over excitation shut down protection. There shall be a ground fault alarm for generator sets rated over 1000 amps, overload warning, and overcurrent warning alarm.
 18. Status LED indicating lamps to indicate remote start signal present at the control, existing shutdown condition, existing alarm condition, not in auto, and generator set running.
 19. A graphical display panel with appropriate navigation devices shall be provided to view all information noted above, as well as all engine status and alarm/shutdown conditions (including those from an integrated engine emission control system). The display shall also include integrated provisions for adjustment of the gain and stability settings for the governing and voltage regulation systems.
 20. Panel lighting system to allow viewing and operation of the control when the generator room or enclosure is not lighted.
 21. Data Logging: The control system shall log the latest 20 different alarm and shut down conditions, the total number of times each alarm or shutdown has occurred, and the date and time the latest of these shutdown and fault conditions occurred.
 22. DC control Power Monitoring: The control system shall continuously monitor DC power supply to the control, and annunciate low or high voltage conditions. It shall also provide an alarm indicating imminent failure of the battery bank based on degraded voltage recover on loading (engine cranking).
- F. Remote Alarm Annunciator: Comply with NFPA 110. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition.
 - G. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.06 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Overcurrent Protection: The generator set shall be provided with a UL Listed/CSA Certified protective device that is coordinated with the alternator provided to prevent damage to the generator set on any possible overload or overcurrent condition external to the machine. The protective device shall be listed as a utility grade protective device under UL category NRGU. The control system shall be subject to UL follow-up service at the manufacturing location to verify that the protective system is fully operational as manufactured. Protector shall perform the following functions:
 1. Initiates a generator kW overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms.
 2. Under single phase or multiple phase fault conditions, or on overload conditions, indicates an alarm conditions when the current flow is in excess of 110% of rated current for more than 10

seconds.

3. Under single phase or multiple phase fault conditions, operates to switch off alternator excitation at the appropriate time to prevent damage to the alternator.
4. The operator panel shall indicate the nature of the fault condition as either a short circuit or an overload.
5. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot greater than 120% of nominal voltage.
6. The protective system provided shall not include an instantaneous trip function.

2.07 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H
- D. Temperature Rise: 105 / Class F environment.
- E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, over speed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Permanent Magnet Generator (PMG) shall provide excitation power for optimum motor starting and short circuit performance.
- G. Enclosure: Drip-proof.
- H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified. The voltage regulation system shall be microprocessor-controlled, 3-phase true RMS sensing, full wave rectified, and provide a pulse-width modulated signal to the exciter. No exceptions or deviations to these requirements will be permitted.
- I. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- J. Subtransient Reactance: 12 percent maximum, based on the rating of the engine generator set.

2.08 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Sound Attenuated Aluminum housing. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Instruments, control, and battery system shall be mounted within enclosure.
- B. Construction:
 1. Louvers: Equipped with bird screen to permit air circulation when engine is not running while excluding birds and rodents.
 2. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to prevent door to keep door open at 180 degrees during maintenance. Rain lips over all doors.
 3. Exhaust System:
 - a. Muffler Location: Within enclosure.
 4. Hardware: All hardware and hinges shall be stainless steel.
 5. Wind Rating: Wind rating shall be 150 mph
 6. Mounting Base: Suitable for mounting on sub-base fuel tank or housekeeping pad.

7. A weather protective enclosure shall be provided which allows the generator set to operate at full rated load with a static pressure drop equal to or less than 0.5 inches of water.
 8. Inlet ducts shall include rain hoods
- C. Engine Cooling Airflow through Enclosure: Housing shall provide ample airflow for engine generator operation at rated load in an ambient temperature of 40 deg C.
1. Louvers: Fixed-engine, cooling-air inlet and discharge.
 2. Motorized Louvers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating. Dampers shall be of a "fail open" design to allow airflow in the event of failure
- D. Sound Performance: Reduce the sound level of the engine generator while operating at full rated load to a maximum of 79 dBA measured at any location 23 ft from the engine generator in a free field environment.
- E. Site Provisions:
1. Lifting: Complete assembly of engine generator, enclosure, and sub base fuel tank (when used) shall be designed to be lifted into place as a single unit, using spreader bars.
- 2.09 VIBRATION ISOLATION DEVICES
- A. Vibration Isolation: Generators installed on grade shall be provided with elastomeric isolator pads integral to the generator, unless the engine manufacturer requires use of spring isolation.
1. IBC Compliance: Isolators complying with IBC requirements shall be specified in the equipment documentation, as well as the installation requirements for the unit.
- 2.10 FINISHES
- A. Indoor and Outdoor Enclosures and Components: Powder-coated and baked over corrosion-resistant pretreatment and compatible primer. Manufacturer's standard color or as directed on the drawings.
- 2.11 SOURCE QUALITY CONTROL
- A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
1. Tests: Comply with NFPA 110, Level 1 Energy Converters. In addition, the equipment engine, skid, cooling system, and alternator shall have been subjected to actual prototype tests to validate the capability of the design under the abnormal conditions noted in NFPA110. Calculations and testing on similar equipment which are allowed under NFPA110 are not sufficient to meet this requirement.
- B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
1. Test engine generator set manufactured for this Project to demonstrate compatibility and functionality.
 2. Full load run.
 3. Maximum power.
 4. Voltage regulation.
 5. Steady-state governing.
 6. Single-step load pickup.

7. Simulated safety shutdowns.
8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation, application, and alignment instructions and with NFPA 110.
- B. Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.
- C. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.
- D. Contractor shall coordinate remote pushbutton location (when required) with engineer prior to installation. Provide allowance for 75' of conduit and required cabling unless otherwise located on plans.
- E. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer's instructions and seismic requirements of the site.
- F. Equipment shall be initially started and operated by representatives of the manufacturer. All protective settings shall be adjusted as instructed by the consulting engineer.
- G. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.
- H. On completion of the installation by the electrical contractor, the generator set supplier shall conduct a site evaluation to verify that the equipment is installed per manufacturer's recommended practice.

3.02 ON-SITE ACCEPTANCE TEST

- A. The complete installation shall be tested to verify compliance with the performance requirements of this specification following completion of all site work. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor. The Engineer shall be notified in advance and shall have the option to witness the tests. The generator set manufacturer shall provide a site test specification covering the entire system. Tests shall include:
- B. Prior to start of active testing, all field connections for wiring, power conductors, and bus bar connections shall be checked for proper tightening torque.
- C. Installation acceptance tests to be conducted on site shall include a "cold start" test, a two hour full load (resistive) test, and a one-step rated load pickup test in accordance with NFPA 110. Provide a resistive load bank and make temporary connections for full load test, if necessary.

- D. Perform a power failure test on the entire installed system. This test shall be conducted by opening the power supply from the utility service, and observing proper operation of the system for at least 2 hours. Coordinate timing and obtain approval for start of test with site personnel.

3.03 TRAINING

- A. The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. The training program shall be not less than 4 hours in duration and the class size shall be limited to 5 persons. Training date shall be coordinated with the facility owner.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

3.05 SERVICE AND SUPPORT

- A. The generator set supplier shall maintain service parts inventory for the entire power system at a central location which is accessible to the service location 24 hours per day, 365 days per year. The inventory shall have a commercial value of \$3 million or more. The manufacturer of the generator set shall maintain a central parts inventory to support the supplier, covering all the major components of the power system, including engines, alternators, control systems, paralleling electronics, and power transfer equipment.
- B. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The supplier shall maintain an inventory of critical power system replacement parts in the local service location. Service vehicles shall be stocked with critical replacement parts. The service organization shall be on call 24 hours per day, 365 days per year. The service organization shall be physically located within 100 miles of the site.
- C. The manufacturer shall maintain model and serial number records of each generator set provided for at least 20 years.

END OF SECTION 16263

SECTION 16265 – STATIC UNINTERRUPTIBLE POWER SUPPLY**PART 1 – GENERAL**

1.01 SUMMARY

- A. These specifications describe requirements for an Uninterruptible Power System (UPS) optimized for maximum efficiency. The UPS shall automatically maintain AC power to the critical load within specified tolerances and without interruption during failure or deterioration of the normal power source.
- B. The manufacturer shall design and furnish all materials and equipment to be fully compatible with electrical, environmental and space conditions at the site. The UPS shall include all equipment to properly interface the AC power source to the intended load and shall be designed for unattended operation.

1.02 STANDARDS

- A. The UPS and all associated equipment and components shall be manufactured in accordance with the following applicable standards:
 1. The UPS shall be UL listed per UL Standard 1778, Fifth Edition, Uninterruptible Power Supplies, and shall be CSA certified.
 2. The UPS shall be provided with a Short Circuit Withstand Rating (SCWR) label denoting the maximum source fault short circuit current that is applicable to the unit. The withstand rating shall be independently verified by a nationally recognized, third-party lab.
 3. The UPS shall withstand input surges to both the rectifier and bypass when configured as either a single-input or dual-input unit without damage as per the criteria in EN62040-2 (4kV). The manufacturer shall provide evidence of compliance upon request.
 4. The UPS shall comply with FCC Rules and Regulations, Part 15, Subpart J, Class A. This compliance is legally required to prevent interference with adjacent equipment. The UPS shall have a label stating FCC compliance. The manufacturer shall provide evidence and test data of compliance upon request.
 5. The UPS shall be compatible with the wiring practices, materials and coding in accordance with the requirements of the National Electrical Code, OSHA and applicable local codes and standards. Provisions shall be made in the cabinets to permit installation of input, output and external control cabling using raceway or conduit for top and bottom access to input, output, bypass and DC connections. Connection cabinets shall provide for wiring gutter and wire bend radius as defined by the NEC and UL.
 6. The UPS classification shall be VFI-SS-111 per the criteria in IEC EN62040-3.
 7. The UPS shall comply with the Energy Star program requirements for Uninterruptible Power Supplies (UPSs) – eligibility criteria, version 2.0.
 8. The UPS and matching Battery Cabinets shall be seismically certified in accordance with the 2015 International Building Code (IBC), 2016 California Building Code (CBC), and American Society of Civil Engineers (ASCE) Minimum Design Loads, with seismic performance of $S_d=1.93$, $I_p=1.5$ and $z/h=1.0$. Optional seismic brackets shall be available from the UPS manufacturer for use in compliance with this certification.

1.03 SYSTEM DESCRIPTION

- A. Design Requirements
1. The UPS shall be sized to provide a minimum of 70kW output (unity load power factor rating)
 2. The UPS output capacity shall have the option to enable scalability at the time of ordering and shall be upgradeable by Vertiv Services.
 3. Models will be available in three frame sizes:
 - a. 100kVA frame – Scalable from 20kVA to 100kVA (20kVA hardware increments)
 4. The UPS shall have the option to configure the 10-180kVA system for N+1 internal redundancy at the time of order.
 5. The UPS shall be able to supply all required power to full rated output kVA loads with power factor from 0.5 lagging to 0.9 leading. The UPS shall also work from unity power factor to 0.5 leading power factors subject to derating.
 6. Load voltage and bypass line voltage shall be 208VAC, three-phase, four-wire plus ground. Input voltage shall be 208VAC, three-phase, four-wire plus ground. The AC input source and bypass input source shall each be a solidly grounded wye service.
 7. The rectifier AC input and bypass AC input may be fed from separate AC sources with the use of an optional Vertiv™ Liebert® EXM Dual Transformer Cabinet.
 8. The battery shall support the UPS at 100% rated kW load for at least 41 minutes at 77°F (25°C) at startup. Battery shall provide 79 minutes at 36 KW.
 9. The UPS shall have an active power factor-corrected IGBT converter/rectifier, capable of maintaining input power factor and input current total harmonic distortion (THDi) within specifications without an additional input filter.
 10. The UPS shall be of transformer-free design, requiring no internal transformer in the main power path for the basic operation of the module. Optional transformers in cabinets or otherwise external to the basic UPS module shall be permissible to provide isolation and/or voltage transformation.
- B. Modes of Operation
1. The UPS shall operate as an on-line reverse transfer system in the following modes:
 - a. Normal: The critical AC load shall be continuously powered by the UPS inverter. The rectifier/charger shall derive power from the utility AC source and supply DC power to the DC-DC converter, which in turn shall supply the inverter while simultaneously float charging the battery.
 - b. ECO Mode: The critical AC load shall be continuously powered by the bypass with the inverter available to power the load if the bypass source voltage or frequency exceeds adjustable parameters of power quality.
 - c. Battery: Upon failure of utility AC power, the critical load shall be powered by the inverter, which, without any switching, shall obtain its power from the battery plant via the DC-DC converter. There shall be no interruption in power to the critical load upon failure or restoration of the utility AC source.

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- d. Recharge: Upon restoration of the utility AC source, the rectifier shall supply power to the output inverter and to the DC-DC converter, which shall simultaneously recharge the batteries. This shall be an automatic function and shall cause no interruption to the critical load.
 - e. Bypass: If the UPS must be taken out of service, the static transfer switch shall transfer the load to the bypass source. The transfer process shall cause no interruption in power to the critical load.
 - f. Maintenance Bypass: An optional external wrap-around maintenance bypass shall be used to ensure full isolation of the unit for the service of internal components while providing safety from arc flash and in compliance with OSHA requirements.
 - g. Off-Battery: If the battery only is taken out of service, it shall be disconnected from the DC-DC converter by means of an external disconnect circuit breaker (in the case of external batteries). The UPS shall continue to function and meet all the specified steady-state performance criteria, except for the power outage backup time capability. If multiple battery strings are used, each string shall be capable of being electrically isolated for safety during maintenance.
- C. Performance Requirements
- 1. The solid-state power components, magnetics, electronic devices and overcurrent protection devices shall operate within the manufacturer's recommended temperature when the UPS is operating at 100% critical load and maintain battery charging under either of the following conditions:
 - a. Any altitude within the specified operating range up to 4922 ft. (1500m) elevation
 - b. Any ambient temperature within the specified operating range of 32°F to 104°F (0°C to 40°C)
- D. Input
- 1. Voltage: Input/output voltage specifications of the UPS shall be
 - 2. Rectifier AC Input: 208V, three-phase, four-wire-plus-ground
 - 3. Bypass AC Input: 208V, three-phase, four-wire-plus-ground
 - 4. AC Output: 208V, three-phase, four-wire-plus-ground
 - 5. Voltage Range: +20%, -15% at full load; -40% at half load
 - 6. Frequency Range: 40 - 70Hz
 - 7. Maximum Inrush Current: UPS inrush current not to exceed 1.5 times rated input current
 - 8. Input Current Walk-In: The UPS shall contain a controlled module walk-in to minimize inrush current upon auto-restart. The module walk-in is programmable for a 1 to 5 second delay.
 - 9. Power Factor: Minimum 0.99 at full load with nominal input voltage
 - 10. Current Distortion: Less than or equal to 5% input current THDi at full load input current in double-conversion mode (nominal input voltage, <1% input voltage THDv, and <1% input voltage imbalance)
 - 11. Surge Protection: Sustains input surges of 6kV without damage per criteria listed in IEEE C62.41, Category A, Level 3 and Category B, Level 3 and per IEC/EN/AS 61000-4-2, 3, 4, 5, 6 Category 2

12. Short Circuit Current Rating: Units shall carry as standard 65kA Short Circuit Withstand Rating. All ratings shall be certified and a label shall be applied to the unit clearly identifying this rating as required by the National Electrical Code.

E. AC Output

1. Load Rating: 100% of load rating at 104°F (40°C) for any load from 0.5 lagging to 0.9 leading
2. Voltage Regulation
 - a. ±1% RMS average for a balanced, three-phase load
 - b. ±5% for 100% unbalanced load for line-to-line imbalances
3. Voltage Adjustment Range: ±5% for line drop compensation adjustable by factory service personnel
4. Voltage Distortion: 1% total harmonic distortion (THD) maximum into a 100% linear load, 3% THD maximum into a 100% non-linear load with crest factor ratio of 3:1
5. Frequency Regulation: 50 or 60Hz, ±0.05% free running
6. Bypass Frequency Synchronization Range: ±0.5, 1.0, 2.0, 3.0 Hz, adjustable by factory service personnel, ±2.0 Hz default setting
7. Frequency Slew Rate: 0.1 to 3 Hz/sec, 0.6 Hz/sec default setting
8. System Efficiency (defined as output kW/input kW at rated lagging load power factor; and up to values listed below [select kVA rating for this specification]):

kVA Rating	Maximum Efficiency
10	90.3%
15	93.9%
20	94.4%
30	95.0%
40	95.3%
60	95.5%
80	95.6%
100	95.5%
120	95.4%
140	95.4%
160	95.3%
180	95.3%
200	95.6%

9. Phase Imbalance
 - a. Balanced loads: $120^\circ \pm 1^\circ$
 - b. 100% unbalanced loads: $120^\circ \pm 1.5^\circ$
10. Voltage Transients (average of all three phases)
 - a. 0-100% or 100-0%
 - b. Response: Meets ITIC and CBEMA Curve Requirements
 - c. Complies with IEC/EN 62040-3: 2010 Figure 2 Curve 1, Class 1
 - d. Transient Voltage Deviation, RMS 10%
 - e. Recovers within 60ms
11. Overload at Full Output Voltage with ±1% voltage regulation
 - a. 100% continuously

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- b. 105% - 110% of full load for 60 minutes (40°C) ambient
- c. 110% - 125% of full load for 10 minutes (40°C) ambient
- d. 125% - 150% of full load for 60 seconds (40°C) ambient
- e. >150% of full load for a minimum of 200 milliseconds (40°C) ambient

F. Grounding

- 1. The UPS chassis shall have an equipment ground terminal.

1.04 ENVIRONMENTAL CONDITIONS

A. The UPS shall be able to withstand the following environmental conditions without damage or degradation of operating characteristics:

- 1. Operating Ambient Temperature
 - a. UPS: 32°F to 104°F (0°C to 40°C) without derating
 - b. Battery: 77°F (25°C), ±5°F (±3°C)
- 2. Storage/Transport Ambient Temperature
 - a. -4°F to 158°F (-20°C to 70°C)
- 3. Relative Humidity
 - a. 0 to 95%, non-condensing
- 4. Altitude
 - a. Operating: To 4922 ft. (1500m) above Mean Sea Level without derating (compliant with IEC/EN 62040-3 at altitudes exceeding 1500m) Consult factory for derating above 4922 ft. (1500m) elevation.
 - b. Storage/Transport: To 50,000 ft. (15,000m) above Mean Sea Level
- 5. Audible Noise Level
 - a. 57.8 dBA measured 1 meter from all sides (40 kVA frame)
 - b. 63 dBA measured 1 meter from all sides (100 kVA frame)
 - c. 64 dBA measured 1 meter from all sides (200 kVA frame)

1.05 SUBMITTALS

A. Proposal Submittals

- 1. Submittals with the proposal shall include:
 - a. Descriptions of equipment to be furnished, including deviations from these specifications.
 - b. Document stating compliance with FCC requirements.
 - c. Document stating listing to UL, including edition used for listing.
 - d. Document showing compliance with required SCCR and labeling.
 - e. System configuration with single-line diagrams.
 - f. Detailed layouts of customer power and control connections.
 - g. Functional relationship of equipment, including weights, dimensions and heat dissipation.
 - h. Information to allow distribution system coordination.
 - i. Size and weight of shipping units to be handled by contractor.

B. Order Submittals

- 1. Submittals supplied at time of order shall include:
 - a. All the documentation presented with the proposal, per above section.
 - b. Detailed installation drawings including all terminal locations.

- c. Interconnect wiring diagrams showing conduit wiring with terminal numbers for each wire.

C. UPS Delivery Submittals

- 1. Submittals upon UPS delivery shall include:
 - a. A complete set of submittal drawings.
 - b. Two (2) sets of instruction manuals. Manuals shall include a functional description of the equipment, safety precautions, instructions, step-by-step operating procedures and routine maintenance guidelines, including illustrations.

1.06 WARRANTY

A. UPS Warranty

- 1. The UPS manufacturer shall warrant the unit against defects in workmanship and materials for 12 months after initial startup or 18 months after the shipping date, whichever comes first.

B. Warranty – End User

- 1. Warranties associated with items not manufactured by the UPS supplier but included as part of the system shall be passed through to the end user.

1.07 QUALITY ASSURANCE

A. Manufacturer's Qualifications

- 1. A minimum of 20 years' experience in the design, manufacture and testing of solid-state UPS systems shall be required.
- 2. The quality system for the engineering and manufacturing facility shall be certified to conform to Quality System Standard ISO 9001 for the design and manufacture of power protection systems for computers and other sensitive electronics.

B. Factory Testing

- 1. Before shipment, the manufacturer shall fully and completely test the UPS unit to ensure compliance with the specification.
- 2. The UPS unit shall be tested at the system-specified capacity. Testing shall be done using load banks at part-load and the full kW rating of the unit.
- 3. Operational discharge and recharge tests to ensure guaranteed rated performance.
- 4. System operations such as startup, shutdown and transfers shall be demonstrated.
- 5. A certified copy of the test results shall be available for each system as indicated on the order.

PART 2 – PRODUCT

2.01 FABRICATION

A. Materials

- 1. All materials of the UPS shall be new, of current manufacture, high grade and shall not have been in prior service except as required during factory testing. All active electronic devices shall be solid-state. All power semiconductors shall be sealed. Control logic and fuses shall be physically isolated from power train components to ensure operator safety and protection from heat. All circuit boards shall be

conformal coated. All bus bars shall be copper and plated.

- B. UPS Internal Wiring
 - 1. Wiring practices, materials and coding shall be in accordance with the requirements of the National Electrical Code, OSHA and applicable local codes and standards. All bolted connections of busbars, lugs and cables shall be in accordance with requirements of the National Electrical Code and other applicable standards. All electrical power connections shall be torqued to the required value and marked with a visual indicator.
- C. Field Wiring
 - 1. All field wiring power connections shall be tin-plated copper busbars for connection integrity. Busbars shall have adequate space to allow two-hole, long-barrel, compression type lugs forming a permanent connection between field wiring and field-installed lugs.
 - 2. Provisions shall be made in the cabinets to permit installation of input, output and external control cabling using raceway or conduit. Provision shall be made for top and bottom access to input, output, bypass and DC connections. In conformance with the NEC, connection cabinets shall provide for adequate wire bend radius.
- D. Construction and Mounting
 - 1. The UPS shall be in NEMA Type 1 enclosures (IEC 60529 IP20), designed for floor mounting. The UPS shall be structurally adequate and have provisions for hoisting, jacking and forklift handling. Maximum cabinet height shall be 78.7 in. (2000mm).
 - 2. The UPS shall be NEMA Type 1-compliant, with front doors open to enable safe change of air filters without the need for shutdown.
- E. Cooling
 - 1. Adequate ventilation shall be provided to ensure that all components are operated well within temperature ratings.
 - 2. Temperature sensors shall be provided to monitor the UPS's internal temperature. Upon detection of temperatures in excess of the manufacturer's recommendations, the sensors shall cause audible alarms to be sounded and visual alarms to be displayed on the UPS control panel. Air filters shall be located at the point of air inlet and shall be changeable. No service clearance or ventilation shall be required in the rear of the system.

2.02 EQUIPMENT

- A. UPS System
 - 1. The UPS system shall consist of an IGBT power factor-corrected rectifier, DC-DC converter and three-phase, transformer-free inverter, bypass static transfer switch, bypass synchronizing circuitry, protective devices and accessories as specified. The specified system shall also include a battery disconnect breaker and battery system.
- B. Surge Protection
 - 1. The UPS shall have built-in protection against surges, sags and overcurrent from the AC source. The protection shall meet the requirements of ANSI C62.41 A3 and B3 including:

- a. 6kV, 100kHz ring wave, line-to-line, line-to-neutral, line-to-ground and neutral-to-ground
- b. 6kV, combined wave, line-to-line, line-to-neutral, line-to-ground and neutral-to-ground

C. Output Protection

- 1. The UPS shall be protected against sudden changes in output load and short circuits at the output terminals. The UPS shall have built-in protection against permanent damage to itself and the connected load for all predictable types of malfunctions. Fast-acting, current-limiting devices shall be used to protect against cascading failure of solid-state devices. Internal UPS malfunctions shall cause the module to trip off-line with minimum damage to the module and provide maximum information to maintenance personnel regarding the reason for tripping off-line. The load shall be automatically transferred to the bypass line uninterrupted for an internal UPS malfunction. The status of protective devices shall be indicated on a graphic display screen on the front of the unit.

2.03 COMPONENTS

A. Rectifier

- 1. The term rectifier shall denote the solid-state equipment and controls necessary to convert alternating current to regulated direct current to supply the inverter and charge the battery. The DC output of the rectifier shall meet the input requirements of the inverter without the battery being connected.
- 2. Input Current Harmonic Distortion: The rectifier shall actively control and reduce input current distortion over the full operating range of the UPS without the need for an additional passive input filter. Input current THD shall be less than 5% at rated load and nominal voltage in double-conversion mode.
- 3. Dynamic Current Input Limit Reduction: The rectifier, in conjunction with the other UPS controls and circuitry, shall adjust the current demanded for battery charging as a function of UPS wattage load and input voltage level.

B. DC-DC Converter

- 1. The term DC-DC converter shall denote the equipment and controls to regulate the output of the rectifier to the levels appropriate for charging the battery and to boost the battery voltage to the level required to operate the inverter. The DC-DC converter shall be solid-state, capable of providing rated output power and, for increased performance, shall be a pulse width-modulated design and shall utilize insulated gate bipolar transistors (IGBTs). The DC-DC converter shall control charging of the battery. The AC ripple voltage of the charger DC shall not exceed 1% RMS of the float voltage.
- 2. Battery Equalize Charge: A manually initiated equalize charge feature shall be provided to apply an equalize voltage to the battery. The duration of equalize charge time shall be adjustable from 8 to 30 hours. A method shall be available to deactivate this feature for valve regulated battery systems.
- 3. Stop Battery Charging Function: Battery charging may be stopped by a shunt trip of the battery cabinet breaker when overtemperature is

sensed in the battery cabinet, on generator or when environmental contact is closed.

4. Overvoltage Protection: There shall be DC overvoltage protection so that if the DC voltage rises to the pre-set limit, the UPS shall shut down automatically and initiate an uninterrupted load transfer to bypass or shall disconnect the battery via the DC breaker(s) in the battery string.
5. Temperature-Compensated Charging: The UPS shall adjust the battery charging voltage based on the battery temperature reported from external battery temperature sensors. When multiple sensors are used, the voltage shall be based on the average temperature measured. Excessive difference in the temperature measurements shall be reported and the charging voltage adjusted to protect the batteries from excessive current.
6. Battery Load Testing: The UPS shall be capable of performing battery load testing under operator supervision. To accomplish this, the rectifier shall reduce charging voltage to force the batteries to carry the load for a short time. If the curve of battery voltage drop indicates diminished battery capacity, the UPS shall display an alarm message. If the voltage drop indicates battery failure, the UPS shall terminate the test immediately and annunciate the appropriate alarms.

C. Inverter

1. The term inverter shall denote the equipment and controls to convert direct current from the rectifier or battery via the DC-DC converter to precise alternating current to power the load. The inverter shall be solid-state, capable of providing rated output power and, for increased performance, the inverter shall be a pulse-width-modulated design and shall utilize insulated gate bipolar transistors (IGBTs). To further enhance reliable performance and efficiency, the inverter shall not require an inverter output series static switch/isolator for the purposes of overload or fault isolation or transfers to bypass.
2. Overload Capability: The inverter shall be able to withstand an overload across its output terminals while supplying full rated voltage of up to 150% for 60 seconds. The inverter shall be capable of at least 200% current for short-circuit conditions including phase-to-phase, phase-to-ground and three-phase faults. After the fault is removed, the UPS shall return to normal operation without damage. If the short circuit is sustained, the load shall be transferred to the bypass source and the inverter shall disconnect automatically from the critical load bus.
3. Output Frequency: The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall hold the inverter output frequency to $\pm 0.05\%$ for steady state and transient conditions. The inverter shall track the bypass continuously, providing the bypass source maintains a frequency within the user-selected synchronization range. If the bypass source fails to remain within the selected range, the inverter shall revert to the internal oscillator.
4. Phase-to-Phase Balance: The inverter shall provide a phase-to-phase voltage displacement of no worse than $\pm 1.5\%$ with a 100% unbalanced load.
5. Inverter Fault Sensing and Isolation: The UPS shall be provided with a means to detect a malfunctioning inverter and isolate it from the

critical load bus to prevent disturbance of the critical load voltage beyond the specified limits.

6. Battery Protection: The inverter shall be provided with monitoring and control circuits to protect the battery system from damage due to excessive discharge. Inverter shutdown shall be initiated when the battery voltage has reached the end of discharge voltage. The battery end-of-discharge voltage shall be calculated and automatically adjusted for partial load conditions to allow extended operation without damaging the battery. Automatic shutdown based on discharge time shall not be acceptable.

D. Inverter Bypass Operation

1. When maintenance is required or when the inverter cannot maintain voltage to the load due to sustained overload or malfunction, a bypass circuit shall be provided to isolate the inverter output from the load and provide a path for power directly from an alternate AC (bypass) source. The UPS control system shall constantly monitor the availability of the inverter bypass circuit to perform a transfer. The inverter bypass circuit shall consist of a continuous duty bypass static switch and an overcurrent protection device to isolate the static bypass switch from the bypass utility source. The bypass static switch shall denote the solid-state device incorporating SCRs (silicon controlled rectifiers) that can automatically and instantaneously connect the alternate AC source to the load.
2. Static Bypass Switch Rating: The static bypass switch shall be rated for continuous duty operation at full rated load for highest reliability without the use of mechanical devices, such as those used with a momentary rated device.
3. Manual Load Transfers: A manual load transfer between the inverter output and the alternate AC source shall be initiated from the control panel. Manually initiated transfers shall be make-before-break, utilizing the inverter and the bypass static switch.
4. Automatic Load Transfers: An automatic load transfer between the inverter output and the alternate AC source shall be initiated if an overload condition is sustained for a period in excess of the inverter output capability or due to a malfunction that would affect the output voltage. Transfers caused by overloads shall initiate an automatic retransfer of the load to the inverter only after the load has returned to a level within the rating of the inverter source and the alarm has been acknowledged.
5. Back-Feed Protection: As required by UL1778 and CSA, the static transfer switch shall not back-feed UPS power to the bypass distribution system while the UPS is operating on battery during a bypass power outage. The purpose of this requirement is to prevent the risk of electrical shock on the distribution system when the normal source of power is disconnected or has failed. If a shorted SCR is detected, the static transfer switch shall be isolated by an internal circuit breaker in the matching maintenance bypass cabinet or by an external circuit breaker in the customer's feeder panel and an alarm message shall be annunciated at the UPS control panel. The load shall remain on conditioned and protected power after detection of a shorted SCR and isolation of the bypass static switch.
6. Active ECO-Mode: When selected, this mode of operation shall

transfer the load to the bypass source and maintain it there as long as the bypass source frequency, slew rate and voltage are within the adjusted operating parameters. While in this mode, the inverter shall remain operating to be able to instantaneously assume the load without interrupting the output voltage. Should the bypass source go outside the adjusted limits, the bypass static switch shall turn Off, isolating the load from the bypass while the inverter assumes the full critical load. The load shall be transferred from the bypass source to the inverter while maintaining the output voltage within the ITIC and CBEMA curves.

E. Display and Controls

1. UPS Control Panel: The UPS shall be provided with a microprocessor-based control panel for operator interface (may also be referred to as User Interface, or UI) to configure and monitor the UPS. The control panel shall be located on the front of the unit where it can be operated without opening the hinged front door. A backlit, menu-driven, full-graphics, color touchscreen liquid crystal display shall be used to enter setpoints for the battery test (duration and end voltage), display system information, metering information, a one-line diagram of the UPS and battery, active events, event history, startup instructions and transfer and shutdown screens.

No mechanical push buttons shall be used.

2. Logic: UPS system logic and control programming shall reside in a microprocessor-based control system with nonvolatile flash memory. Rectifier, inverter and system control logic shall utilize high-speed digital signal processors (DSPs). CANbus shall be used to communicate between the logic and the User Interface as well as the options. Switches, contacts and relays shall be used only to signal the logic system as to the status of mechanical devices or to signal user control inputs. Customer external signals shall be isolated from the UPS logic by relays or optical isolation.
3. Metered Values: A microprocessor shall control the display and memory functions of the monitoring system. All three phases of three-phase parameters shall be displayed simultaneously. All voltage and current parameters shall be monitored using true RMS measurements for accuracy to $\pm 3\%$ of voltage, $\pm 5\%$ AC current. The following parameters shall be displayed:
 - a. Input voltage, line-to-line
 - b. Input current per phase
 - c. Input frequency
 - d. Input apparent power (kVA)
 - e. Battery voltage
 - f. Battery charging/discharging current
 - g. Output voltage, line-to-line
 - h. Output frequency
 - i. Bypass input voltage, line-to-line
 - j. Bypass input frequency
 - k. Load current
 - l. Load real power (kW), total and percentage
 - m. Load apparent power (kVA), total and percentage
 - n. Load percentage of capacity
 - o. Battery temperature, each battery string

- p. Battery state of charge
- 4. Power Flow Indications: A power flow diagram shall graphically depict whether the load is being supplied from the inverter, bypass or battery and shall provide, on the same screen, the status of the following components:
 - a. AC Input Circuit Breaker (optional)
 - b. Battery Circuit Breaker, each breaker connection of complete battery complement, complete disconnection and partial connection (one or more, but not all breakers open.)
 - c. Maintenance Bypass Status
- 5. Main Display Screen—The following UPS status messages shall be displayed:
 - a. Rectifier (Off / Soft Start / Main Input On / Battery Input On)
 - b. Input Supply (Normal Mode / Battery Mode / All Off)
 - c. Battery Self Test (True / False)
 - d. Input Disconnect (Open / Closed)
 - e. EPO (True / False)
 - f. Charger (On / Off)
 - g. Output Disconnect (Open / Closed)
 - h. Maint. Disconnect (Open / Closed)
 - i. Bypass Disconnect (Open / Closed)
 - j. Inverter (Off / Soft Start / On)
 - k. Bypass (Normal / Unable To Trace / Abnormal)
 - l. Output Supply (All Off / Bypass Mode / Inverter Mode / Output Disable)
 - m. Inverter On (Enable / Disable)
- 6. HMI Control Buttons: Buttons shall be provided to start and stop the inverter. A pop-up message requesting confirmation shall be displayed whenever a command is initiated that would change the status of the UPS.
 - a. Other buttons shall be provided to reset faults and silence the alarm buzzer.
- 7. Event Log: This menu item shall display the list of events that have occurred recently while the UPS was in operation. The Event Log shall store up to 2048 events, with the oldest events being overwritten first if the log's capacity is reached.
- 8. Battery Status Indicator: A battery status indicator shall display DC alarm conditions, temperature, battery state of charge, the present battery voltage, total discharge time, status of last battery test and battery time remaining during discharge.
- 9. The UPS shall provide the operator with controls to perform the following functions:
 - a. Configure and manage manual battery test
 - b. Modify test duration and minimum voltage
 - c. Start battery test
 - d. Monitor test status and progression
 - e. Stop battery test
 - f. Battery test status
- 10. Alarms—The following alarm messages shall be displayed:
 - a. Mains Voltage Abnormal
 - b. Mains Undervoltage
 - c. Mains Freq. Abnormal

- d. Charger Fault
 - e. Battery Reversed
 - f. No Battery
 - g. Parallel Comm. Fail
 - h. Bypass Unable To Track
 - i. Bypass Abnormal
 - j. Inverter Asynchronous
 - k. Fan Fault
 - l. Control Power Fail
 - m. Unit Overload
 - n. System Overload
 - o. Bypass Phase Reversed
 - p. Transfer Time-Out
 - q. Load Sharing Fault
 - r. Bypass Over Current.
11. Controls—System-level control functions shall be:
- a. Start Inverter (and transfer to inverter)
 - b. Stop Inverter (after transferring to bypass)
 - c. Startup Screen
 - d. Battery Test Setpoint Adjustment
 - e. Configure Manual Battery Test
 - f. Initiate Manual Battery Test
 - g. System Settings (Time, Date, Language, LCD Brightness, Password, Audio Level)
 - h. Alarm Silence Command
 - i. Fault Reset Command
 - j. ECO mode
12. Manual Procedures: Load Transfers: HMI buttons (START INVERTER, STOP INVERTER) shall provide the means for the user to transfer the load to bypass and back on UPS.
- F. Self-Diagnostics
- 1. Event Log File - The control system shall maintain a log of the event conditions that have occurred during system operation. Each log shall contain the event name, event time/date stamp and a set/clear indicator.
- G. Remote Monitoring and Integration Capabilities
- 1. Vertiv™ LIFE™ Services: The UPS manufacturer shall provide as an option LIFE™ services, which provides 24x7 continuous monitoring of events and parametric data, event and data analysis reports and dispatch of factory-trained field service personnel. The UPS shall be able to initiate periodic and critical event-driven communication with a remote service center to transfer event and parametric data for analysis and action. The remote service center shall be staffed with factory-trained service personnel who are capable of receiving, analyzing and interpreting the communicated events and data. The remote service center personnel shall also be capable of dispatching factory-trained field service personnel to the location of the UPS.
 - 2. Communication Cards: The UPS can be equipped with up to three optional communication card(s) including:
 - a. Optional Vertiv™ Liebert® IntelliSlot IS-UNITY-DP card providing Web-based UPS monitoring and management

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capabilities, Liebert® LIFE™ Services delivery and two of the following third-party open protocols:

- b. SNMP protocols (v1, v2, v3) with IPv4 or IPv6
- c. Modbus RTU or Modbus TCP
- d. BACnet MSTP or BACnet IP

Note: Modbus RTU and BACnet MSTP cannot both be enabled simultaneously.

- e. Up to 10 external environmental sensors can be monitored
 - 1) Temperature
 - 2) Humidity
 - 3) Leak Detection
 - 4) Contact Inputs
 - f. Optional Vertiv™ Liebert® SiteScan™ Interface card to interface with Liebert® SiteScan™ Web software.
 - g. Optional Vertiv™ Liebert® IntelliSlot Unity SNMP card providing Web-based UPS monitoring and management capabilities for SNMP protocols (v1, v2, v3) with IPv4 or IPv6
 - h. Liebert® IntelliSlot Unity, Vertiv™ LIFE™ card included to enable Vertiv™ LIFE™ Services when the optional Liebert® IntelliSlot Unity card is not purchased.
3. Output Alarm Contacts: Dry contact outputs shall be provided for Summary Alarm, Bypass Active, Low Battery and AC Input Failure.
4. Customer Input Contacts: The UPS shall have four discrete input contacts available for the input and display of customer-provided alarm points or to initiate a pre-assigned UPS operation. Each input can be signaled by an isolated, external, normally open contact.
5. When an assembly is selected as a pre-assigned UPS operation, the following actions shall be initiated:
- a. On Generator—Provides selectable choices to enable or disable battery charging, and enable or disable ECO Mode operation while on generator.
 - b. Transfer to Bypass—Manual command to transfer from inverter operation to static bypass operation.
 - c. Fast Power Off—Emergency Module Off (EPO) command to stop UPS operation.
 - d. Acknowledge Fault—Acknowledge a UPS alarm condition and present faults will be reset.
 - e. Bypass/Inverter Off—Emergency Power Off (EPO) command to stop UPS operation.
 - f. External Maintenance Bypass Breaker (MBB) status (open or closed)

H. Battery Disconnect Breaker REQUIRED

- 1. The battery cabinet shall have a properly rated circuit breaker (600VDC) to isolate it from the Vertiv™ Liebert® EXM UPS. This breaker shall be in a separate NEMA-1 enclosure or in a matching battery cabinet. When this breaker is open, there shall be no battery voltage in the UPS enclosure. The UPS shall be automatically disconnected from the battery by a shunt trip of the battery cabinet breaker when signaled by other control functions.

I. Maintenance Bypass Cabinet REQUIRED

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1. The UPS system shall incorporate a matching cabinet to house a wraparound maintenance bypass with the following features:
 - a. 2, 3, or 4 breakers for complete electrical isolation of the UPS with system voltage of 208/120VAC, 4W+Gnd input/output only, no integral output distribution
 - b. 3 breakers for complete electrical isolation of the UPS with system voltage: (select only one)
 - 1) 208/120 VAC, 4W+Gnd input/output
 - 2) 480 VAC, 3W+Gnd input; 208/120 VAC 4W+Gnd output
 - 3) 600 VAC, 3W+Gnd input; 208/120 VAC 4W+Gnd output
 - c. Integral Distribution (select only one)
 - 1) No integral distribution
 - 2) (1) 225A 54 pole panelboard (40 kVA frame systems only)
 - 3) (1) 225A 54 pole panelboard with monitoring (40 kVA frame systems only)
 - 4) (2) 225A Subfeed breakers (100 & 200 kVA frame systems only)
 - 5) (2) 225A Subfeed breakers with Vertiv™ Liebert® LDMF monitoring (100 and 200 kVA frame systems only)
 - 6) (1) 400A 54 pole panelboard (100 & 200 kVA frame systems only)
 - 7) (1) 400A 54 pole panelboard with monitoring (100 & 200 kVA frame systems only)
 - d. Optional Kirk Key Interlock interface with Solenoid Key Release Unit (SKRU)

- J. Valve-regulated, Lead-acid Battery REQUIRED
 1. The UPS system shall be provided with a valve-regulated, lead acid battery plant.
 2. The battery shall be fully charged per the manufacturer's instructions during startup and shall demonstrate the specified operating time.

- K. Matching Battery Cabinet REQUIRED
 1. The battery cabinet shall consist of sealed, valve-regulated batteries, a circuit breaker for isolating the battery from the UPS and a control interface to the UPS module.
 2. The circuit breaker shall be sized to allow discharge at the maximum published rating of the battery. The interface to the UPS module shall provide status and thermal data to allow the UPS to regulate the charging voltage and inhibit the conditions associated with battery thermal runaway. If the temperature measurement in a battery cabinet indicates that thermal runaway is occurring, then the UPS controls shall isolate the cabinet from the charger by tripping the battery breaker in that cabinet while leaving the other battery cabinets connected to allow UPS operation during a loss of power to the rectifier.
 3. The battery cabinet shall be rated NEMA 1, matching the UPS style and design.

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- a. Battery Cabinets Connected Directly to the UPS: The manufacturer shall provide all power and control parts necessary to connect the UPS to the battery cabinets.
 - b. Battery Cabinets Separated from the UPS: The manufacturer shall provide all power and control parts necessary to interconnect the battery cabinets. The installer shall provide all cabling necessary to interconnect the UPS and the battery cabinets.
6. Both overhead and under-floor site installed cabling shall be accommodated. Cable installation shall not require removal of batteries or any other battery cabinet assemblies.
 7. The battery system shall be sized to support a 60 kW load for 41 minutes. The battery system shall provide 100% initial capacity upon delivery.
 8. The battery shall be lead-calcium, sealed, valve-regulated type with a three (3) -year full warranty and a seven (7) -year pro rata warranty under full float operation. The battery design shall utilize absorbent glass mat (AGM) technology to immobilize the electrolyte.

PART 3 - EXECUTION**3.01 STORED ENERGY SYSTEMS**

- A. The UPS system shall be provided with a stored energy system that shall comply with the specifications of:
 1. Flooded-Cell Battery System,
 2. Valve-Regulated, Lead-Acid Battery System,
- B. Specifications describing the requirements for the customer-specified stored energy system are contained in SL-25418GS, available at Vertiv's Web site.

3.02 FIELD QUALITY CONTROL

- A. The following inspections and test procedures shall be performed by factory-trained field service personnel during the UPS startup.
 1. Visual Inspection
 - a. Inspect equipment for signs of damage.
 - b. Verify installation per drawings supplied with installation manuals or submittal package.
 - c. Inspect cabinets for foreign objects.
 - d. Verify that neutral and ground conductors are properly sized and configured per Vertiv requirements as noted in Vertiv drawings supplied with installation manuals or submittal package.
 - e. Inspect each battery jar for proper polarity.
 - f. Verify that all printed circuit boards are configured properly.
 2. Mechanical Inspection
 - a. Check all control wiring connections for tightness.
 - b. Check all power wiring connections for tightness.
 - c. Check all terminal screws, nuts and/or spade lugs for tightness.
 3. Electrical Inspection
 - a. Check all fuses for continuity.
 - b. Confirm input and bypass voltage and phase rotation are correct.

- c. Verify control transformer connections are correct for voltages being used.
- d. Ensure connection and voltage of the battery string(s).

3.03 UNIT STARTUP

- A. Energize control power.
- B. Perform control/logic checks and adjust to meet Vertiv specification.
- C. Verify DC float and equalize voltage levels.
- D. Verify DC voltage clamp and overvoltage shutdown levels.
- E. Verify battery discharge, low battery warning and low battery shutdown levels.
- F. Verify fuse monitor alarms and system shutdown.
- G. Verify inverter voltages and regulation circuits.
- H. Verify inverter/bypass sync circuits and set overlap time.
- I. Perform manual transfers and returns.
- J. Simulate utility outage at no load.
- K. Verify proper recharge.

3.04 MANUFACTURER'S FIELD SERVICE

- A. Service Personnel: The UPS manufacturer shall directly employ a nationwide service organization, consisting of factory-trained field service personnel dedicated to the startup and maintenance of UPS and power equipment.
- B. The manufacturer shall provide a national dispatch center to coordinate field service personnel schedules. One toll-free number shall reach a qualified support person 24 hours a day, 7 days a week and 365 days a year. If emergency service is required, on-site response time shall be 4 hours or less within 150 miles of a Vertiv Services center.
- C. Two local customer engineers shall be assigned to the site with a regional office as a backup. Escalation procedures shall be in place to notify Power Technical Support if a site is not functioning within 24 hours.
- D. Automated Site Monitoring: The UPS manufacturer shall provide as an option an automated site monitoring service. This service shall be staffed by a qualified support person 24 hours a day, 7 days a week and 365 days a year. At the detection of an alarm within the UPS, the controls shall initiate communication with the monitoring service. The monitoring service shall be capable of interpreting the communicated alarms to allow dispatch of a service engineer.
- E. Replacement Parts Stocking: Parts shall be available through an extensive network to ensure round-the-clock parts availability throughout the country.
- F. Spare parts shall be stocked by local field service personnel with backup available from national parts centers and the manufacturing location. A Customer Support Parts Coordinator shall be on call 24 hours a day, 7 days a week, 365 days a year for immediate parts availability.

- G. Maintenance Contracts: A complete offering of preventive and full-service maintenance contracts for both the UPS system and battery system shall be available.

END OF SECTION 16265

SECTION 16400 - SERVICE AND DISTRIBUTION**PART 1 - GENERAL**

1.01 SYSTEM VOLTAGE

- A. The building service is 208Y/120V 3 Phase 4 Wire

1.02 TERMINATIONS

- A. All wiring shall be sized based on 75°C rated conductors. All connectors shall be rated for 75°C in accordance with N.E.C. Article 110-14 requirements.

PART 2 - PRODUCTS

2.01 SAFETY SWITCHES

- A. Furnish and install safety switches as shown on the Drawings. All switches shall be fused NEMA Heavy Duty Type HD and Underwriter's Laboratories listed. All switches shall have blades that are fully visible in the "OFF" position with the door open. Switches shall be dead-front construction with permanently attached arc suppressers. Lugs shall be UL listed for copper and aluminum conductor and front removable. All current carrying parts shall be plated to resist corrosion. Switches shall be quick-make, quick-break type. During operation of the switch, the movable contacts shall not be able to be restrained by the handle once the closing or the opening action of the contacts has been initiated. Switches shall have cover interlocks to prevent opening of the switch door while the switch is in the "ON" position or closing the switch with the door open. Switch shall have padlocking capabilities in the "OFF" position.
- B. Safety switches shall be rated 600 volts for 480 volt service and rated 240 volts for 208 volt service. Switches shall be motor rated when used for motor loads. Switches shall be NEMA 1 enclosed for indoor applications and NEMA 3R for outdoor or wet area locations.
- C. Switches used for service entrance shall be service entrance rated. Safety switches shall be furnished complete with fuses.
- D. Approved Manufacturers:
1. Eaton
 2. Square D (Schneider Electric)
 3. ABB
 4. Siemens

2.02 FUSES

- A. All fuse holders shall be provided with dual-element, time-lag fuses as scheduled on the Drawings or as recommended by the equipment manufacturer. Fuses shall be rated 200,000 AIC. Fuses shall be Buss Fusetron, Economy Econ, or Gould Shawmut Tri-Onic for component protection and Buss Limitron, Economy Econolin, or Gould Shawmut Amp-Trap for circuit protection.

2.03 CIRCUIT BREAKER PANELBOARDS

- A. Panelboards shall be sized as shown on the drawings and schedules, and shall be the bolted breaker panelboard type. Panelboards shall have copper bussing. Panelboards shall have door-in-door trim.

- B. All branch breakers are to be quick-make, quick-break (over center toggle device) with trip indication and common trip on all multiple breakers. Trip indication shall be clearly shown by breaker handle taking a position between "ON" and "OFF" position. Breakers shall be ambient compensated to carry full NEC load in 120 degree F room temperature. Panelboards shall have distributed phase busing throughout. Any two adjacent single pole breakers shall be replaceable by a two pole breaker, and any three adjacent single pole breakers shall be replaceable by a three pole breaker.
- C. Minimum interrupting capacity of breakers shall be as shown on panel schedules. No breakers shall be rated less than 10,000 RMS symmetrical amperes.
- D. Branch breakers shall be numbered 1, 3, 5, etc. from top to bottom beginning at the top of the left hand column so that #1 shall be on phase A, #3 on phase B, and #5 on phase C.
- E. Panelboards shall include main circuit breakers where indicated on plans and in the following conditions regardless of designation on plan:
 - 1. Panelboard is served from a transformer (utility or otherwise.) and no overcurrent protective device exists between the transformer and the panelboard.
 - 2. Panelboard is served from a wireway and no overcurrent protective device exists between the wireway and the panelboard.
- F. Approved Manufacturers:
 - 1. Eaton
 - 2. Square D (Schneider Electric)
 - 3. ABB
 - 4. Siemens

2.04 DRY TYPE TRANSFORMERS

- A. Contractor shall install dry type transformer(s) in the size and at the location(s) as shown on the drawings. Transformers will be used to step down voltage from 480 volts to 120/208 volts. All transformers shall comply and must be tested in accordance with UL, NEMA and ANSI standards. Transformers shall be energy efficient and shall meet NEMA Standard TP-1 requirements.
- B. Transformers shall have the KVA ratings shown on the drawings. Transformers shall be three phase type rated for 480 volts primary and 120/208 volt secondary as shown on the drawings. Transformers shall be self-cooled. When transformer is delivering full KVA load continuously, temperature rise shall not exceed 150 degrees C above a 40 degree C ambient with 200 degrees C temperature class insulation system. The average sound level shall not exceed NEMA standards. Transformers shall have four external type taps, two 2-1/2% FCBN and two 2-1/2% FCAN. Windings shall be copper.
- C. Transformers rated larger than 112.5KVA shall be provided with Class 155 or higher insulation system and shall be completely enclosed except for ventilating openings. Transformers larger than 112.5KVA shall comply with NEC Article 450.21(B) Exception No. 2, to allow transformers to be installed inside non fire rated rooms.
- D. Transformers shall be floor mounted on isolation pads. Enclosure shall be heavy gauge steel with ventilation openings protected against falling dirt and drip, and shall be shielded against actual touching of live parts. A nameplate in

accordance with NEMA standards shall be permanently affixed to the enclosure.

- E. Approved Manufacturers:
1. Eaton
 2. Square D (Schneider Electric)
 3. ABB
 4. Siemens

2.05 HARMONIC MITIGATING, ISOLATION TRANSFORMERS FOR MEDIUM K-FACTOR LOADS:

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Power Quality International LLC, Type DV (ZS).
1. Configuration:
 - 1) Primary winding configurations shall be “Delta” in order to ensure the required zero-sequence reactance and impedance. (“Wye” connected primary windings shall NOT be used.)
 - 2) Secondary winding configurations shall be “Zig-Zag” (two windings per secondary core leg) for 0 degree phase shift HMTs and “Modified Zig-Zag” (three windings per secondary core leg) for all other phase shift HMTs in order to ensure that zero-sequence flux is completely cancelled under balanced zero-sequence loading.
 - 3) Neutral connection shall be rated at two times the ampacity of the secondary phase current.
 - 4) Capability to deliver full nameplate kVA with a load K-factor up to K30.
 2. Harmonic cancellation shall be by electromagnetic means only. No capacitors or electronics shall be used.
 3. Specifically designed to provide an ultra-low zero-sequence impedance (less than 0.9 percent) path for all zero-sequence currents (i.e. I3, I9, I15, I21,) in their three-phase, four-wire secondary windings regardless of phase shift.
- B. Enclosure: Ventilated, NEMA 250, Type 3R, Indoor (Standard) unless otherwise indicated on Drawings.
1. The front and back covers of the enclosure shall be securely fastened using zinc plated, hexavalent chromium free, captive stainless-steel inserts and hex-head bolts. The use of self-tapping screws to secure the front and back covers is not permitted.

PART 3 – EXECUTION

3.01 COORDINATION

- A. Contractor shall coordinate all service and distribution work with other crafts on the project.

3.02 TEST AND BALANCING

- A. At such times as the Architect directs, the Contractor shall conduct in the Architect's presence operating tests to demonstrate the electrical systems are installed and will operate properly and in accordance with the requirements of the specifications. The Contractor shall furnish instruments and personnel required for such tests. Any work that is found to be defective, or material that

are found to vary from the requirements of the drawings or specifications shall be replaced by the Contractor without additional cost of the Owner.

3.03 EMERGENCY CIRCUITS

- A. All wiring for emergency power and lighting circuits shall be run in conduits independent of all other circuits or conductors. Emergency circuit installations shall be made in accordance with National Electrical Code Article 700.9.

3.04 EQUIPMENT FUSING

- A. All equipment shall be furnished complete with fuses as described herein and/or as shown on the Drawings. Contractor shall furnish one set of spare fuses for each size fuse furnished on the project. Fuses shall be delivered to Owner prior to acceptance of project.
- B. Fusing for protective equipment shall be of the type specifically designed for the intended application. Fuses for service entrance rated equipment shall be Class L. Fuses for branch circuit protection shall be Class RK5 unless specified otherwise. Provide protective fuses as specifically required by the equipment manufacturer.

3.05 INSTALLATION

- A. The Electrical Contractor shall place a sign at the Main Switchboard indicating the type and location of the emergency generator in accordance with National Electrical Code Article 702.8(A) requirements.
- B. Disconnecting means shall be provided for each motor and motor controller, and shall be located within site from the controller and motor locations in accordance with National Electrical Code Article 430.102 requirements.

END OF SECTION 16400

SECTION 16410 - AUTOMATIC TRANSFER SWITCHES**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes transfer switches rated 600 V and less, including the following:
1. Automatic transfer switches
 2. Remote annunciation systems
- B. Related Sections include the following:

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
1. Technical data on all major components of all transfer switches and other products described in this section. Data is required for the transfer switch mechanism, control system, cabinet, and protective devices specifically listed for use with each transfer switch. Include steady state and fault current ratings, weights, operating characteristics, and furnished specialties and accessories.
 2. Single Line Diagram: Show connections between transfer switch, power sources and load.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
1. Dimensioned outline drawings of assembly, including elevations, sections, and details including minimal clearances, conductor entry provisions, gutter space, installed features and devices and material lists for each switch specified.
 2. Internal electrical wiring and control drawings.
 3. Interconnection wiring diagrams, showing recommended conduit runs and point-to-point terminal connections to generator set.
 4. Installation and mounting instructions, including information for proper installation of equipment to meet seismic requirements.
- C. Manufacturer and Supplier Qualification Data
1. The transfer switch manufacturer shall be certified to ISO 9001 International Quality Standard and shall have third party certification verifying quality assurance in design/development, production, installation, and service, in accordance with ISO 9001.
 2. The manufacturer of this equipment shall have produced similar equipment for a minimum period of 10 years. When requested, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- D. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

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1. Features and operating sequences, both automatic and manual.
 2. List of all factory settings of relays, timers and protective devices; provide setting and calibration instructions where applicable.
- E. Warranty documents demonstrating compliance with the project's contract requirements.

1.04 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** The equipment supplier shall maintain a service center capable of providing training, parts, maintenance and emergency repairs to equipment, including transfer switch generator sets and remote monitoring equipment (if applicable) at the site within a response period of less than (eight hours or appropriate time period designated for Project) from time of notification.
1. The transfer switch shall be serviced by technicians employed by, and specially trained and certified by, the generator set supplier and the supplier shall have a service organization that is factory-certified in both generator set and transfer switch service. The supplier shall maintain an inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.
 2. Submit names, experience level, training certifications, and locations for technicians that will be responsible for servicing equipment at this site.
 3. The manufacturer shall maintain model and serial number records of each transfer switch provided for at least 20 years.
- B. **Source Limitations:** All transfer switches are to be obtained through one source from a single manufacturer. The generator set manufacturer shall warrant transfer switches to provide a single source of responsibility for products provided.
- C. **Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked as suitable for use in emergency, legally required or optional standby use as appropriate for the connected load.
- D. The automatic transfer switch installation and application shall conform to the requirements of the following codes and standards:
1. Transfer switches and enclosures shall be UL 1008 listed and labeled as suitable for use in emergency, legally required, and optional standby applications.
 2. CSA 282, Emergency Electrical Power Supply for Buildings, and CSA C22.2, No. 14-M91 Industrial Control Equipment
 3. NFPA 70, National Electrical Code. Equipment shall be suitable for use in systems in compliance with Articles 700, 701 and 702.
 4. Comply with NEMA ICS 10-1993 AC Automatic Transfer Switches
 5. IEEE 446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
 6. EN55011, Class B Radiated Emissions and Class B Conducted Emissions
 7. IEC 1000-4-5 (EN 61000-4-5); AC Surge Immunity
 8. IEC 1000-4-4 (EN 61000-4-4) Fast Transients Immunity
 9. IEC 1000-4-2 (EN 61000-4-2) Electrostatic Discharge Immunity
 10. IEC 1000-4-3 (EN 61000-4-3) Radiated Field Immunity
 11. IEC 1000-4-6 Conducted Field Immunity

12. IEC 1000-4-11 Voltage Dip Immunity
 13. IEEE 62.41, AC Voltage Surge Immunity
 14. IEEE 62.45, AC Voltage Surge Testing
- E. Comply with NFPA 110 – Emergency and Standby Power Systems. The transfer switch shall meet all requirements for Level 1 systems, regardless of the actual circuit level.
 - F. The manufacturer shall warrant the material and workmanship of the transfer switch equipment for a minimum of five (5) year from the warranty start date. The warranty start date is the date of registered commissioning and start up or eighteen (18) months from date of shipment, whichever is sooner.
 - G. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, and etc. during the minimum noted warranty period described above.
- 1.05 PROJECT CONDITIONS
- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service:
 1. Do not energize any new service or distribution equipment without notification and permission of the Construction Manager
- 1.06 COORDINATION
- A. Size and location of concrete bases and anchor bolt inserts shall be coordinated. Concrete, reinforcement and formwork must meet the requirements specified in Division 03. See section "INSTALLATION" for additional information on installation

PART 2 - PRODUCTS

- 2.01 MANUFACTURERS
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Cummins Power Generation
 2. ASCO
 - B. Switches manufactured by other manufacturers that meet the requirement of this specification are acceptable, if approved not less than two weeks before scheduled bid date. Proposals must include a line-by-line compliance statement based on this specification.
 - C. Transfer switches utilizing molded case circuit breakers do not meet the requirements of this specification and will not be accepted.
- 2.02 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS
- A. Provide transfer switches in the number and ratings that are shown on the drawings.
 - B. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer.
 - C. Fault-Current Closing and Withstand Ratings: UL 1008 WCR ratings must be specifically listed as meeting the requirements for use with protective devices at installation locations, under specified fault conditions. Withstand and closing ratings shall be based on use of the same set of contacts for the withstand test and the closing test.

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- D. Solid-State Controls: All settings should be accurate to +/- 2% or better over an operating temperature range of - 40 to + 60 degrees C (- 40 to + 140 degrees F).
- E. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- F. Electrical Operation: Accomplished by a non-fused, momentarily energized solenoid or electric motor operator mechanism, mechanically and electrically interlocked in both directions (except that mechanical interlock is not required for closed transition switches).
- G. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Switches using molded-case switches or circuit breakers, or insulated case circuit breaker components are not acceptable.
 - 2. Transfer switches shall be double-throw, electrically and mechanically interlocked, and mechanically held in the Source 1 and Source 2 positions.
 - 3. Main switch contacts shall be high pressure silver alloy. Contact assemblies shall have arc chutes for positive arc extinguishing. Arc chutes shall have insulating covers to prevent inter-phase flashover.
 - 4. Contacts shall be operated by a high-speed electrical mechanism that causes contacts to open or close within three electrical cycles from signal.
 - 5. Transfer switch shall be provided with flame retardant transparent covers to allow viewing of switch contact operation but prevent direct contact with components that could be operating at line voltage levels.
 - 6. The transfer switch shall include the mechanical and control provisions necessary to allow the device to be field-configured for operating speed. Transfer switch operation with motor loads shall be as is recommended in NEMA MG1.
 - a. Phase angle monitoring/timing equipment is not an acceptable substitute for this functionality
 - 7. Transfer switches designated on the drawings as "4-pole" shall be provided with a switched neutral pole switched which is switched simultaneously with phase poles.
 - 8. Transfer switches designated on the drawings as "service entrance" switches shall meet the requirements of section "SERVICE ENTRANCE TRANSFER SWITCHES" of this specification.
- H. Control: Transfer switch control shall be capable of communicating with the genset control, other switches and remote programming devices over a high-speed network interface.
- I. Factory wiring: Transfer switch internal wiring shall be composed of pre-manufactured harnesses that are permanently marked for source and destination. Harnesses shall be connected to the control system by means of locking disconnect plug(s), to allow the control system to be easily disconnected and serviced without disconnecting power from the transfer switch mechanism
- J. Terminals: Terminals shall be pressure type and appropriate for all field wiring. Control wiring shall be equipped with suitable lugs, for connection to terminal strips.

- K. Enclosures: All enclosures shall be third-party certified for compliance to NEMA ICS 6 and UL 508, unless otherwise indicated:
1. The enclosure shall provide wire bend space in compliance to the latest version of NFPA70, regardless of the direction from which the conduit enters the enclosure.
 2. Exterior cabinet doors shall provide complete protection for the system's internal components. Doors must have permanently mounted key-type latches. Bolted covers or doors are not acceptable.
 3. Transfer switches shall be provided in enclosures that are third party certified for their intended environment per NEMA requirements.
 4. Indoor transfer switches shall be NEMA-1. Outdoor transfer switches shall be NEMA-3R.

2.03 AUTOMATIC TRANSFER SWITCHES

- A. Comply with requirements for Level 1 equipment according to NFPA 110.
- B. Indicated current ratings:
1. Refer to the Project drawings for specifications on the sizes and types of transfer switch equipment, withstand and closing ratings, number of poles, voltage and ampere ratings, enclosure type, and accessories.
 2. Main contacts shall be rated for 600 VAC minimum.
 3. Transfer switches shall be rated to carry 100% of rated current continuously in the enclosure supplied, in ambient temperatures of -40 to +60 degrees C (-40 to +140 degrees F), relative humidity up to 95% (non-condensing), and altitudes up to 10,000 feet (3000 meters).
- C. Relay Signal: Control shall include provisions for addition of a pre-transfer relay signal, adjustable from 0 to 60 seconds, to be provided if necessary for elevator operation, based on equipment provided for the project.
- D. Control: Transfer switch control shall be provided with necessary equipment and software to communicate with the genset control, other transfer switches, remote annunciation equipment, and other devices over a high speed control network.
- E. Neutral Switching: Transfer switches designated on the drawings as 4-pole shall be provided with a switched neutral pole. The neutral pole shall be of the same construction and have the same ratings as the phase poles. All poles shall be switched simultaneously using a common crossbar. Substitute equipment using overlapping neutral contacts is not acceptable.
- F. Automatic Transfer Switch Control Features
1. The transfer switch control system shall be configurable in the field for any operating voltage level up to 600 VAC. Voltage sensing shall be monitored based on the normal voltage at the site. Systems that utilize voltage monitoring based on standard voltage conditions that are not field configurable are not acceptable.
 2. All transfer switch sensing shall be configurable from an operator panel or from a Windows XP or later PC-based service tool. Designs utilizing DIP switches or other electromechanical devices are not acceptable.
 3. The transfer switch shall be configurable to accept a relay contact signal and a network signal from an external device for load shedding purposes. On receipt of this signal, the transfer switch

shall switch to a neutral position when connected to Source 2. If Source 1 is available when the load-shed signal is received, the transfer switch shall connect to Source 1.

4. The transfer switch shall be configurable to accept a relay contact signal and a network signal from an external device to prevent transfer to the generator service.
 5. The transfer switch shall provide a relay contact signal prior to transfer or re-transfer. The time period before and after transfer shall be adjustable in a range of 0 to 60 seconds.
 6. The control system shall be designed and prototype tested for operation in ambient temperatures from - 40 degrees C to + 60 degrees C (- 40 to +140 degrees F). It shall be designed and tested to comply with the requirements of the noted voltage and RFI/EMI standards.
 7. The control shall have optically isolated logic inputs, high isolation transformers for AC inputs and relays on all outputs, to provide optimum protection from line voltage surges, RFI and EMI.
 8. The transfer switch network monitoring equipment, when supplied, shall be provided with a battery-based auxiliary power supply to allow monitoring of the transfer switch when both AC power sources are non-operational.
- G. Transfer Switch Control Panel: The transfer switch shall have a microprocessor-based control with a sealed membrane panel incorporating pushbuttons for operator-controlled functions, and LED lamps for system status indicators. The panel shall also include an alphanumeric display for detailed system information. Panel display and indicating lamps shall include permanent labels.
1. The indicator panel LEDs shall display:
 - a. Which source the load is connected to (Source 1 or Source 2)
 - b. Which source or sources are available
 - c. When switch is not set for automatic operation, the control is disabled
 - d. When the switch is in test/exercise mode
 2. The indicator shall have pushbuttons that allow the operator to activate the following functions:
 - a. Activate pre-programmed test sequence
 - b. Override programmed delays, and immediately go to the next operation
 - c. Reset the control by clearing any faults
 - d. Test all of the LEDs by lighting them simultaneously
 3. The alphanumeric digital display shall be vacuum fluorescent-type, clearly visible in both bright sunlight and no-light conditions over an angle of 120 degrees, and shall display the following:
 - a. AC voltage for all phases, normal and emergency
 - b. Source status: connected or not connected.
 - c. Load data, including voltage, AC current, frequency, KW, KVA, and power factor.
 4. The display panel shall be password-protected, and allow the operator to view and make adjustments:
 - a. Set nominal voltage and frequency for the transfer switch
 - b. Adjust voltage and frequency sensor operation set points
 - c. Set up time clock functions
 - d. Set up load sequence functions
 - e. Enable or disable control functions including program transition

- f. View real-time clock data, operation log (hours connected, times transferred, failures) and service history
- H. Control Functions: Functions managed by the control shall include:
- 1. Software adjustable time delays:
 - a. Engine start (prevents nuisance genset starts in the event of momentary power fluctuation): 0 to 120 seconds (default 3 sec)
 - b. Transfer normal to emergency (allows genset to stabilize before load is transferred): 0 to 120 seconds (default 3 sec)
 - c. Re-transfer emergency to normal (allows utility to stabilize before load is transferred from genset): 0 to 30 minutes (default 3 sec)
 - d. Engine cooldown: 0 to 30 minutes (default 10 min)
 - e. Programmed transition: 0 to 60 seconds (default 3 sec)
 - 2. Voltage imbalance sensing:
 - a. Dropout: 2 to 10% (default 4%)
 - b. Pickup: 90% of dropout
 - c. Time delay: 2.0 to 20 seconds (default 5 sec)
 - d. Bar graph meter panel, to display 3-phase AC Amps, 3-phase AC Volts, Hz, KW load level, and load power factor. The display shall be color-coded, with green scale indicating normal or acceptable operating level, yellow indicating conditions nearing a fault, and red indicating operation in excess of rated conditions for the transfer switch.
 - 3. Phase rotation sensing:
 - a. Time delay: 100 msec
 - 4. Loss of single-phase detection:
 - a. Time delay: 100 msec
- I. Control features shall include:
- 1. Programmable genset exerciser: A field-programmable control shall periodically start and run the generator with or without transferring the load for a preset time period, then re-transfer and shut down the generator after a preset cool-down period.
 - 2. In event of a loss of power to the control, all control settings, real-time clock setting and the engine start-time delay setting will be retained.
 - 3. The system continuously logs information including the number of hours each source has been connected to the load, the number of times transferred, and the total number of times each source has failed. An event recorder stores information, including time and date-stamp, for up to 50 events.
 - 4. Re-Transfer Inhibit Switch: Inhibits automatic re-transfer control so automatic transfer switch will remain connected to emergency power source as long as it is available regardless of condition of normal source.
 - 5. Transfer Inhibit Switch: Inhibits automatic transfer control so automatic transfer switch will remain connected to normal power source regardless of condition of emergency source.
- J. Control Interface
- 1. Provide one set Form C auxiliary contacts on both sides, operated by transfer switch position, rated 10 amps 250 VAC.
 - 2. The transfer switch shall be provided with a network communication card, and configured to allow network-based

communication with the transfer switch and other network system components, including the generator set(s) provided for the Project.

3. Unassigned Auxiliary Contacts: Two normally open, 1-pole, double-throw contacts for each switch position, rated 10A at 240 VAC.

K. Engine Starting Contacts

1. One isolated and normally closed pair of contacts rated 10A at 32 VDC minimum.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- B. Floor-Mounting Switch: Anchor to floor by bolting.
 1. Floor-mounted transfer switches (except drawout switches supported by wheeled carriages, which must be rolled out at floor level) shall be mounted on concrete bases complying with the following requirements:
 - a. Concrete Bases: 4 inches (100 mm) high, reinforced, with chamfered edges. Extend base no more than 4 inches (100 mm) in all directions beyond the maximum dimensions of switch, unless otherwise indicated or unless required for seismic support. Construct concrete bases according to Division 26 Section "Hangers and Supports for Electrical Systems." Where Section "Hangers and supports for Electrical Systems." Is not included in the spec book refer to Division 26 Section "Basic Electrical Requirements".
- C. Annunciator Panel Mounting: Flush in wall, unless otherwise indicated.
- D. Identify components according to Division 26 Section "Identification for Electrical Systems." Where section "Identification for Electrical Systems" is not included in the spec book refer to Division 26 section "Basic Electrical Requirements"
- E. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.02 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Field control connections shall be made on a common terminal block that is clearly and permanently labeled.
- C. Transfer switch shall be provided with AL/CU mechanical lugs sized to accept the full output rating of the switch. Lugs shall be suitable for the number and size of conductors shown on the drawings.
- D. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems." Where section "Grounding and Bonding for Electrical Systems" is not included in the spec book refer to Division 26 section "Basic Electrical Requirements"

- E. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables." Where section "Grounding and Bonding for Electrical Systems" is not included in the spec book refer to Division 26 section "Basic Electrical Requirements"

3.03 SOURCE QUALITY CONTROL

- A. Prior to shipping, factory shall test and inspect components, assembled switches, and associated equipment to ensure proper operation.
- B. Factory shall check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements.
- C. Factory shall perform dielectric strength test complying with NEMA ICS 1.

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: The supplier of the transfer switch(es) and associated equipment shall inspect, test, and adjust components, assemblies, and equipment installations, including connections, and report results in writing.
- B. Manufacturer's representative shall perform tests and inspections and prepare test reports.
- C. After installing equipment and after electrical circuitry has been energized, installer shall test for compliance with requirements.
 1. Perform recommended installation tests as recommended in manufacturer's installation and service manuals.
 2. After energizing circuits, demonstrate interlocking sequence and operational function for each switch.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Verify time-delay settings.
 - c. Verify that the transfer switch is accurately metering AC voltage and current.
 - d. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
- D. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.05 DEMONSTRATION

- A. After generator set installation, the generator and transfer switch supplier shall conduct a complete operation, basic maintenance, and emergency

service seminar covering generator set and transfer switch equipment, for up to 10 people employed by the Owner.

1. The seminar shall include instruction on operation of the transfer equipment, normal testing and exercise, adjustments to the control system, use of the PC based service and maintenance tools provided under this contract, and emergency operation procedures.
2. The class duration shall be at least 8 hours in length, and include practical operation with the installed equipment.

3.06 SERVICE AND SUPPORT

A. The manufacturer shall supply the Service Provider with a complete set of the service and maintenance software required to support the product. The software shall be provided at a training class attended by the user, to qualify the user in proper use of the software. The software shall have the following features and capabilities:

1. The software shall allow adjustment of all functions described herein, adjustment of operating levels of all protective functions, and programming of all optional functions in the controller. Adjustments shall be possible over modem from a facility that is remote from the generator set.
2. The software shall be capable of storing and displaying data for any function monitored by the generator set control. This data shall be available in common file formats, and on graphical “strip chart” displays.
3. The software shall automatically record all control operations and adjustments performed by any operator or software user, for tracking of changes to the control.
4. The software shall display all warning, shutdown, and status changes programmed into transfer switch controller. For each event, the control shall provide information on the nature of the event, when it last occurred, and how many times it has occurred.

END OF SECTION 16410

SECTION 16475 – TVSS FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS**PART 1 - GENERAL**

1.01 SUMMARY

- A. This Section includes Transient Voltage Surge Suppression for low-voltage power, control, and communication equipment.

1.02 DEFINITIONS

- A. SVR: Suppressed voltage rating.
B. TVSS: Transient voltage surge suppressor.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating weights, operating characteristics, furnished specialties, and accessories.
- B. Product Certificates: For transient voltage suppression devices, signed by product manufacturer certifying compliance with the following standards:
1. UL 1283.
 2. UL 1449.
 3. MIL-STD 220A. Conduct spectrum analysis of each unit based on test procedures between 50kHz and 200kHz indicating the device noise attenuation.
 4. ANSI/IEEE C62.41 and ANSI/IEEE C62.45: Provide certified documentation of applicable Location Category Testing in full compliance guidelines.
- C. Shop Drawings: Submit shop drawings to indicate information not fully described by the product data.
1. Include electrical characteristics and ratings for the specified equipment.
 2. Include wiring diagrams indicating the internal connections of the specified equipment within its enclosure.
 3. Indicate device dimensions, weights, mounting provisions, and connection details.
- D. Warranty: Warranty statement clearly establishing the terms and conditions to the building/facility owner/operator.
- E. Operation and Maintenance Data: For transient voltage suppression devices to include in emergency, operation, and maintenance manuals.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain suppression devices and accessories through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide on

Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits."

- D. Comply with NEMA LS 1, "Low Voltage Surge Protection Devices."
- E. Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449, "Transient Voltage Surge Suppressors."

1.05 COORDINATION

- A. Coordinate location of field-mounted surge suppressors to allow adequate clearances for maintenance.

1.06 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fail in materials or workmanship within ten years from date of Substantial Completion.

1.07 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Replaceable Protection Modules: One of each size and type installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. ABB, Electrification Business
 2. Eaton
 3. Siemens Industry, Inc
 4. Square D

2.02 COMMON REQUIREMENTS FOR SUPPRESSORS

- A. Surge Protection Device Description: Modular design with field-replaceable modules, sine-wave-tracking type with the following features and accessories:
 1. Fuses, rated at 200-kA interrupting capacity.
 2. Fabrication using bolted compression lugs for internal wiring.
 3. Redundant suppression circuits.
 4. Redundant replaceable modules.
 5. Arrangement with wire connections to phase buses, neutral bus, and ground bus.
 6. LED indicator lights for power and protection status.
 7. Audible alarm, with silencing switch, to indicate when protection has failed.
 8. One set of dry contacts rated at 5 A and 250-V ac, for remote monitoring of protection status. Coordinate with building power monitoring and control system.
 9. Surge-event operations counter: Six-digit transient counter set to total all transient surges that deviate from the fundamental sine wave by more than 125V.
 10. Normal Audible Noise less than 0dB.
 11. EMI/RFI Noise attenuation: Exceeding 55dB at 100kHz, using 50 ohm insertion loss test.

12. Magnetic Fields: No appreciable magnetic fields shall be generated. The device shall be capable of use directly in computer rooms in any location without danger to data storage systems or devices.
 13. Leakage Current less than 1mA.
- B. Integral Disconnect Switch (If Required, Refer to “Installation of Surge Protection Devices”)
1. The device shall have an optional NEMA compliant safety interlocked integral disconnect switch with an externally mounted metal manual operator.
 2. The switch shall disconnect all ungrounded circuit conductors from the distribution system to enable testing and maintenance without interruption to the facility’s distribution system.
 3. The switch shall be rated for 600Vac.
 4. The SPD device shall be tested to UL1449 3rd Edition listed with the integral disconnect switch and the UL1449 VPR ratings shall be provided.
 5. The integral disconnect switch shall be capable of withstanding, without failure, the published maximum surge current magnitude without failure or damage to the switch.
 6. The line side of the integral disconnect shall be blocked off so that when the SPD is opened there is no direct access to the voltage present on the line side of the disconnect.

2.03 SERVICE ENTRANCE SUPPRESSORS (CAT C)

- A. Service Entrance Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.
- B. Maximum Category C combination wave clamping voltage shall not exceed the following:
 1. 600V, line to neutral and line to ground on 120/208 V systems.
 2. 1000V, line to neutral and line to ground on 277/480 V systems
- C. Withstand Capabilities: 3000 Category C surges with less than 5 percent change in clamping voltage.
- D. Peak Single-Impulse Surge Current Rating:
 1. 320/160 kA per phase/mode.
- E. Connection Means: Permanently wired.
- F. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277, 3- phase, 4-wire circuits shall be as follows:
 1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277.
 - b. Line to Ground: 800 V for 480Y/277.
 - c. Neutral to Ground: 800 V for 480Y/277.
 2. For Fused Devices:
 - a. Line to Neutral: 1000 V for 480Y/277.
 - b. Line to Ground: 1000 V for 480Y/277.
 - c. Neutral to Ground: 1000 V for 480Y/277.

2.04 DISTRIBUTION PANELBOARD SUPPRESSORS (CAT B)

- A. Distribution Panelboard Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.

- B. Maximum Category B combination wave clamping voltage shall not exceed the following:
 - 1. 600V, line to neutral and line to ground on 120/208 V systems.
 - 2. 1000V, line to neutral and line to ground on 277/480 V systems
 - C. Withstand Capabilities: 3000 Category B surges with less than 5 percent change in clamping voltage.
 - D. Peak Single-Impulse Surge Current Rating:
 - 1. 240/120 kA per phase/mode.
 - E. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277, 3- phase, 4-wire circuits shall be as follows:
 - 1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277.
 - b. Line to Ground: 800 V for 480Y/277.
 - c. Neutral to Ground: 800 V for 480Y/277.
 - 2. For Fused Devices:
 - a. Line to Neutral: 1000 V for 480Y/277.
 - b. Line to Ground: 1000 V for 480Y/277.
 - c. Neutral to Ground: 1000 V for 480Y/277.
- 2.05 LIGHTING AND APPLIANCE PANELBOARD SUPPRESSORS (CAT A)
- A. Lighting and Appliance Panelboard Suppressors to meet “Common Requirements for Suppressors” listed above, unless otherwise indicated.
 - B. Maximum Category B combination wave clamping voltage shall not exceed the following:
 - 1. 600V, line to neutral and line to ground on 120/208 V systems.
 - 2. 1000V, line to neutral and line to ground on 277/480 V systems
 - C. Withstand Capabilities: 3000 Category B surges with less than 5 percent change in clamping voltage.
 - D. Peak Single-Impulse Surge Current Rating:
 - 1. 80/40 kA per phase/mode.
 - E. Protection modes and UL 1449 SVR for grounded wye circuits with voltages of 480Y/277 or 208Y/120, 3-phase, 4-wire circuits shall be as follows:
 - 1. For Non-Fused Devices:
 - a. Line to Neutral: 800 V for 480Y/277 and 400 V for 208Y/120.
 - b. Line to Ground: 800 V for 480Y/277 and 400 V for 208Y/120.
 - c. Neutral to Ground: 800 V for 480Y/277 and 400 V for 208Y/120.
- 2.06 ENCLOSURES
- A. NEMA 250, with type matching the enclosure of panel or device being protected.

PART 3 - EXECUTION

3.01 INSTALLATION OF SURGE PROTECTION DEVICES

- A. Install devices at service entrance on load side, with ground lead bonded to service entrance ground.
- B. Install devices for panelboard and auxiliary panels with conductors or buses

between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

1. Provide multipole, 60-A frame circuit breaker as a dedicated disconnect for suppressor, unless otherwise indicated. Comply with manufacturer's written recommendation for conductor and trip rating of circuit-breaker for connecting TVSS devices to distribution system. Match circuit-breaker size to conductor size.
2. Where the panel on plan does not indicate a dedicated breaker for SPD. An integral disconnect shall be provided as described in "Common Requirements For Suppressors"

3.02 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:
 1. Test insulation resistance for each component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- B. Testing Agency: Engage a qualified independent testing and inspecting agency as defined in Division 26 Section "Common Work Results for Electrical" to perform the following field tests and inspections and prepare certified test reports:
 1. After installing surge protection devices, but before electrical circuitry has been energized, test for compliance with requirements.
 2. Complete startup checks according to manufacturer's written instructions.
 3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS 7.19.1, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.

3.03 CLEANING

- A. Clean components according to manufacturer's written instructions.
- B. Prior to installation of front trim and cover plates inspect interior surfaces and perform the following:
 1. Remove paint splatters and other spots.

END OF SECTION 16475

SECTION 16500 - LIGHTING**PART 1 - GENERAL**

1.01 LIGHTING SCHEDULE

- A. The Contractor shall install lighting fixtures and accessories as shown on the drawings and/or described herein. The Contractor shall also install lamps for all fixtures.

1.02 SUBMITTALS & PRIOR APPROVAL

- A. Prior approvals and/or submittals shall submit the following:
1. Cutsheets clearly indicating fixture options selected.
 2. Photometric calculations of the floor plan including point by point calculations and a calculation schedule which shall include the following foot-candle measurements for each room and site plan. Calculations shall adhere to Louisiana Sanitary Code requirements.
 - a. Maximum value
 - b. Minimum value
 - c. Max/Min Ratio
 - d. Average

PART 2 - PRODUCTS

2.01 LED LIGHTING

- A. Lighting fixtures with LED light sources shall meet the following fixture and light source requirements:
1. LED Color Temperature – Per Drawings
 2. CRI > 80
 3. Line Voltage – Universal Voltage 120-277 volts
 4. Governmental Standards – LM79 and LM80 Compliant
 5. Expected Lamp Life – LED Life Rating (L_{70} B_{10}) to be 60,000 hours to 100,000 hours; Defined as time of operation (in hours) to 30% lumen depreciation (i.e. 70% lumen maintenance), derived from Luminaire in-situ temperature measurement testing (i.e. LED chip package temperature (T_s) measurement obtained with the LED chip package operating in given luminaire and in a given stabilized ambient environment) under UL1598 environments and directly correlated to LED package manufacturers IESNA LM-80-08 data. Predicted (L_{70} B_{10}) Limits (@ 25°C luminaire ambient operating environment): Greater than 60,000 hours @ 350mA Drive Current
 6. Driver – Components must be fully encased in potting material for moisture resistance, and must comply with IEC and FCC standards
 7. Surge Protection – Surge protection must be provided including separate surge protection built into electronic driver
 8. Mechanical – Luminaire LED system components to be low copper aluminum, with high performance heat sink(s) designed specifically for LED luminaires. No active cooling features (Fans, etc.). Luminaire configuration must allow for modular upgradability and/or field repair of all electrical components (i.e. LED modules, Driver(s), etc.). Drivers and vertical light bars must be all mounted to a twist-lock tool-less assembly for ease of installation and trouble-shooting.

2.02 LIGHTING ACCESSORIES

- A. All lighting shall be equipped with the appropriate housing for the ceiling type shown on the architectural reflected ceiling plan.
1. GYP Ceilings –
 - a. 1'X4' 2'X2' & 2'X4' Troffers: Provide flange kit or surface mount kit. If not explicitly indicated on plan contractor shall price based on the more costly product and submit an RFI to Engineer prior to purchase.
 - b. Downlights: Provide recessed housing and appropriate flange kit.
 - c. Strip lighting: Provide surface mount kit. In areas with ceiling heights greater than 10' contractor shall provide chain suspension hardware.
 - d. Architectural linear fixtures: Where indicated as recessed contractor shall provide flange kit or mud-in kit as required. If not explicitly indicated on plan contractor shall price based on the more costly product and submit an RFI to Engineer prior to purchase.
 2. Grid Ceilings – Provide appropriate mounting hardware to recess fixtures into grid.
- B. Fire ratings: Lighting in fire rated ceiling shall be equipped with fire padding, caulking, and/or housings as required to maintain fire ratings. Contractor shall refer to architectural plans for all fire ratings prior to bid.
- C. Emergency battery backup and inverters:
1. Where remote battery backup is utilized contractor shall coordinate all remote test switch locations with owner/architect prior to rough in. They shall not be located in ceiling adjacent to fixture.
 2. Where integral battery backup is utilized the fixture shall include self-diagnostics. This shall not be required if specified fixture does not include a self-diagnostic option.
 3. Where an inverter is utilized contractor shall provide UL924 transfer devices in the quantity required to accomplish control as shown on plans. Where inverter fixture utilized line voltage dimming contractor shall notify engineer immediately prior to bid.

2.03 OCCUPANCY SENSORS

- A. Sensor shall be a self-contained dual voltage ceiling mounted device capable of directly switching loads upon detection of human activity. Sensor must be circular, and mount to either a single gang enclosure, or surface mount to a round pancake box.
- B. Sensor must be rated for 120 through 277 VAC and be capable of switching zero to 1200 watts of electronic ballast loads. Sensors must be capable of parallel wiring for multi-sensor applications.
- C. Sensor time delay shall be factory set for typical applications, and field adjustable from 30 seconds to 20 minutes. Sensor must provide a green LED motion indicator. Red LED denoting life safety shall not be permitted.
- D. PIR sensing must utilize a high density Fresnel domed lens, providing a circular view pattern of at least 360 degrees by 56 degrees.

- E. Passive Dual Technology (PDT) sensing must incorporate PIR with Microphonics, which utilizes a passive microphone with automatic gain control (AGC) to sense both occupants moving and sounds. The PIR must be used to initiate an on condition, once on the PIR or Microphonics shall keep the load on. After the time delay expires and the load goes off, the Microphonics shall remain active up to 10 seconds as a back-up grace period.
- F. Wall box mounted occupancy sensors shall mount in a standard utility box. Sensor shall have self-contained relay (no power pack required), utilize PIR and microphonics detection, and include auto sensitivity adjustment. Wall box sensor shall be intrinsically grounded and include ON/OFF switch and adjustable time delay.
- G. Occupancy Sensor:
 1. Ceiling mount for offices and restrooms – Lutron #LOS-CUS-1000-WH / PP-DV; Wattstopper UT-305-2/BZ-50; Sensor Switch CM PDT9
 2. Wall mount for offices, storage rooms, etc. – Lutron #MS+OPS6M-DV-color; Wattstopper WD-170-FINISH; Sensor Switch WSX
 3. Ceiling mount in large rooms – Lutron #LOS-CDT-2000WH, with #PP-DV universal power pack; Wattstopper DT-205 / BZ-50; Sensor Switch CM PDT10 with PP16
 4. Wall/ceiling mount at end of corridors – Lutron #LOS-WIR-WH / PP-DV 1600’ft coverage; Wattstopper CX-105 / BZ-50; Sensor Switch WV16 with PP16
 5. Wall/ceiling mount at center of corridors – Watt Stopper #CX-100-3 series, with #BZ-50 universal power pack; Sensor Switch WV16 with PP16
 6. Room controllers – Wattstopper #LMRC-101; nLight #nPP 16

2.03 FIXTURES

- A. Fixtures as described in the Fixture Schedule on the drawings shall be furnished by the Contractor and shall be properly installed.
- B. Where fixtures are specified with emergency remote test switches contractor shall coordinate location of remote test switch with Owner/Architect prior to installation.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Unless otherwise specified, lighting fixtures shall be permanently installed and connected to the wiring system.
- B. The Contractor shall support each fixture, independently from the building structure. Ceiling framing members shall not be used to support fixtures except in specified areas where ceiling supports for this purpose have been specified elsewhere in these specifications. Each fixture shall have at least two fixture supports.
- C. Flexible conduit used for fixture whips shall be at least twelve (12) inches, but not more than 48 inches long.

3.02 CEILING COMPATIBILITY

- A. Catalog numbers shown on the drawings or descriptions of lighting fixtures contained herein may indicate fixture compatibility with certain types of ceiling

construction. Contractor shall determine exact type of ceiling actually to be furnished in each area and shall obtain fixtures to suit, deviation from specified catalogue numbers or descriptions only where necessary and only to the extent necessary to insure fixture/ceiling compatibility.

3.03 LIGHT LEAKS

- A. The Contractor shall, at the end of this project, adjust all recessed lighting fixtures so that there will be no light leaks between the fixture trim and the ceiling. Contractor shall also adjust recessed fluorescent fixtures to eliminate any light leaks between fixture trim and ceiling grid member.

3.04 LAMPS

- A. The Contractor shall install lamps in all fixtures and shall obtain replacement lamps should any not properly operate or become damaged during construction.

3.05 EXIT FIXTURES

- A. Exit fixtures shall be installed according to Life Safety Code requirements, with face(s) plainly visible and directional arrows indicating the proper direction of egress.

END OF SECTION 16500

SECTION 16700 – STRUCTURED CABLING SYSTEM**PART 1 - GENERAL**

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 PURPOSE

- A. This document defines the products and the execution requirements required to furnish and install a complete distribution system utilizing a structured cabling system.
- B. All cables and related terminations, support and grounding hardware shall be furnished, installed, tested, and documented by the structured cabling contractor as detailed in this document.
- C. The distribution system shall be all inclusive and represent a complete installation at the sites shown on the attached drawings and in the attached specifications. The Vendor shall be responsible for all parts, labor, and all other associated apparatus necessary to completely install, test and turnover for acceptance to the Customer the cabling system detailed herein.
- D. Product specifications and general design considerations are provided in this document. Quantities of telecommunication outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document. The successful vendor shall meet or exceed all requirements for the cable system described in this document.
- E. Refer to contract drawings for additional requirements to include color coding of faceplates, jacks and cables, labeling, installation, etc.

1.03 RELATED REQUIREMENTS

- A. Drawings and general provision of Contract, including General and Supplementary Conditions, Division 1 Specification, and Electrical sections apply to work in this section.
- B. Install raceways for auxiliary systems.
- C. Interior conduit EMT, minimum 1" unless noted otherwise.
- D. Conduit to extend from wall and floor outlets to above accessible ceiling and terminate with a bushing.
- E. All conduits indicated as spare shall have nylon pullcord.

1.04 REFERENCE STANDARDS

- A. ANSI/TIA/EIA-568B.1-Commercial building Telecommunications Cabling Standard, Part 1: General Requirements
- B. .ANSI/TIA/EIA-568-B.2-Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components.
- C. ANSI/TIA/EIA-568-B.3- Optical Fiber Cabling Components Standard.

- D. ANSI/TIA/EIA-569B-Commercial Building Standard for Telecommunications Pathways and spaces.
- E. ANSI/TIA/EIA-606(A)-The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
- F. ANSI-J-STD-607(A)- Commercial Building Grounding and Bonding Requirements for Telecommunications.
- G. TIA-526-7-OFSTP-7 Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant.
- H. TIA-526-14A-OFSTP-14 Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant.
- I. ANSI/TIA/EIA-758(A)- Customer-Owned Outside Plant Telecommunications Cabling Standard.
- J. TIA TSB-140 Additional Guidelines for Field Testing Length, Loss and Polarity of Optical
- K. ANSI/TIA/EIA 568 B-2.10- 10GIG ETHERNET
- L. Install Cabling in accordance with the most recent edition of BICSI publications.
 - 1. BICSI-Telecommunications Distribution Methods Manual.
 - 2. BICSI-Installation Transport Systems information Manual.
 - 3. BICSI-Network Design Reference Design Manual.
 - 4. BICSI-Outside Plant Design Reference Manual.
- M. Federal, State and local codes, rules, regulations, and ordinances governing the work, are fully part of the specifications as if herein repeated or hereto attached.
- N. If the contractor should note items in the drawings or the specifications, construction of which would be a code violation, promptly call them to the attention of the owner's representative in writing.
- O. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.
- P. All material shall be listed by UL or other National Independent testing standard shall apply.
- Q. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All construction documents listed are believed to be the most current. The Vendor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.
- R. This document does not replace any code, either partially or wholly. The Contractor must be aware of local codes that may impact this project.

1.05 APPROVED CONTRACTOR

- A. The Contractor shall have total responsibility for the coordination and installation of the work shown and described in the Drawings and Specifications. The Contractor shall be a company specializing in the design, fabrication and installation of integrated telecommunication systems.

- B. The installation of all cable, equipment, terminations, & associated services shall be performed by a company that is a Manufacturer's Certified Structured Cabling System Installer in good standing with a minimum of three (3) years of experience on similar systems.
- C. A copy of certification documents must be submitted with the product submittals for quote to be valid. The telecommunications contractor is responsible for workmanship and installation practices in accordance with the manufacturer's written policies.
- D. The cable or connectivity manufacturer will extend a 25-year manufacturer's warranty for all products installed in this project to the end user once the telecommunications contractor fulfills all requirements under these specifications.
- E. The contractor must have an office with qualified service and installation personnel within 100 miles of the project site.
- F. The Telecommunications cabling contractor must provide a reference list with contact names and phone numbers for three (3) projects of similar scope.
- G. The contractor shall employ a full-time RCDD to perform the role of Project Manager. RCDD shall be available for consultation and to attend project meetings. The contractor shall not subcontract a third party RCDD.
- H. A BICSI certified installer shall be employed by the contractor and be on site as the installation manager.
- I. The owner reserves the right to require the Vendor to remove from the project any such employee the Owner deems to be incompetent, careless or insubordinate.
- J. All clean up activity related to work performed, will be the responsibility of the Contractor and must be completed daily before leaving the site.

1.06 COORDINATION WITH OTHER TRADES

- A. The Contractor shall coordinate telecommunications work with that of other Sections as required ensuring that the entire telecommunications work will be carried out in an orderly, complete and coordinated fashion.

1.07 SUBMITTALS

- A. Submit to the engineer/designer shop drawings, product data (including cut sheets and catalog information), and samples required by the contract documents. Submit shop drawings, product data, and samples with such promptness and in such sequence as to cause no delay in the work or in the activities of other contractors. The engineer/designer will indicate approval of shop drawings, product data, and samples submitted to the engineer by stamping submittals "APPROVED" with a stamp. Submitted shop drawings shall be initialed or signed by the contractor's legitimate firm name.
 - 1. By submitting shop drawings, product data, and samples, the Vendor represents that he/she carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the Vendor has checked, coordinated, and verified that information contained within shop drawings, product data, and samples conform to the requirements of the work and of the contract documents.

2. The engineer's/designer's approval of shop drawings, product data, and samples submitted by the Vendor shall not relieve the Vendor of responsibility for deviations from requirements of the contract documents, unless the Vendor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The vendor shall continue to be responsible for deviations from requirements of the contract documents not specifically noted by the Vendor in writing, and specifically approved by the engineer in writing.
 3. The engineer's/designer's approval of shop drawings, product data, and samples shall not relieve the Vendor of responsibility for errors or omissions in such shop drawings, product data, and samples.
 4. Storage and handling requirements and recommendations.
 5. Installation method.
- B. Shop Drawings: Show compliance with requirements on isometric schematic diagram of network layout, showing cable routings, telecommunication closets, rack and enclosure layouts and locations, service entrance, and grounding, prepared and approved by BICSI Registered Communications Distribution Designer (RCDD).
- C. Submit proof from manufacturer that the contractor is in good standing with the manufacturer's warranty program.
- D. Submit letter from manufacturer stating that the manufacturer will provide twenty-five (25) year warranty in accordance with the requirements stated in this document.
- E. Submit copy of RCDD certification.
- F. Upon request by the engineer/designer, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.
- G. Submit references as required.
- H., At completion of project, Contractor shall submit the following:
1. Horizontal certification test results printed and saved to USB drive.
 2. Backbone certification test results printed and saved to USB drive.
 3. Project Record Documents: Prepared and approved by BICSI Registered Communications Distribution Designer (RCDD). The record documents shall be bound and consist of the following:
 - a. Product cut sheets for all products supplied.
 - b. Test reports for horizontal cabling.
 - c. Test reports for backbone cabling.
 - d. Manufactures warranties.
 - e. "D-Size" As built drawings.
- I. As built drawings should accurately record location of service entrance conduit, termination backboards, outlets boxes, cable raceways, cable trays, pull boxes, and equipment racks electronically using AutoCAD 2000 or later version and on minimum "D" size reproducible paper prints.
- J. The contractor shall prepare an 18" x 24" as-built serving zone drawing for each Telecommunication Room. The drawing shall be laminated, framed and secured to the wall in the Telecom Room.

- K. Work shall not proceed without the Engineer's approval of the submitted items. The Contractor shall receive approval from the Engineer on all substitutions of material. No substituted materials shall be installed except by written approval from the engineer.

1.08 QUALITY ASSURANCE

- A. Equipment and materials required for installation under these Specifications shall be the current model and new (less than one (1) year from the date of manufacture), unused and without blemish or defect.
- B. Equipment and materials of the type for which are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.
- C. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout installation.
- D. Product Requirements:
 - 1. The product shall be manufactured by an ISO 9001-2000 Certified Facility.
 - 2. Product shall be free from defects in material and workmanship.
 - 3. The manufacturer must have a field representative who holds an RCDD who will perform quality control inspections monthly, during the life of the project.

1.09 Delivery, Storage, And Handling

- A. Products must be stored according to manufacturers' recommendations.
- B. Keep stored products clean and dry.
- C. If the Telecommunications Contractor wishes to have a trailer on site for storage of materials, arrangements shall be made with the owner.

1.10 DRAWINGS

- A. It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid the Telecommunications Contractor in bidding for the job. The Telecommunications Contractor shall make allowance in bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.
- B. The Telecommunications Contractor shall verify all dimensions at the site and be responsible for their accuracy.
- C. Prior to submitting the bid, the telecommunications Contractor shall call the attention of the Engineer to any materials or apparatus the Telecommunication Contractor believes to be inadequate and to any necessary items of work omitted.

1.11 WARRANTY

- A. See Section "Closeout Submittals" for additional warranty requirements.
- B. The Contractor shall provide a manufactures warranty to guarantee end-to-end high performance cabling systems that meet application requirements. The guarantee shall include all Horizontal drops and Backbone fiber optic cable and

connectivity components and have one point of contact for all cabling system issues. The system shall be warranted for a period of 25 years.

- C. Materials and workmanship hereinafter specified shall be fully guaranteed by the vendor for a (1) one year period after Date of Substantial Completion against any defects. Defects which may occur as the result of faulty materials or workmanship within one year after installation and acceptance by The Customer shall be corrected by the Vendor at no additional cost to the Customer. The Vendor shall promptly, at no cost to The Customer, correct re-perform (including modifications or additions as necessary) any nonconforming or defective work within one year after completion of the project of which the work is part.

1.12 SEPARATION FROM EMI SOURCES

- A. Comply with BICSI TDMM and ANSI/TIA/EIA-569-B recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
- B. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
1. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 3. Electrical Equipment Rating More than 5 kVA: A minimum of 12 inches.
- C. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows.
1. Electrical Equipment Rating Less than 2 kVA: A minimum of 2 ½ inches.
 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
- D. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
1. Electrical Equipment Rating Less than 2 kVA: No requirement.
 2. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 3. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
- E. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
- F. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 12 inches.

PART 2 - PRODUCTS

2.01 EQUIVALENT PRODUCTS

- A. Due to the nature and type of communications all products, including but not limited to racks, patch panels, jacks, faceplates, patch cords, J-hooks shall be manufactured by Hubbell, Siemon, or Panduit.

- B. Provide products of manufacturers as named in individual articles.
- C. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements.
- D. Where equipment is identified by manufacturer and catalog number, it shall be a base of requirements for quality and performance. Where manufacturers for equipment are identified by name, the Contractor may submit for approval, similar equipment of other manufactures as substitution. The Engineer’s decision as to whether the submitted equipment is acceptable shall be final and binding.
- E. The request for substitutions must be received (10) ten days prior to bid opening by Engineer in writing, listing all physical and technical differences between product specified and product request for substitution. Product samples of each item must accompany written request.
- F. Accepted substitutions will be approved by means of addendum.

2.02 CATEGORY 6 HORIZONTAL DISTRIBUTION CABLE

- A. All Horizontal station cables shall terminate on modular patch panels in their respective Telecommunication Room or Equipment Room as specified on the drawings.
- B. All cable, workstation jack modules and patch panel jack modules shall be the same color as designated on prints. If colors are not designated Coordinate color with Engineer. See details.
- C. Unshielded Twisted-Pair Cabling:
 - 1. Cable construction shall be 23 AWG with four twisted pairs of insulated solid bare annealed copper conductors with separator.
 - 2. Outer jacket shall meet NEC requirements and have a Nominal Cable diameter not to exceed .200 for CMP (in)
 - 3. Cable shall have a minimum bend radius of 1.0 (in).
 - 4. Contain “Crossweb” Filler
 - 5. Must have positive PSACR beyond 250 MHz.
 - 6. Application assurance warranty.
 - 7. All transmission performance parameters shall be independently verified by UL or ETL third party testing organization.
 - 8. Contractor will use a plenum rated cable jacket unless being installed in slab and below grade.
 - 9. Approved Manufacturer - Category 6 Horizontal Cable:

Manufacturer	CMR	CMP
Hubbell	HC6RRx	HC6RPx
Siemon	9C6R4-E4-(XX)-RBA	9C6P4-E4-(XX)-RBA
Panduit	PUR6504xx-UY	PUP6504xx-UY

- D. ANY CABLE LOCATED IN SLAB BELOW GRADE SHALL BE RATED FOR WET LOCATIONS.
 - 1. Approved Manufacturer - Indoor/Outdoor Rated Cable:

Manufacturer	CMP
Hubbell	C6IOSPBK

Siemon	9U6W4-A5-12-R1A
Panduit	PUO6AS04BL-G

2.03 CATEGORY 6A HORIZONTAL DISTRIBUTION CABLE

- A. All Horizontal WAP Cable shall terminate on modular patch panels in their respective Telecommunication Room or Equipment Room as specified on the drawings.
- B. All cable and patch panel jack modules shall be the same color as designated on prints. If colors are not designated Coordinate color with Engineer. See details.
- C. Unshielded Twisted-Pair Cabling:
 - 1. Cable construction shall be 23 AWG with four twisted pairs of insulated solid bare annealed copper conductors with separator.
 - 2. Outer jacket shall meet NEC requirements and have a reduced diameter not to exceed .265 for CMP (in)
 - 3. Cable shall have a minimum bend radius of 1.0 (in).
 - 4. Contain “Crossweb” filler.
 - 5. +7dB of Headroom Above Standards to suppress Alien Crosstalk
 - 6. High Power PoE (4PPoE) Read
 - 7. All transmission performance parameters shall be independently verified by UL or ETL third party testing organization.
- 8. Approved Manufacturer - Category 6A Horizontal Cable:

Manufacturer	CMR	CMP
Hubbell	C6ASRDSY	C6ASPDSY
Siemon	9C6R4-A5-05AR1A	9C6P4-A5-05AR1A
Panduit	PUR6AV04YL-G	PUP6AV04YL-G

2.04 WORK AREA OUTLETS

- A. WAO shall consist of a single gang 2 Port or 4 Port thermoplastic face plate.
- B. Work area outlets shall each be terminated at their designated work area location in the connector types described below.
- C. The same orientation and positioning of jacks and connectors shall be utilized throughout the installation. Prior to installation, the Telecommunications Contractor shall submit the proposed configuration for each outlet assembly, with labeling, for review by the owner.
- D. The wiring scheme for this project shall be T568B unless otherwise directed by the owner.
- E. Category 6 Modular Jack:
 - 1. Third Party Verified Category 6 Component
 - 2. Cobra-Lock Termination Technology
 - 3. Wires Secured Under Constant Compression
 - 4. Easily Re-Terminate
 - 5. 25 IDC Re-termination Cycles
 - 6. Qualified to 150% of 802.3bt PoE Current Level
 - 7. Where color is not indicated coordinate with Engineer prior to installation.

8. Approved Manufacturer - Category 6 Modular Jack (WAO):

Manufacturer	Modular Jack
Hubbell	HJU6xx
Siemon	U6-K0xx
Panduit	CJ688TGxx

- F. Jacks at WAO and patch panels shall be color-coded with appropriate colored jacks or icons as follows:
 - 1. Two port face plates:
 - a. The left jack shall be BLUE, and the right jack RED. Contractor shall be responsible for making sure the color at the patch panel coordinates with jack at WAO.
 - 2. Four port face plates:
 - a. The upper left jack shall be BLUE, the upper right. jack shall be RED, the bottom-left jack shall be GREEN, and the bottom right jack shall be GRAY.

2.05 WIRELESS ACCESS POINT OUTLET

- A. WAP outlets shall consist of a minimum of two (2) Category 6A cables be terminated above ceiling using a Cat6A Yellow jack in a 2-port Surface Box or using a Cat6A MPTL assembly. Either option shall leave a 10-foot service loop on the horizontal cable run.
- B. Each WAP location shall be identified with a 1”x 2” black phenolic tag with white lettering affixed to the underside of the ceiling grid. It shall be the contractor’s responsibility to verify measurements of the ceiling grid prior to ordering the phenolic tags, so as not to create an overhang by the label.
- C. Each cable shall be identified with a printed wire wrap label.
- D. The wiring pattern for this project shall be T568B unless otherwise directed by the owner.
- E. The wiring pattern of jacks and connectors shall be utilized throughout the installation. Prior to installation, the Telecommunications Contractor shall submit the proposed configuration for each outlet assembly, with labeling, for review by the owner.
- F. Category 6A Modular Jack:
 - 1. Third Party Verified Category 6 Component
 - 2. Cobra-Lock Termination Technology
 - 3. Wires Secured Under Constant Compression
 - 4. Easily Re-Terminate
 - 5. 25 IDC Re-termination Cycles
 - 6. Qualified to 150% of 802.3bt PoE Current Level
 - 7. Where jack color is not indicated coordinate with Engineer prior to installation.
 - a. Approved Manufacturer - Category 6A Modular Jack Assembly (WAP):

Manufacturer	Jack	Surface Box
Hubbell	HJU6AY	HSB2W(P)
Siemon	U6A-K05	MX-SMZ2-02

Panduit	CJ688TGYL	CBX2IW-AY
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b. Approved Manufacturer - Category 6A Modular Plug (WAP):

Manufacturer	Modular Plug
Hubbell	SCP6A
Siemon	ZP1-6AS-01S
Panduit	FP6X88MTG

2.06 COPPER PATCH CABLES

- A. Patch Cables shall be factory terminated with modular plugs featuring a tangle-free latch design and clear strain-relief boots to support easy moves, adds and changes. Each patch cord shall be 100% performance tested at the factory to the TIA/EIA Category 6 standard. *Each patch cord shall be made by the same factory as the Cat6 jacks and patch panels used in the project.*
- B. Contractor shall provide one 5ft patch cable for each cable terminated at patch panel. Contractor shall provide one patch cable for each terminated WAO, with half the WAO patch cables being 10ft and remaining half being 15ft. Provide an additional 5% surplus equally divided between 5ft, 10ft & 15ft. Confirm lengths and color with owner prior to ordering and transmittal.
- C. Approved Manufacturer - Patch Cable:

Manufacturer	5ft Cat6	10ft Cat6	15ft Cat6
Hubbell	HCL6x05	HCL6x10	HCL6x15
Siemon	MC6-05-xx-28	MC6-10-xx-28	MC6-15-xx-28
Panduit	UTP28SP5xx	UTP28SP10xx	UTP28SP15xx

Manufacturer	5ft Cat6A	10ft Cat6A	15ft Cat6
Hubbell	HCL6x01	HCL6x07	HCL6Ax01
Siemon	SP6A-05-xx	SP6A-10-xx	SP6A-15-xx
Panduit	UTP28X5xx	UTP28X10xx	UTP28X15xx

2.07 MODULAR PATCH PANELS

- A. All horizontal voice, data and wireless, CCTV & AV cables shall be installed in a modular rack mount patch panel. Each patch panel shall have strain relief bars for each row of 24 ports (a 48-port panel gets 2 relief bars).
- B. Approved Manufacturer - Patch Panel:

Manufacturer	24 Port	48 Port	Strain Relief
Hubbell	HPJ24	HPJ48	CMBR
Siemon	KPNL-F1-24-01S	KPNL-F2-48-01S	KPNL-RWM
Panduit	CPPL24WBLY	CPPL24WBLY	SRB19BLY

2.08 HIGH IMPACT THERMOPLASTIC FACEPLATES WITH LABEL FIELDS

- A. Verify color of faceplate with architect and engineer prior to ordering.
- B. Approved Manufacturer -Faceplate:

Manufacturer	1-Port	2-Port	4-Port
Hubbell	IFP11W	IFP12W	IFP14W
Siemon	KFP-S-01-02	KFP-S-02-02	KFP-S-04-02
Panduit	CFPL1W	CFPL2W	CFPL4W

2.09 BACKBONE FIBER OPTIC CABLE

- A.. Furnish and install a minimum of one (1) 12 strand fiber optic cable from the MDF to each IDF, unless otherwise indicated on backbone Riser diagram.
- B. All indoor fiber optic cable shall be tight buffered construction with Interlocked Armored Plenum rated.
- C. All outdoor or underground fiber optic cables shall be an indoor/outdoor jacket with tight buffered construction.
- D. Approved Manufacturer - Indoor Interlocking Armored Fiber Optic Cable:

Manufacturer	Singlemode (OS2)	Multimode (OM4)
Hubbell	HFCD15012PS	HFCD15012P4
Siemon	9BC5P012G-E205	9BC5P012G-T512
Panduit	FSP912Y	FOPPZ12Y

- E. Approved Manufacturer - Indoor/Outdoor Fiber Optic Cable:

Manufacturer	Singlemode (OS2)	Multimode (OM4)
Hubbell	HFCD14012PSBK	HFCD14006P4BK
Siemon	9GD8012G-E201	9GD5012G-T501
Panduit	FSCP912Y	FOPCPZ12Y

2.10 FIBER OPTIC RACK MOUNT ENCLOSURE

- A. Enclosure shall be mounted in standard 19" rack or cabinet. Shall have front and rear access on all modules via molded-hinged doors. Must have radius control and cable management for fiber patch cords. Shall have multiple cable entry locations. Include fiber optic cable routing kit (grommets, cable ties, saddle clips, strain relief bracket and ID/caution labels for various cable management solutions.
- B. Approved Manufacturer - Rack Mount Fiber Optic Enclosure:

Manufacturer	1U	2U	4U
Hubbell	FCR1U3SPT	FCR2U6SPT	FCR4U15SPT
Siemon	LVE-1U-MD-P01A	LVE-2U-MD-P01A	LVE-4U-MD-P01A
Panduit	FCE1U	FCE2U	FCE4U

2.11 FIBER OPTIC ADAPTER PANELS

- A. All adapter panels shall be LC form factor and use zirconia ceramic split sleeves. Use blank adapters in each empty port in each fiber optic enclosure.
- B. Fill unused slots of fiber enclosure with blank panels
- C. Approved Manufacturer - LC Adapter Panel:

Manufacturer	LC 12-Port OS2	LC 12-Port OM4	Blank Panel
Hubbell	FSPNLCDS6AQ	FSPNLCDS6AQ	FSPNB
Siemon	LVA12-LCQ-BC-A	LVA12-LCQ-BC-A	LVA-BLANK-01A
Panduit	FAP6WBUDLCZ	FAP6WAQDLCZ	FAPB

2.12 FIBER OPTIC CONNECTORS

- A. Fiber connectors shall have a LC UPC interface. Connectors may be a mechanical or splice-on type connector.
- B. Approved Manufacturer - Fiber Optic Connectors:

Manufacturer	LC; OS2 Mechanical	LC; OM4 Mechanical	LC; OS2 Splice-On	LC; OM4 Splice-On
Hubbell	FCLC900KSM12	FCLC900K50GM12	FCLCF900SMBP	FCLCF900M50GBP
Siemon	FC1-LB-LCU-9BL	FC1-LB-LC5-9AQ	FC-F-LCU-29BL	FC-F-LC5-29AQ
Panduit	FLCSSCBUY	FLCSMCXAQY	FLCS2/9SOCU9BU	FLCS2/9SOCPXAQ

2.13 FIBER OPTIC PATCH CABLES

- A. Contractor shall provide six (6) duplex fiber patch cords for each 12 strands of fiber installed. Patch cables shall be capable of connecting from fiber patch panel to owner provided equipment.
- B. Fiber patch cables shall be manufactured in the USA.
- C. Approved Manufacturer - Fiber Patch Cables Products:

Manufacturer	OS2; LC/LC; 1M; YL; Plenum	OM4; LC/LC; 1M; AQ; Plenum
Hubbell	DFHPCLCLCS1SM	DFHPCLCLCF1MM
Siemon	FPSLDLD001M	FP4LDLD001M
Panduit	F92RPU1U10NM001	FZ2RPU1U10NM001

2.14 NETWORK/EQUIPMENT CABINETS

- A. Cabinets are existing to remain.

2.17 LADDER TRAY FOR TELECOMMUNICATION ROOMS

- A. All ladder tray shall be 12" in width and have 1 1/2" x 3/8" stringers, unless instructed otherwise per drawings,
- B. Ladder tray shall be made of tubular steel; and the finish shall be black powder coat.
- C. Furnish and install 18" ladder tray from each floor mount rack/server cabinet to wall. Furnish and install 18" ladder tray around wall as required to support cables. (A minimum of (2) walls shall be completely covered by ladder tray).
- D. Furnish and install cable retaining post on each side of tray every 4ft as required to support cables.
- E. A "waterfall" or cable drop out shall be utilized for each transition from ladder tray to vertical cable manager. A proper bend radius shall be maintained at all times.

- F. All raw ladder tray ends shall be covered with a protective cap to match the color of the ladder tray itself.
- G. Provide necessary accessories from original ladder rack manufacturer for a complete solution.
- H. Approved Manufacturer – Ladder Tray:

Manufacturer	12 in Ladder Tray	18 in Ladder Tray
Hubbell	HLS0612B	HLS1018B
Legrand	TRT10-12B	TRT10-18B

2.18 COPPER BACKBONE CABLING

- A. Furnish, install and terminate a minimum Cat3 100pr 24awg solid copper cable from the MDF to each IDF unless indicated otherwise on the Riser Diagram.
- B. All indoor conductors are to be terminated on 100pr wall mount 110 terminal block kits. Each 100pr 110 block shall be terminated with C5 blocks.
- C. Where cable routes above ceiling provide a plenum rated cable. Where cable routes underground provide an outdoor PE-89 type cable with building entrance protector at each end.
- D. Approved Manufacturers – 100 Pair Cable:

Manufacturer	Indoor 100Pr Plenum	Outdoor 100Pr PE-89
Essex	18-799-36	09-104-92
Prysmian	2131758	7525819

- E. Approved Manufacturers - 110 Block Kits:

Manufacturer	100pr 110 Terminal Block Kit with C5 blocks
Hubbell	18-799-36
Siemon	S110AA2-100FT
Panduit	P110KB1005Y

- F. The building entrance protector shall be a 100 pair 110 in/110out with cover and splice chamber. Unit shall be 16awg powder coated and allow up to 22awg line termination. Unit shall be stackable for future expansion and equipped with internal fuse link and accommodate industry standard 5-pin protection modules. The unit shall be UL497 approved. Contractor shall fully populate each 5-Pin protector port with the specified protector module.

- 1. Approved Manufacturers – Building Entrance Protectors:

Manufacturer	100pr Building Entrance Protector	5-pin protection modules
CircaMax	1880ECA1-100	3B1E
Tii Technologies Inc.	24100-110-M110C	75-3C1EW-N

2.19 GROUNDING AND BONDING

- A. Grounding shall conform to ANSI-J-STD607(A)- Commercial building Grounding and bonding Requirements for Telecommunications, National Electrical Code, ANSI/NECA/BICSI-568 and manufacture's grounding requirements as minimum.
- B. Bond and ground equipment racks, housings, messenger cables, and raceways.

- C. Connect cabinets, racks, and frames to single-point ground which is connected to building ground system via (minimum #6) green insulated copper grounding conductor.
- D. Contractor shall verify actual measurement of the Telecommunication Bonding Backbone (TBB) and size the bonding backbone accordingly.
- E. Approved Products:

Manufacturer	Primary Bonding Busbar (PBB)	Secondary Bonding Busbar (SBB)	Compression Lug; 2-Hole	Ladder Tray Bonding Jumper Kit
Hubbell	HBBB14416H	HBBB14212	HGBLxxxx	HGRKTKA9KA5
Burndy	BBB14416H	BBB14212N	BGBLxxxx	BGRKTKA9KA5

- F. Contractor to provide all additional necessary components, including but not limited to C-Taps, H-Taps, RB, RBC, TEBC

2.20 J-HOOKS

- A. The cable support used must maintain complete horizontal and vertical 1" bend radius control.
- B. Do not exceed EIA/TIA standards or manufactures recommendations of 40% fill ratio in each cable support.
- C. All J-Hooks are to be placed no more than 4-5 feet apart.
- D. Approved Products:
 - 1. Hubbell
 - 2. Caddy
 - 3. B-Line

PART 3 - EXECUTION

3.01 PRE-INSTALLATION SITE SURVEY

- A. Prior to start of system, meet at the project site with owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the General Contractor will be necessary to plan the crucial schedule completions of the equipment room and telecommunication closet.
- B. Examine areas and conditions under which the system is to be installed. Do not proceed with work until satisfactory conditions have been achieved.

3.02 INSTALLATION GUIDELINES

- A. The work included under this specification, consist of furnishing all labor, equipment, material, and supplies and performing all operations necessary to complete the installation of this structured cabling system in compliance with the specifications and drawings. The Telecommunications contractor will provide and install all of the required material to form a complete system whether specifically addressed in the technical specification or not.
- B. All work performed on this project will be installed in accordance with the current edition of the National Electrical code, the current edition of The National Electrical Safety Code, the current issue of the National Electrical

Code, The current edition of ANSI/NECA/BICSI-568- Standard for Installing Commercial Building Telecommunications Cabling, the current edition of the BICSI Telecommunications Distribution Methods Manual, the current edition of the BICSI Cabling Installation Manual, the latest issue of ANSI/TIA/EIA Standards as published Global Engineering Documents as ANSI/TIA/EIA Telecommunications Building Wiring Standards, and all local codes and ordinances. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement will have responsibility for making interpretation.

- C. If this document and any other documents listed above are in conflict, then the more stringent requirements shall apply. All documents listed are believed to be the most current release of the documents. The Vendor has the responsibility to determine and adhere to the most current release.
- D. This document does not replace any code, either partially or wholly. The Vendor must be aware of local codes that may impact this project. All, local, State and federal codes are to be followed.
- E. All materials shall be UL Listed or listed by other National Independent testing agency and shall be marked as such.
- F. Section Includes: Equipment, materials, labor, and services to provide a complete structured cabling system including, but not limited to:
 - 2. Furnish and install a complete telecommunication wiring infrastructure.
 - 3. Furnish, install, terminate and test all copper and Optical fiber cables.
 - 4. Furnish and install Raceway, boxes, and cable tray.
 - 5. Furnish and install all wall plates, jacks, patch panels, and patch cords as described.
 - 6. Furnish and install all required cabinets and/or racks as required and as indicated.
 - 7. Furnish any other material required to form a complete system.
 - 8. Perform Link testing (100% of horizontal and/or backbone links) and certification of all components. All test must meet or exceed link testing requirements as specified in this document.
 - 9. Furnish test results of all cabling to the owner on disk and paper format, listed by each closet, then by workstation ID.
 - 10. Provide owner test results and documentation. (Testing documentation and as-built drawings).
 - 11. Removal of abandoned cable, if required.

3.03 WORK NOT INCLUDED

- A. Unless otherwise indicated, the Vendor is not responsible for providing data concentrators, hubs, switches, servers, computers, and other active devices such as PBX's.

3.04 INSTALLATION

- A. Install materials and equipment in accordance with applicable standards, codes, requirements, and recommendations of national, state, and local authorities having jurisdiction, and current National Electrical Code and with manufacturer's instructions.
- B. Install in accordance with manufacturer's instructions.
- C. All cable shall conform to the requirements for communications circuits

defined by the National Electrical code (Article 800). Cable listed to NEC Article 800-51(a) will be used for "Plenum" installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.

- D. Adhere to manufacturer's specifications for pulling tension, minimum bend radii, and sidewall pressure when installing cables.
 - 1. Where manufacturer does not provide bending radii information, minimum-bending radius shall be 15 times cable diameter. Arrange and mount equipment and materials in a manner acceptable to the engineer and the owner.
- E. Penetrations through floor and fire-rated walls shall utilize intermediate metallic conduit (IMC) or galvanized rigid conduit (GRC) sleeves and shall be fire stopped after installation and testing, utilizing a fire stopping assembly for that application. Contractor may also utilize EZ Path fire rated pathway or equivalent.
- F. Install station cabling to the nearest telecommunications room (TR), unless otherwise noted.
- G. Installation shall conform to the following basic guidelines.
 - 1. Use of approved wire, cable, and wiring devices.
 - 2. Neat and uncluttered wire termination.
- H. Where cable tray is not used, attach cables to permanent structure with suitable attachments at intervals of 48 to 60 inches. Support cables above removable ceilings.
- I. Follow manufactures recommendations on spacing and number and type of cables installed in j-hooks or cable tray to avoid cable stress.
- J. Separation and physical barriers between communication cabling and power cables must be always maintained.
- K. Install adequate support structure for 10-foot service slack at each TR.
- L. Support riser cables every (3) floors and at top of run with cable grips.
- M. Limit number of four-pair data riser cables per grip to fifty (50).
- N. Install cables in one continuous piece. Splices or taps will not be allowed.
- O. Provide overvoltage protection on both ends of cabling exposed to lightning or accidental contact with power conductors.

3.05 LABELING

- A. Label each outlet with permanent self-adhesive label.
- B. Label each cable within 1" of termination on each end.
- C. Use labels on the face of patch panels. Provide facility assignment records in a protective cover at each telecommunications closet location that is specific to the facilities therein.
- D. Use color-coded labels for each termination field that conforms to ansi/TIA/EIA-606(A) standard color codes for termination blocks.
- E. Labels shall be machine-printed. Handwritten labels shall not be acceptable.
- F. Mark up floor plans showing outlet locations, type, and cable marking of

cables. Turn these drawings over to the owner two (2) weeks prior to move in date.

- G. Three (3) sets of as-built drawings shall be delivered to the owner within four (4) weeks of acceptance of project by the owner. A set of as-built drawings shall be provided to the owner in electronic form utilizing CAD software that is acceptable to the owner. The electronic media shall be delivered to the owner within six (6) weeks of acceptance of project by owner.

3.06 TESTING

- A. Testing shall conform to ANSI/TIA/EIA-568-B.1 standard. Testing shall be accomplished using a level IIe or higher field testers.
- B. All testing shall meet or exceed Manufactures recommendation for 25-year warranty program,
- C. Test each pair and shield of each cable for open shorts, grounds, and pair reversal. Correct grounded and reversed pairs.
- D. If copper backbone cable contains more than one (1) percent bad pairs, remove and replace entire cable.
- E. If horizontal cable contains bad conductors or shield, contractor shall remove and replace cable at no additional cost to owner.
- F. Test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14a: OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and ANSI/TIA/EIA-526-7 Measurements of Optical Power Loss of Installed Singlemode Fiber Cable Plant. Measure results shall be plus/minus 1 dB of submitted loss budget calculations. Correct improper splices and replace damaged cables at no charge to the owner.
 - 1. Cables shall be tested at 850 and 1300 nm for multimode optical fiber cables. Cables shall be tested at 1310 and 1550 for singlemode optical fiber.
 - 2. Testing procedures shall utilize "Method B"- one jumper reference.
 - 3. Bi-directional testing of optical fiber is required.
 - 4. Submit printout for each cable tested. The use of handwritten test results will not be acceptable.

3.07 FIELD QUALITY CONTROL

- A. Employ job superintendent or project manager during the course of the installation to provide coordination of work of this specification and of other trades and provide technical information when requested by other trades. This person shall maintain current RCDD (Registered Communication Designer) registration and shall be responsible for quality control during installation, equipment set-up, and testing.
- B. Installation personnel shall meet manufacturer's training and education requirements for implementation of extended warranty program.

END OF SECTION 16700

SECTION 16710 - FIRE DETECTION AND ALARM**PART 1 - GENERAL****1.01 INCLUDED IN THIS SPECIFICATION**

- A. Connect new fire alarm devices to existing fire alarm system. Ensure device compatibility prior to purchase.

1.02 REFERENCES

- A. Electrical Industries Association (EIA):
1. RS-232-D – Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
 2. RS-485 – Electrical Characteristics of Generators and Receivers for Use in Balanced Multipoint Systems
- B. National Fire Protection Association (NFPA):
1. NFPA 12 – Standard on Carbon Dioxide Extinguishing Systems.
 2. NFPA 13 – Installation of Sprinkler Systems.
 3. NFPA 15 – Standard for Water Spray Fixed Systems for Fire Protection.
 4. NFPA 16 – Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.
 5. NFPA 16A – Standard for the Installation of Closed Head Foam-Water Sprinkler Systems.
 6. NFPA 70 – National Electrical Code (NEC).
 7. NFPA 72 – National Fire Alarm Code 2010 Edition
 8. NFPA 90A – Standard for the Installation of Air Conditioning and Ventilating Systems.
 9. NFPA 101 – Life Safety Code 2012 Edition
 10. NFPA 750 – Standard on Water Mist Fire Protection Systems.
 11. NFPA 5000 – Building Construction and Safety Code.
 12. IBC Chapters 9 & 10 2012 Edition
 13. ADAAG Americans with Disabilities Act Application Guidelines
- C. Fire Alarm Control Panel Equipment: System shall comply with applicable provisions of the following UL standards and classifications:
1. UL 864 9th Edition
 2. UOJZ, Control Units, System.
 3. SYZV Control Units, Releasing Device.
 4. UOXX, Control Unit Accessories, System.
- D. The Fire Alarm Control Panel's U.L. Listed signaling types shall be:
1. Digital alarm communicator
 2. Other Technology

1.03 SUBMITTALS

- A. Equipment Submittal Brochures:
1. Provide minimum 10 copies of submittal brochures and shop drawings.
 2. Submittal brochures shall be bound by means of 3 ring binders, binding combs or similar. Stapled brochures will be rejected.
 3. Provide one submittal brochure in color, highlighted and reserved for use by the Louisiana State Fire Marshal Plan Review Office. This copy

shall become the record copy for the project.

4. Include a cover page that indicates the following minimal information:
 - a. Project name and address.
 - b. Engineered systems distributor's name and contact information.
 - c. Installing contractor's name and contact information.
 - d. The date of the equipment submittals and date of any subsequent required re-submittals. Indicate on revised submittals the original submittal date and re-submittal date.
 - e. Architectural project review number assigned by the Louisiana State Fire Marshal's Office.
5. Provide a Scope of Work Narrative describing the system's basic operating premise in written word.
6. Provide a detailed Sequence of Operation Matrix Grid tailored for this project indicating the cause and effect of all fire alarm system control panels, input and output functions.
7. Include a system bill of material prepared specifically for this project. Include the make, model, description, quantity and manufacturer for every component to be installed in the project.
8. Provide manufacturer's data sheet for each component to be installed in the project. For data sheets that include multiple part numbers, options and accessories, the components included or pertinent to this project shall be highlighted in yellow.
9. Include the U.L. (Underwriters Laboratories) Certification for each component to be installed in the system. The U.L. Certification shall be placed directly behind its corresponding data sheet.
10. Manufacturers device compatibility documentation shall be included proving testing and operational compatibility between control panels and peripheral devices.
11. Separate battery calculations shall be provided for each control panel and prepared on manufacturer's official worksheets.

B. Shop Drawings

1. Shop drawings shall be prepared with the contractor's own title block which shall include:
 - a. Project name and address.
 - b. Contractor's name, address and phone number.
 - c. Date.
 - d. Drawing pages shall be numbered.
 - e. Bound with spines and stapled.
 - f. Floor plan scale.
 - g. Louisiana State Fire Marshal architectural assigned project number.
 - h. Revision number with re-submittal dates.
2. Drawings shall contain one floor per page. If a floor must be split use match lines and references that refer sheet number to match lines.
3. Floor plan shop drawings shall be prepared in AutoCAD.
4. Prepare floor plans to a 1/8" = 1'-0" scale unless directed otherwise by the architect.
5. Show all equipment, control panels, and device locations.
6. Include a distinct address for every device including panels, initiating, notification, auxiliary, and peripheral devices. All visual notification appliances shall have their candela indicated.

7. Floor plans shall include the following:
 - a. Door swings.
 - b. Room names and numbers.
 - c. Reflected ceiling plan overlay.
 - d. Ceiling heights.
 - e. Fire and smoke barriers.
 - f. Office furnishings when available.
8. Include a symbol schedule of devices for this project.
9. Include the necessary details and general notes for mounting heights, device placement restrictions, etc.
10. End-of-line symbols shall be shown on the floor plans.
11. Riser locations shall be indicated on the floor plan by a bold circle.
12. A detailed riser shall be provided as part of the shop drawings. The riser shall include:
 - a. Control panels, power supplies, annunciators, demark cabinets, each identified with its own address and description matching the symbol schedule.
 - b. Operating power requirements with breaker panel and breaker number identification.
 - c. All system circuits including initiating, notification, SLC, power, control, monitor, network, audio, riser, fiber optic, phone, category cable and auxiliary circuits. Circuits shall be individually addressed indicating wire type, size, quantity and color.
 - d. Provide a point to point diagram of every system device on its riser circuit using the exact device symbol as the floor plan. Provide the corresponding device address and candela rating next to each device.
 - e. Provide the cumulative current draw at the end of each notification appliance circuit.
 - f. Indicate location and placement of surge suppressors.
 - g. Provide detail circuit diagrams for connections with systems from other trades.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, number and manufacturer.
- B. Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Protect materials from damage during handling and installation.

1.05 WARRANTY

- A. Contractor shall warranty material and installation against defects in manufacturing and workmanship for a period of one year beginning on the date of final acceptance of the project. Warranty related service calls shall be provided at no charge during the contractor's normal working hours.

1.06 MAINTENANCE CONTRACT

- A. The supplier shall offer for the owner's consideration at the time of system submittal a priced inspection, test, maintenance and repair agreement for the

installed system in compliance with the inspection and maintenance requirements of NFPA 72 for a period of 12 months, to commence after the expiration of the maintenance agreement included in this contract.

- B. The owner shall have the option of renewing the agreement at the price quoted, in yearly increments up to a maximum of five (5) years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. References to manufacturer's model numbers and other information is intended to establish minimum standards of performance, function, and quality. No other manufacturers, other than those listed will be considered for use on this project.
- B. Substitute equipment proposed as equal to equipment specified shall meet or exceed requirements of this section. For equipment other than Gamewell-FCI S3 Series provide proof that such substitute equipment equals or exceeds features, functions, performance, and quality of specified equipment. This proof shall be provided by submission of a copy of specification with each copy of the submittals that has had each paragraph marked as either compliant or non-compliant along with a letter from engineering manager or product manager at factory that certifies information presented as either compliant or non-compliant including a detailed explanation of each paragraph identified as non-compliant. In order to ensure that the Owner is provided with a system that incorporates required survivability features, this letter shall also specifically certify that the system is capable of complying with the test requirements of this section.

2.02 FIRE ALARM SYSTEM

- A. Control panel is existing Simplex 4002.

2.03 SUPPLEMENTARY NOTIFICATION APPLIANCE POWER SUPPLIES

- A. The following are acceptable manufacturers and series for supplementary notification appliance circuit power supplies. No substitutions are allowed. It is the intent of this specification that all notification equipment must be available over the counter through security equipment distributor network markets
1. APS6 of APS10 with the appropriate amp.
- B. The supplementary NAC power supply shall offer up to 6.0 amps continuous regulated 24-volt power. The power supply shall include the following features:
1. Integral Charger: Charge up to 35.0 amp-hour batteries and support 60-hour standby.
 2. 2 Input Triggers. Input trigger shall be Notification Appliance Circuit (from fire alarm control panel) or supervised addressable relay.
 3. Surface-mount back box.
 4. Ability to delay AC fail delay in accordance with applicable NFPA requirements.
 5. Power limited circuitry in accordance with applicable UL standards.
 6. Operates as sync follower or a sync generator.
 7. Shall have on-board built in sync capability for System Sensor and

Wheelock brand appliances.

- C. Do not exceed 75% of the power supply's available listed current. Provide the necessary quantity of power supplies to satisfy this requirement with the quantity of devices indicated on the plans.

2.04 SYSTEM PERIPHERALS

- A. Every devices address shall be set by means of a rotary-decimal switch using a standard screwdriver. Devices using or requiring binary switches, handheld device programmers or addressed only through software mapping shall not be acceptable.
- B. Smoke detectors
1. Shall be fully listed and compatible with the furnished system.
 2. Each detector shall be provided with 2 status LEDs that shall flash under normal conditions and remain steady during alarm conditions.
- C. Pull Stations
1. Shall be fully listed and compatible with the furnished system, dual action, and constructed of Lexan with clearly visible operating instructions provided on cover. The word FIRE shall appear on front of stations in raised letters.
 2. Stations shall be designed so after actuation they cannot be restored except by key reset.
 3. Stations shall be keyed alike with the fire alarm control panel and NAC power supply.
 4. Surface boxes shall be available as an option from the manufacturer.
 5. Pull stations shall not utilize glass rods.
- D. Duct Detectors
1. Duct detectors shall be System Sensor DNR or DNRW Series housings.
 2. Housings and all the related accessories listed below shall be provided for the each of the following:
 - a. On the ductwork of every supply branch of every HVAC air handling/rooftop unit exceeding 2,000 CFM
 - b. On the ductwork of every return branch of HVAC air handling/rooftop unit exceeding 2,000 CFM. Where duct detectors cannot be practically or effectively installed on return ductwork, securely fasten the duct detector on the side of the AHU and install and secure its sampling tube across the front of the return air filter.
 - c. On every shown smoke and fire/smoke damper. Where duct detectors cannot be practically installed on dampers consult with the general contractor to coordinate their installation with other trades.
 3. The housing shall include the listed addressable photoelectric smoke detector head which shall twist in and lock inside the housing.
 4. Provide System Sensor DST Series sampling tube of enough length to extend 75% of the width of the duct it is being installed in. Sampling tubes in ducts exceeding widths of 6 feet shall exceed and install across the entire width of the duct and be supported by drilling a hole in the opposite side of the ductwork.
 5. A System Sensor model RTS151KEY module shall be installed for each duct detector. Provide phenolic labels identifying the related HVAC

unit it is connected to. The RTS151KEY module shall mount in a standard single gang electrical box. Verify and coordinate location of RTS151KEY modules with architect.

6. Provide one addressable relay module for each HVAC required function including:
 - a. AHU Shutdown
 - b. Smoke damper operation
 - c. Smoke sequence/exhaust/pressurization operations
 7. System designs incorporating hardwired, conventional relays for any mechanical functions are not allowed and will be subsequently rejected.
- E. Thermal Detectors
1. Shall be listed and compatible with the furnished system.
 2. Detector shall be rated at 135 degrees and shall have rate of rise element rated at 15 degrees per minute.
- F. Addressable Monitor Modules
1. Where required provide addressable monitor modules to monitor normally open dry contacts from other non-addressable equipment.
 2. Module shall be suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
 3. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when it's connected device is in alarm.
 4. Modules not suitable for mounting directly onto a 4" square electrical box or those which wire with pigtail type connectors are not acceptable.
- G. Supervised Addressable Output Module
1. Provide addressable supervised output module where required for the project to provide a supervised, programmed 24volt DC reverse polarity output.
 2. Module shall be suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
 3. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when the module is activated.
- H. Addressable Relay Output Module
1. Provide addressable modules suitable for installation on a standard 4" square electrical box 2-1/8" deep and shall include the manufacturer's matching cover plate.
 2. The module shall provide two isolated sets of Form-C normally open and normally closed contacts
 3. Contact ratings shall be rated at minimum 2.0 amps resistive or 1.0 amp inductive
 4. An LED shall be visible on the outside of the module's cover plate and shall flash under normal conditions and remain on steady when the module is activated.
- I. Audio Visual Notification Appliances
1. Shall be System Sensor SpectrAlert Advance Series listed for use on

- both wall and ceiling as indicated on the plans.
2. Provide devices white in color with red FIRE screened on device from manufacturer.
 3. Audio visual devices shall be one complete assembly utilizing a speaker for audible notification for this project.
 4. The device shall be suitable for mounting on standard electrical boxes using the manufacturer's universal mounting plate. The strobe device shall snap into the mounting plate and secured by one fastener.
 5. The manufacturer's mounting plate shall include screw terminals to accept all field wiring.
 6. Candelas shall be selectable in settings of 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177 and 185.
 7. The strobe shall be listed to U.L. 1971 standards and meet all current ADAAG Guidelines.
 8. The system shall utilize speakers for audible alarm notification. The speakers shall be listed to UL 1480 for Fire Protective Signaling Systems. It shall be a dual-voltage transformer speaker capable of operation at 25.0 or 70.7 nominal Vrms. The speaker shall have a frequency range of 400 to 4,000 Hz. The speaker shall be capable of mounting to a standard 4x4x2 1/8 electrical box. The speaker shall have power taps from ¼ watt to 2 watts and voltage output selectable via rotary switches. The speaker shall have a maximum sound output of 86 dB at 10 feet. Provide System Sensor Spectralert SPS Series speakers and speaker strobe devices.
 9. Provide manufacturer's surface mount and weatherproof backboxes where required.

2.05 WIRE AND CABLE

- A. The following are acceptable manufacturers:
 1. Windy City Wire
 2. General Cable
- B. Cable shall be approved for plenum use without conduit per the NFPA 262 Flame Test
- C. Cable shall be approved per NEC 800, 760; UL, CMP, FPLP UL, RoHS Compliant

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and surfaces to receive fire alarm system.
 1. Notify Architect of conditions that would adversely affect installation or subsequent use.
 2. Do not begin installation until unacceptable conditions are corrected.

3.02 INSTALLATION

- A. Install fire alarm system in accordance with NFPA 72, NFPA 70, state and local codes, manufacturer's instructions, and as indicated on the Drawings.
- B. The entire system shall be installed in a skillful manner in accordance with approved manufacturer's installation manuals, shop drawings and wiring diagrams.
- C. Coordinate locations of all devices with all other divisions' drawings and

specifications.

- D. All fire alarm devices shall be accessible for periodic maintenance. Should a device location indicated on the contract drawings not meet this requirement, it shall be the responsibility of the installing contractor to bring it, in writing, to the attention of the Project Engineer.
- E. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.
- F. All systems and system components listed to UL864 Control Units for Fire Protective Signaling Systems may be installed within a common conduit raceway system, in accordance with the manufacture's recommendations. System(s) or system components not listed to the UL864 standard shall utilize a separate conduit raceway system for each of the sub-systems.
- G. No wiring except life safety system circuits and system power supply circuits shall be permitted in the control panel enclosures.
- H. Any low-voltage copper wiring that leaves the protection of a building shall be provided with a compatible UL 497B listed transient protection devices where the circuit leaves the building and where it enters the next building.
- I. Devices containing end-of-line resistors shall be appropriately labeled. Devices should be labeled such that removal of the device is not required to identify the EOL device.
- J. Fiber Optic Cable
 - 1. Only glass filament cable permitted. Plastic filament fiber optic cables are not acceptable.
 - 2. LC connectors shall be used at all equipment terminations.
- K. Conceal conduit, junction boxes, and conduit supports and hangers in finished areas. Conceal or expose conduit, junction boxes, and conduit supports and hangers in unfinished areas.
- L. Fire alarm system junction box covers shall be painted red.
- M. Wiring within cabinets, enclosures, boxes, junction boxes and fittings shall be installed in a neat and workmanlike manner, installed parallel with or at right angles to the sides and back of any box, enclosure or cabinet, and routed to allow access for maintenance. All conductors that are terminated, spliced, or otherwise interrupted in any enclosure, cabinet, mounting or junction box shall be connected to terminal blocks. Mark each terminal in accordance with the wiring diagrams of the system. Make all connections with approved pressure type terminal blocks, which are securely mounted. All terminal block screws shall have pressure wire connectors of the self-lifting or box lug type. No more than two conductors shall be installed under one connection. Wire nuts, crimp splices and similar devices shall not be used.
- N. Conductors
 - 1. Each conductor shall be identified as shown on the drawings at terminal points. Permanent wire markers shall be located within 2 inches of the wire termination. Marker text shall be visible with protective doors or covers removed.
 - 2. Maintain a consistent color code for fire alarm system conductor functions throughout the installation.

3. All wiring shall be checked and tested to insure that there are no grounds, opens or shorts.
- O. Devices
1. Remote power supplies and auxiliary fire alarm panels
 - a. Locate the panel or cabinet with the top of the panel 72" above the finished floor or center the panel at 63", whichever is lower.
 - b. Do not locate these panels above ceilings or where inaccessible by a person standing on the finished floor of the space.
 - c. Label the power supplies and auxiliary FACPs with the room number, electrical panel number and circuit breaker number feeding them.
 - d. Paint the handles of the dedicated circuit breakers feeding fire alarm panels red, and install handle locks.
 - e. Within the panel, all non-power limited wiring must be properly separated from power limited circuits.
 2. Manual Pull Stations
 - a. Mount stations so that their operating handles are between 42" and 48" above the finished floor.
 3. Notification Appliances: Mount assemblies as follows:
 - a. All wall mounted audio/visual devices shall be mounted so the entire lens is between 80" and 96" above the finished floor. Where low ceilings exist, devices shall be mounted within 6" of the ceiling.
 - b. Where ceiling height exceeds 30 feet, appliances shall be suspended from the ceiling to a height of 30 feet maximum above the finished floor.
 - c. Appliances installed outdoors shall be UL listed for outdoor use.
 4. Smoke Detectors:
 - a. Detectors located on the wall shall have the top of the detector at least 4" and not more than 12" below the ceiling.
 - b. On smooth ceilings, detectors shall not be installed over 30 ft. apart in any direction.
 - c. Install smoke detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.
 - d. Locate detectors no closer than 12" from any part of a lighting fixture.
 5. Duct Smoke Detectors:
 - a. Install sampling tubes so they extend the full width of ducts exceeding 36".
 - b. Detectors shall be located to facilitate ease of maintenance.
 - c. All penetrations near detectors located on/in return ducts shall be sealed to prevent air entry.
 6. End-of-Line Resistors
 - a. Devices containing end-of-line resistors shall be appropriately labeled.
 7. Remote Status and Alarm Indicators:
 - a. Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

8. Single-Station Smoke Alarms:
 - a. Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound
 9. CO Detectors
 - a. Ceiling mounted CO detectors should be kept 12" from sidewalls.
 - b. Wall mounted CO detectors should be at least 48" above the finished floor, but less than 6" from the ceiling.
 - c. Locate at least 60" from fuel burning appliances.
 - d. Install CO detectors no closer than 3 ft. from air handling supply air diffusers or return air openings.>
 10. Heat Detectors
 - a. Heat detectors shall be installed in strict accordance with their UL listing and the requirements of NFPA 72.
 - b. Heat detectors installed in the elevator machinery room to meet ANSI A17.1 requirements for elevator power disconnect, shall be located adjacent to each sprinkler head. Coordinate temperature rating and location with sprinkler rating and location.
 11. Addressable Control (relay) Modules
 - a. Install the module less than 3 feet from the device controlled.
 - b. Orient the device mounting for best maintenance access.
 - c. Label all addressable control modules as to their function.
 - d. Provide a dedicated 24VDC circuit to feed all auxiliary relays required for inductive loads (auxiliary relays, door holders). Circuits shall be supervised via an end-of-line relay and addressable input module. Auxiliary relays shall not derive their power from the starter or load being controlled.
- P. Do not install smoke detectors before system programming and test period. If construction is ongoing during this period, take measures to protect smoke detectors from contamination and physical damage.
- Q. Flush-mount fire detection and alarm system devices, control panels, and remote annunciators in finished areas. Flush-mount or surface-mount fire detection and alarm system devices, control panels, and remote annunciators in unfinished areas.

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Provide service of competent, factory-trained technician authorized by manufacturer to technically supervise and participate during pre-testing and acceptance testing of system.
- B. Testing:
 1. Conduct complete visual inspection of control panel connections and test wiring for short circuits, ground faults, continuity, and insulation before energizing cables and wires.
 2. Close each sprinkler system control valve and verify proper supervisory alarm at Control Panel.
 3. Verify activation of flow switches.
 4. Open initiating device circuits and verify that trouble signal actuates.
 5. Open signaling line circuits and verify that trouble signal actuates.

6. Open and short notification appliance circuits and verify that trouble signal actuates.
 7. Ground initiating device circuits and verify response of trouble signals.
 8. Ground signaling line circuits and verify response of trouble signals.
 9. Ground notification appliance circuits and verify response of trouble signals.
 10. Check installation, supervision, and operation of intelligent smoke detectors.
 11. Introduce on system each of the alarm conditions that system is required to detect. Verify proper receipt and proper processing of signal at Control Panel and correct activation of control points.
 12. Consult manufacturer's manual to determine proper testing procedures when system is equipped with optional features. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality, and similar.
- C. Acceptance Testing:
1. Before installation shall be considered completed and acceptable by AHJ, a complete test using as a minimum, the following scenarios shall be performed and witnessed by representative approved by Engineer. Monitoring company and/or fire department shall be notified before final test in accordance with local requirements.
 2. Contractor's job foreman, in presence of representative of manufacturer, representative of Owner, and fire department shall operate every installed device to verify proper operation and correct annunciation at control panel.
 3. Open signaling line circuits and notification appliance circuits in at least 2 locations to verify presence of supervision.
 4. When testing has been completed to satisfaction of both Contractor's job foreman and representatives of manufacturer and Owner, a notarized letter co-signed by each attesting to satisfactory completion of said testing shall be forwarded to Owner and fire department.
 5. Leave fire alarm system in proper working order and, without additional expense to Owner, replace defective materials and equipment provided within 1 year (365 days) from date of final acceptance by the owner.

3.04 DEMONSTRATION

- A. Provide instruction as required for operating fire alarm system.

END OF SECTION 16710

FEBRUARY 5, 2024
CONSTRUCTION DOCUMENT SET FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT RENDERING

SHEET INDEX

PROJECT CODE INFO

GENERAL SHEETS
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G1.02 - PROJECT NOTES

ARCHITECTURAL SHEETS
A1.00- DEMOLITION FLOOR PLAN
A1.01- RENOVATION FLOOR PLAN
A2.00- INTERIOR ELEVATIONS
A3.00- SECTIONS
A3.01- SECTIONS
A5.00- SCHEDULE DETAILS
A5.01- SCHEDULE DETAILS
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E3.01- ELECTRICAL ONE LINE DIAGRAM
E3.02- ELECTRICAL ONE LINE DIAGRAM #2
E4.00- ELECTRICAL SCHEDULES
E5.00- ELECTRICAL DETAILS

CODE ENFORCEMENT JURISDICTION
CITY- BATON ROUGE
PARISH- EAST BATON ROUGE
STATE-LOUISIANA
APPLICABLE CODE DESIGN DATA
BUILDING CODE: 2021 INTERNATIONAL BUILDING CODE
LIFE SAFETY CODE: NFPA 101 LIFE SAFETY CODE - 2012
PROJECT USAGE
EDUCATION
PROJECT TYPE
BUILDING RENOVATION

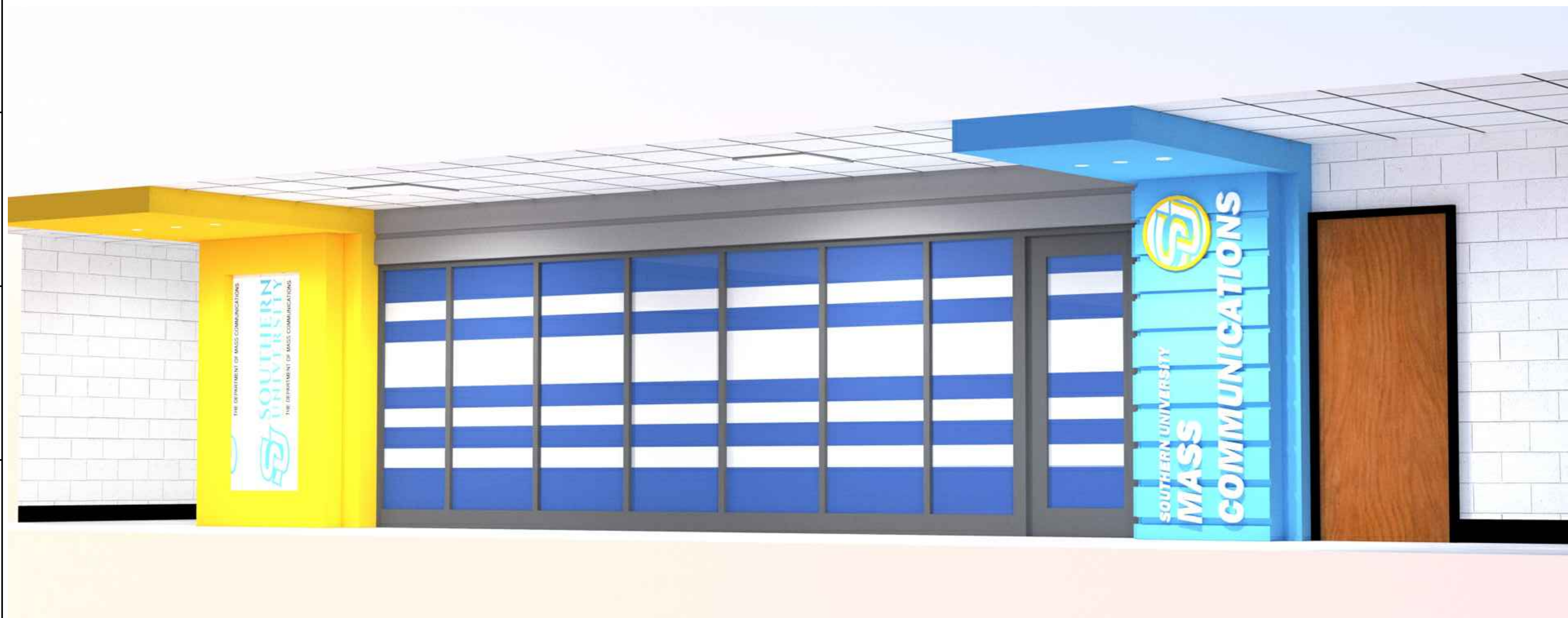
PROJECT TEAM

PROJECT
MULTI-MEDIA CENTER RENOVATION AT SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA
ARCHITECT'S PROJECT NUMBER: 22-022

PROJECT LOCATION
801 HARDING BLVD
BATON ROUGE, LOUISIANA 70807

OWNER NAME
SOUTHERN UNIVERSITY
801 HARDING BLVD
BATON ROUGE, LOUISIANA 70807

OWNER/AUTHORIZED AGENT
M3A ARCHITECTURE, PLLC
WILLIAM L. McELROY AIA, NCARB
REGISTERED ARCHITECT STATE OF MISSISSIPPI
REGISTRATION NUMBER - 3248
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AGENT CONTACT - PRESTON MCKAY



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MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: PLM,NRJ
CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____

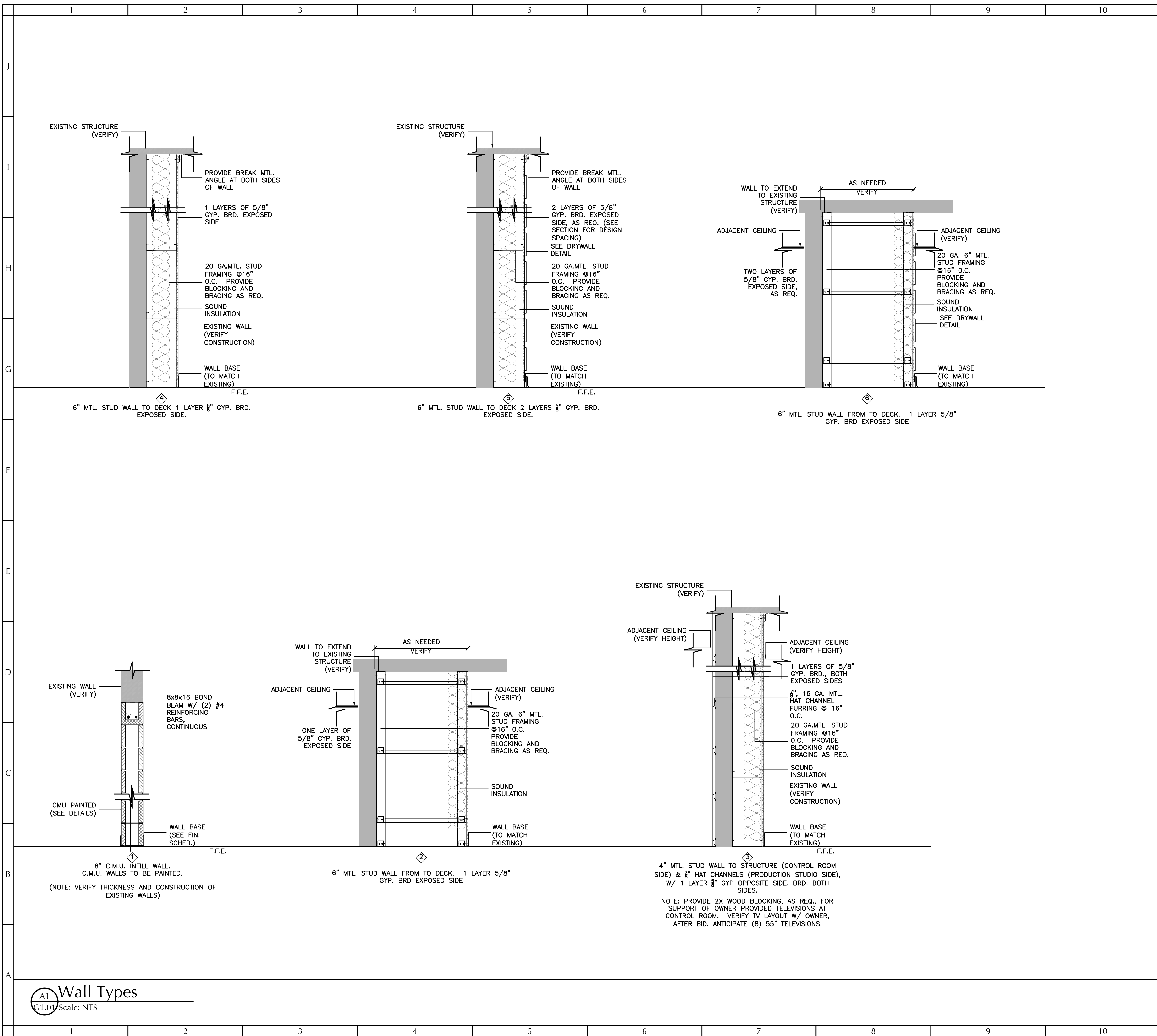
SEAL:

SHEET TITLE:

TITLE SHEET

SHEET NUMBER
T1.00.0

M3ARCHITECTURE, PLLC



- WALL TYPE GENERAL NOTES:**
- INSTALL FIRE RATED SEALANT @ TOP AND BOTTOM OF ALL FIRE RATED WALLS. ALSO, SEAL ALL ENDS OF FIRE RATED WALLS WHERE BUTT JOINTS OCCUR.
 - ALL RATED WALLS TO EXTEND TO DECKING ABOVE.
 - ANY PENETRATION OF A RATED WALL TO HAVE FIRESTOPPING MATERIAL AROUND THE OBJECT PENETRATING THE WALL, AS WELL AS FIRESTOPPING SEALANT AROUND THE OPENING.
 - REFER TO THE FINISH SCHEDULE FOR LOCATION(S) OF MOISTURE RESISTANT GYPSUM BOARD WALLS.
 - INSTALL FIRE SAFING AS NECESSARY IN VOIDS BETWEEN TOP OF WALLS AND METAL DECK NOT TO CREATE DISCONTINUITY IN FIRE RATED ASSEMBLY.
 - FIRESTOPPING MATERIALS MUST COMPLY WITH ASTM STANDARD E 814-94B.
 - PROVIDE FIRESTOP SYSTEMS CONSISTING OF A MATERIAL, OR COMBINATION OF MATERIALS INSTALLED TO RETAIN THE INTEGRITY OF FIRE-RATED CONSTRUCTION BY MAINTAINING AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND/OR HOT GASES THROUGH PENETRATIONS, BLANK OPENINGS, CONSTRUCTION JOINTS, OR AT PERIMETER FIRE CONTAINMENT IN OR ADJACENT TO FIRE-RATED BARRIERS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE FOR THIS PROJECT.
 - FIRESTOP SYSTEMS SHALL BE USED IN LOCATIONS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
 - PENETRATIONS THROUGH FIRE-RESISTANCE-RATED FLOOR AND ROOF ASSEMBLIES REQUIRING PROTECTED OPENINGS INCLUDING BOTH EMPTY OPENINGS AND OPENINGS THAT CONTAIN PENETRATIONS.
 - PENETRATIONS THROUGH FIRE-RESISTANCE-RATED WALL ASSEMBLIES INCLUDING BOTH EMPTY OPENINGS AND OPENINGS THAT CONTAIN PENETRATIONS.
 - MEMBRANE PENETRATIONS IN FIRE-RESISTANCE-RATED WALL ASSEMBLIES WHERE ITEMS PENETRATED ONE SIDE OF THE BARRIER.
 - JOINTS IN FIRE-RESISTANCE-RATED ASSEMBLIES TO ALLOW INDEPENDENT MOVEMENT.
 - PERIMETER FIRE BARRIER SYSTEM BETWEEN A RATED FLOOR/ROOF AND AN EXTERIOR WALL ASSEMBLY.
 - JOINTS, THROUGH PENETRATIONS AND MEMBRANE PENETRATIONS IN SMOKE BARRIERS AND SMOKE PARTITIONS.
 - GYPSUM BOARD WALL CONSTRUCTION CONTROL JOINT REQUIREMENTS SHALL BE AS FOLLOWS:
 - A CONTROL JOINT SHALL BE INSTALLED WHERE A PARTITION, WALL, OR CEILING TRAVERSES A CONSTRUCTION JOINT (EXPANSION, SEISMIC OR BUILDING CONTROL ELEMENT) IN THE BASE BUILDING STRUCTURE.
 - CONTROL JOINTS SHALL BE INSTALLED WHERE A WALL OR PARTITION RUNS IN AN UNINTERRUPTED STRAIGHT PLANE EXCEEDING 30 LINEAR FEET
 - CONTROL JOINTS IN INTERIOR CEILINGS WITH PERIMETER RELIEF SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 50 FT (15000 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 2500 SQ FT (230 M²)
 - CONTROL JOINTS IN INTERIOR CEILINGS WITHOUT PERIMETER RELIEF SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 30 FT (9100 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 900 SQ FT (84 M²)
 - CONTROL JOINTS IN EXTERIOR CEILINGS AND SOFFITS SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 30 FT (9100 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 900 SQ FT (84 M²)
 - CONTROL JOINT OR INTERMEDIATE BLOCKING SHALL BE INSTALLED WHERE CEILING FRAMING MEMBERS CHANGE DIRECTION
 - WHERE A CONTROL JOINT OCCURS IN AN ACOUSTICAL OR FIRE RATED SYSTEM, BLOCKING SHALL BE PROVIDED BEHIND THE CONTROL JOINT BY USING A BACKING MATERIAL SUCH AS 5/8 IN. (15.9 MM) TYPE X GYPSUM BOARD, MINERAL FIBER, OR OTHER TESTED EQUIVALENT.
 - WHERE CONTROL JOINTS ARE INSTALLED IN RATED ASSEMBLIES AND ARE PARALLEL TO THE FRAMING MEMBERS, A FRAMING MEMBER IS REQUIRED ON EACH SIDE OF THE OPENING.
 - IN RATED ASSEMBLIES THE CONTROL JOINT SHOULD BE PLACED SO THAT THE GYPSUM BOARD STRIPS ARE CONTINUOUS

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INSTIGO • INSPIRE • QUOD VERTO

M3A

ARCHITECTURE

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PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY

PROJECT NUMBER: 22-022

DATE: 02/05/2024

DRAWN BY: PLM,NRJ

CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____



SHEET TITLE:
Wall Types

SHEET NUMBER:
G1.01

M3A ARCHITECTURE, PLLC

	1	2	3	4	5	6	7	8	9	10	11	12
	<p>GENERAL DEMOLITION NOTES</p> <p>DRAWINGS OF EXISTING CONDITIONS HAVE BEEN COMPILED FROM EXISTING AVAILABLE DATA SUPPLIED TO THE ARCHITECT AND/OR EITHER GATHERED BY THE ARCHITECT. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FOR THE ACCURACY OF THE COMPLETENESS OF INFORMATION RECORDED SHALL BE ASSUMED. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMISSION TO BID.</p> <p>VERIFY LOCATIONS OF EXISTING MECHANICAL, PLUMBING AND ELECTRICAL UTILITIES. LOCATE AND PROTECT UTILITIES TO REMAIN. DISCONNECT, REMOVE BACK TO NEAREST JUNCTION BOX OR PANEL, AS REQUIRED, AND CAP DESIGNATED UTILITIES WITHIN THE DEMOLITION AREA. REFER TO THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.</p> <p>ALL EXISTING BUILDING UTILITIES SHALL REMAIN IN OPERATION DURING CONSTRUCTION. PROVIDE REROUTING OF UTILITIES UNINTERRUPTED SERVICE. ANY TEMPORARY SUSPENSION OF SERVICE SHALL BE COORDINATED AND APPROVED BY UTILITY COMPANIES AND LOCAL OFFICIALS HAVING JURISDICTION NOT LESS THAN TWENTY FOUR (24) HOURS IN ADVANCE.</p> <p>THE DEMOLITION DRAWING KEYNOTES ARE DIAGRAMMATIC AND GENERAL IN NATURE. THE INTENT IS TO ILLUSTRATE THE COMPLETE DEMOLITION OF THE SPACES AS INDICATED UNLESS OTHERWISE NOTED. FIELD VERIFICATION OF EXISTING CONDITIONS AND SPECIFIC QUANTITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.</p> <p>REMOVAL AND DISPOSAL OF DEMOLITION DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR. LOCATE AND VERIFY THE HAULING ROUTE, THE STORAGE AREA, AND THE LOCATION OF THE DUMPSTER WITH THE OWNER AND/OR ARCHITECT PRIOR TO THE START OF DEMOLITION. DISPOSAL OF RUBBISH SHALL BE DONE IN A LEGAL MANNER.</p> <p>THE OWNER RESERVES THE RIGHT TO SALVAGE ANY DEMOLISHED ITEM. VERIFY ITEMS TO BE SALVAGED WITH THE OWNER PRIOR TO THE START OF DEMOLITION. REMOVE, PROTECT, CLEAN, REPAIR FOR REUSE AND TURN OVER SUCH ITEMS AS DIRECTED BY THE OWNER.</p> <p>IN ORDER TO INSTALL SOME OF THE NEW WORK IT WILL BE NECESSARY FOR THE CONTRACTOR AND HIS SUBCONTRACTORS TO REMOVE AND REPLACE EXISTING WALLS, FLOOR, OR CEILINGS IN THE AREAS OF THE BUILDING AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL INCLUDE ALL RELATED COSTS IN HIS BASE BID, WHETHER SHOWN OR IMPLIED ON THE PLANS OR NOT.</p> <p>PROTECT ADJACENT SPACES AND SURFACES NOT SCHEDULED FOR DEMOLITION. PATCH AND REPAIR DAMAGED FINISHES, ITEMS AND FIXTURES TO REMAIN AND/OR REPLACE IN KIND TO MATCH EXISTING FROM DAMAGE DURING THE PROGRESS OF THE WORK. PROVIDE TEMPORARY SAFETY BARRIERS REQUIRED BY CODE AND AS INDICATED TO INSURE THE SAFETY OF WORKERS AND THE PUBLIC.</p> <p>PROVIDE DUST BARRIERS AROUND OPENINGS, TO AND FROM THE CONSTRUCTION AREA. PROVIDE ALL MEANS NECESSARY TO INHIBIT DUST FROM ENTERING OTHER PORTIONS OF THE FACILITY.</p> <p>PROVIDE ADEQUATE SHORING, BRACING, BARRICADES, AND PROTECTIVE MEASURES AS REQUIRED TO SAFELY EXECUTE THE WORK IN THE CONSTRUCTION AREA AND THE AREAS ADJACENT TO THE CONSTRUCTION AREA. CEASE OPERATIONS AND NOTIFY THE ARCHITECT IMMEDIATELY IF THE STRUCTURE APPEARS TO BE ENDANGERED. DO NOT RESUME OPERATIONS UNTIL CORRECTIVE MEASURES HAVE BEEN TAKEN.</p> <p>CONTRACTOR SHALL MAINTAIN REQUIRED MEANS OF EGRESS AND ENSURE THAT EXIT ROUTES ARE SIGNED, LIGHTED, AND PROTECTED IN ACCORDANCE WITH CODE REQUIREMENTS. RELOCATE EXISTING AND/OR PROVIDE SMOKE PROTECTORS AND LIFE SAFETY EQUIPMENT FOR ADEQUATE COVERAGE.</p> <p>AT FLOOR AREAS SCHEDULED TO RECEIVE NEW FLOOR COVERING, REMOVE EXISTING FLOOR COVERINGS AND PREPARE SUBSTRATE FOR NEW FLOOR COVERINGS PER SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.</p> <p>AT ABANDONED PENETRATIONS OF FIRE RATED WALLS, CEILING OR FLOOR CONSTRUCTION, COMPLETELY SEAL VOIDS WITH FIRE RATED MATERIALS TO FULL THICKNESS OF THE PENETRATED ELEMENT. ALL PATCHING OF EXISTING WORK TO REMAIN SHALL MATCH FINISH PER SCHEDULE OR WHERE UNSCHEDULED TO MATCH EXISTING FINISHES TO REMAIN, AND SHALL MEET OR EXCEED FIRE RATING INDICATED ON FLOOR PLAN AND ARE REQUIRED BY THE STATE FIRE MARSHALL AND APPLICABLE CODES.</p> <p>CONTRACTOR IS RESPONSIBLE FOR BUILDING SECURITY DURING ALL PHASES OF CONSTRUCTION. PROTECT ALL OPENINGS FROM WEATHER CONDITIONS AND SECURE THEM TO PREVENT VANDALISM.</p> <p>DO NOT PERFORM WORK THAT WILL VOID WARRANTIES OF EXISTING WEATHER EXPOSED OR MOISTURE RESISTANT ELEMENTS WITHOUT PRIOR APPROVAL FROM THE OWNER.</p> <p>ARCHITECT ASSUMES NO RESPONSIBILITY RELATING TO TOXIC MATERIALS, INCLUDING ASBESTOS, AND ASSUMES NO RESPONSIBILITY TO ITS EXISTENCE OR REMOVAL. THE CONTRACTOR WILL TAKE ACTION FOR DIRECTLY CONTRACTING WITH A CONSULTANT OR SPECIALIST, LICENSED BY THE STATE, FOR SUCH SERVICES SHOULD THOSE SERVICES BE REQUIRED ON THE PROJECT. CONTRACTOR TO INCLUDE ALLOWANCE FOR AMOUNT STATED IN SPECIFICATION FOR TESTING OF EXISTING MATERIALS AND/OR REMOVAL OF EXISTING MATERIALS AS NEEDED. SEE PROJECT MANUAL FOR EXACT AMOUNT OF ALLOWANCE.</p> <p>CONTRACTOR IS RESPONSIBLE TO VISIT THE PROJECT SITE PRIOR TO BID AND BECOME FAMILIAR WITH ALL VISIBLE EXISTING CONDITIONS. SUBMISSION OF BID WILL BE CONSTRAINED AS CONTRACTORS STATEMENT THAT SITE VISIT HAS OCCURRED. NO CHANGE ORDERS WILL BE PAID FOR COORDINATION WITH VISIBLE EXISTING CONDITIONS.</p> <p>VERIFY ALL EXISTING GRADE ELEVATIONS AND FLOOR ELEVATIONS INDICATED PRIOR TO PROCEEDING WITH ANY WORK.</p> <p>CONFORM TO ALL CODES AND EXECUTE WORK ONLY WHICH IS IN CONFORMANCE.</p> <p>KEEP CLEAN ALL EXISTING SPACES AND PROPERTIES ADJACENT TO DEMOLITION/CONSTRUCTION AREAS. ANY DEBRIS SHALL BE REMOVED FROM WORK AREAS DAILY. CLOSE OFF ALL EXISTING TO REMAIN OPENINGS, DUCTS, PIES, ETC THROUGHOUT THE PROJECT TO PREVENT DEBRIS/DUST ENTRY.</p> <p>PROTECT ALL DEMOLISHED OPENINGS PRIOR TO INSTALLATION OF NEW DOORS, MASONRY INFILL, FIRE RATED PARTITIONS, ETC.</p>	<p>WALL TYPE GENERAL NOTES:</p> <p>1. INSTALL FIRE RATED SEALANT @ TOP AND BOTTOM OF ALL FIRE RATED WALLS. ALSO, SEAL ALL ENDS OF FIRE RATED WALLS WHERE BUTT JOINTS OCCUR.</p> <p>2. ALL RATED WALLS TO EXTEND TO DECKING ABOVE.</p> <p>3. ANY PENETRATION OF A RATED WALL TO HAVE FIRESTOPPING MATERIAL AROUND THE OBJECT PENETRATING THE WALL, AS WELL AS FIRESTOPPING SEALANT AROUND THE OPENING.</p> <p>4. REFER TO THE FINISH SCHEDULE FOR LOCATION(S) OF MOISTURE RESISTANT GYPSUM BOARD WALLS.</p> <p>5. INSTALL FIRE SAFING AS NECESSARY IN VOIDS BETWEEN TOP OF WALLS AND METAL DECK NOT TO CREATE DISCONTINUITY IN FIRE RATED ASSEMBLY.</p> <p>6. FIRESTOPPING MATERIALS MUST COMPLY WITH ASTM STANDARD E 814-94B.</p> <p>7. PROVIDE FIRESTOP SYSTEMS CONSISTING OF A MATERIAL, OR COMBINATION OF MATERIALS INSTALLED TO RETAIN THE INTEGRITY OF FIRE-RATED CONSTRUCTION BY MAINTAINING AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND/OR HOT GASES THROUGH PENETRATIONS, BLANK OPENINGS, CONSTRUCTION JOINTS, OR AT PERIMETER FIRE CONTAINMENT IN OR ADJACENT TO FIRE-RATED BARRIERS IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE FOR THIS PROJECT.</p> <p>8. FIRESTOP SYSTEMS SHALL BE USED IN LOCATIONS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:</p> <p>A. PENETRATIONS THROUGH FIRE-RESISTANCE-RATED FLOOR AND ROOF ASSEMBLIES REQUIRING PROTECTED OPENINGS INCLUDING BOTH EMPTY OPENINGS AND OPENINGS THAT CONTAIN PENETRATIONS.</p> <p>B. PENETRATIONS THROUGH FIRE-RESISTANCE-RATED WALL ASSEMBLIES INCLUDING BOTH EMPTY OPENINGS AND OPENINGS THAT CONTAIN PENETRATIONS.</p> <p>C. MEMBRANE PENETRATIONS IN FIRE-RESISTANCE-RATED WALL ASSEMBLIES WHERE ITEMS PENETRATED ONE SIDE OF THE BARRIER.</p> <p>D. JOINTS IN FIRE-RESISTANCE-RATED ASSEMBLIES TO ALLOW INDEPENDENT MOVEMENT.</p> <p>E. PERIMETER FIRE BARRIER SYSTEM BETWEEN A RATED FLOOR/ROOF AND AN EXTERIOR WALL ASSEMBLY.</p> <p>F. JOINTS, THROUGH PENETRATIONS AND MEMBRANE PENETRATIONS IN SMOKE BARRIERS AND SMOKE PARTITIONS.</p> <p>9. GYPSUM BOARD WALL CONSTRUCTION CONTROL JOINT REQUIREMENTS SHALL BE AS FOLLOWS:</p> <p>A. A CONTROL JOINT SHALL BE INSTALLED WHERE A PARTITION, WALL, OR CEILING TRAVERSES A CONSTRUCTION JOINT (EXPANSION, SEISMIC OR BUILDING CONTROL ELEMENT) IN THE BASE BUILDING STRUCTURE.</p> <p>B. CONTROL JOINTS SHALL BE INSTALLED WHERE A WALL OR PARTITION RUNS IN AN UNINTERRUPTED STRAIGHT PLANE EXCEEDING 30 LINEAR FEET</p> <p>C. CONTROL JOINTS IN INTERIOR CEILINGS WITH PERIMETER RELIEF SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 50 FT (15000 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 2500 SQ FT (230 M²)</p> <p>D. CONTROL JOINTS IN INTERIOR CEILINGS WITHOUT PERIMETER RELIEF SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 30 FT (9100 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 900 SQ FT (84 M²)</p> <p>E. CONTROL JOINTS IN EXTERIOR CEILINGS AND SOFFITS SHALL BE INSTALLED SO THAT LINEAR DIMENSIONS BETWEEN CONTROL JOINTS DO NOT EXCEED 30 FT (9100 MM) AND TOTAL AREA BETWEEN CONTROL JOINTS DOES NOT EXCEED 900 SQ FT (84 M²)</p> <p>F. CONTROL JOINT OR INTERMEDIATE BLOCKING SHALL BE INSTALLED WHERE CEILING FRAMING MEMBERS CHANGE DIRECTION</p> <p>G. WHERE A CONTROL JOINT OCCURS IN AN ACOUSTICAL OR FIRE RATED SYSTEM, BLOCKING SHALL BE PROVIDED BEHIND THE CONTROL JOINT BY USING A BACKING MATERIAL SUCH AS 5/8 IN. (15.9 MM) TYPE X GYPSUM BOARD, MINERAL FIBER, OR OTHER TESTED EQUIVALENT.</p> <p>H. WHERE CONTROL JOINTS ARE INSTALLED IN RATED ASSEMBLIES AND ARE PARALLEL TO THE FRAMING MEMBERS, A FRAMING MEMBER IS REQUIRED ON EACH SIDE OF THE OPENING.</p> <p>I. IN RATED ASSEMBLIES THE CONTROL JOINT SHOULD BE PLACED SO THAT THE GYPSUM BOARD STRIPS ARE CONTINUOUS</p>	<p>GENERAL RENOVATION NOTES</p> <p>UNLESS OTHERWISE NOTED OR INDICATED, ALL DIMENSIONS ARE TO THE FINISHED FACE.</p> <p>ALL VERTICAL DIMENSION SHOWN ARE FROM FLOOR SLAB, UNLESS OTHERWISE NOTED.</p> <p>DIMENSIONS SHOWN IN FIGURES TAKE PRECEDENCE OVER DIMENSIONS SCALED FROM DRAWINGS, LARGE SCALE DRAWINGS AND DETAILS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TAKES PRECEDENCE OVER ARCHITECTS INSTRUCTIONS.</p> <p>THE TERM "ALIGN" AS USED IN THESE DOCUMENTS SHALL MEAN TO ACCURATELY LOCATE FINISHES IN THE SAME PLANE.</p> <p>THE TERM "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS THE SAME OR REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.</p> <p>DETAILS ARE USUALLY KEYS AND NOTED "TYPICAL" ONLY ONCE, WHEN THEY FIRST OCCUR AND ARE REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.</p> <p>WHERE ELECTRICAL, MECHANICAL, AND/OR PLUMBING ITEMS ARE TO PENETRATE ANY STRUCTURAL BUILDING ELEMENTS, ROUGH FRAMING, WALL PARTITIONS, CEILINGS, ETC IT IS REQUIRED THAT AN APPROPRIATELY SIZED OPENING OR CLEARANCE BE FURNISHED. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ITEMS WITH THE CONSTRUCTION DOCUMENTS PRIOR TO THE INSTALLATION OF WORK. ANY CONFLICT OR DISCREPANCY WITH CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION.</p> <p>CONTRACTOR, ALONG WITH MECHANICAL SUB CONTRACTOR SHALL COORDINATE AND PROVIDE ACCESS DOORS, PANELS IN ALL WALLS AND CEILINGS AS REQUIRED TO ALLOW ACCESS TO MECHANICAL, FIRE SPRINKLER, PLUMBING, AND ELECTRICAL WORK. CONTRACTOR SHALL SUBMIT A PLAN OF ALL PROPOSED ACCESS PANEL LOCATIONS TO ARCHITECT FOR REVIEW.</p> <p>ALL PENETRATIONS AT RATED CONSTRUCTIONS SHALL BE PROTECTED TO MAINTAIN RATING.</p> <p>WHERE OCCURRING, CONTRACTOR SHALL PATCH AND FINISH ANY AND ALL WALLS AND SURFACES AS NEEDED TO REFURBISH THE SPACE AND REPAIR ALL DAMAGES CAUSED BY CONTRACTOR.</p> <p>INTERIOR WALLS, CEILING, AND DOORS SHALL BE INSTALLED IN ACCORDANCE TO STATE AND LOCAL CODES, INCLUDING REQUIREMENTS FOR FLAME SPREAD AND SMOKE DENSITY RATING FOR FINISH MATERIALS.</p> <p>WHEN USED ALL NOISE BARRIER BATTS (SOUND INSULATION) AND INSULATION BATTS SHALL BE NON COMBUSTIBLE AND SHALL NOT CONTAIN ANY OZONE DEPLETING COMPOUNDS.</p> <p>ALL NEW CONSTRUCTION MATERIALS SHALL BE 100% ASBESTOS FREE.</p>	<p>GENERAL NOTES:</p> <p>IF THE CONTRACTOR, IN THE COURSE OF THE WORK, FINDS OR SUSPECTS ANY DISCREPANCY BETWEEN THE DRAWINGS, AND THE PHYSICAL CONDITIONS OF THE SITE OR WORK, OR ANY ERRORS OR OMISSIONS IN THE CONTRACT DRAWINGS OR SPECIFICATIONS, HE SHALL IMMEDIATELY NOTIFY THE ARCHITECT, IN WRITING, AND THE ARCHITECT SHALL PROMPTLY VERIFY THE SAME, ANY WORK DONE AFTER SUCH DISCOVERY, UNLESS AUTHORIZED, SHALL BE AT THE CONTRACTOR'S RISK.</p> <p>THE CONTRACTOR SHALL, PRIOR TO CONSTRUCTION FLAG ANY AND ALL UTILITY LINES, PIPES, AND CONDUITS, AND USE EXTREME CAUTION WHEN WORKING OVER OR NEAR SUCH LINES. ANY DAMAGED UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO ADDITIONAL EXPENSE TO THE OWNER.</p> <p>THE CONTRACTOR SHALL PROTECT ALL EXISTING TREES THAT ARE SUBJECT TO DAMAGE FROM THE CONSTRUCTION PROCESS OR CONSTRUCTION VEHICLES AND/OR EQUIPMENT. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DAMAGES OR WOUNDS TO THE TREES. ALL SUCH DAMAGES OR WOUNDS SHALL BE TREATED IN A MANNER DIRECTED BY THE ARCHITECT.</p> <p>ALL DIMENSIONS ARE TO FACE OF WALLS, CURBS, OR SURFACES UNLESS OTHERWISE NOTED.</p> <p>ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY.</p> <p>UTILITY LAYOUTS SHOWN ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL COORDINATE UTILITY LOCATION WITH THE ARCHITECT PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR COORDINATING UTILITY PLACEMENT WITH THE APPROPRIATE UTILITIES.</p> <p>CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL TRASH AND DEBRIS FROM THE PROJECT SITE.</p> <p>CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE SITE AGAINST VANDALS AND THEFT.</p> <p>THE TERM "TYPICAL" SHALL DENOTE THE SAME OR SIMILAR MANNER OF WORK AND MATERIALS AS DESIGNATED THROUGHOUT THE CONTRACT CONSTRUCTION DRAWINGS AND AS DESCRIBED BY THE PROJECT SPECIFICATIONS IN APPROPRIATE AREAS.</p> <p>THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATIONS AND QUANTITIES OF MATERIALS TO BE INSTALLED AND USED.</p> <p>ALL ITEMS ON THESE PLANS EITHER DRAWN, NOTED OR OTHERWISE IMPLIED SHALL BE CONSIDERED A PART OF THESE PLANS. FOR ANY AREAS OR ITEMS IN QUESTION THE CONTRACTOR SHALL CONTACT THE ARCHITECT IN WRITING TWO DAYS BEFORE SUBMITTING HIS BID OTHERWISE THE ARCHITECT'S INTERPRETATION MUST BE ACCEPTED.</p> <p>THE CONTRACTORS SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH THE LOCAL JURISDICTION'S CODES.</p> <p>THE CONTRACTOR SHALL COORDINATE WITH ALL SUBCONTRACTORS AND SUPPLIERS AS TO WHO FURNISHES AND WHO FINISHES ITEMS FOR A COMPLETED JOB.</p> <p>NO OPENINGS IN SLABS SHALL BE PROVIDED UNLESS SHOWN ON THE FOUNDATION PLAN AND/OR APPROVED BY THE ARCHITECT.</p> <p>THE CONTRACTOR SHALL REMOVE ALL WOOD SCREENS AND STAKES FROM THE CONCRETE AFTER POURS. NO WOOD OR OTHER ORGANIC MATERIALS WILL BE LEFT IN OR BELOW CONCRETE AREAS. ALL CONCRETE FLOOR SLABS SHALL HAVE A FINISH TO A MAXIMUM TOLERANCE OF 1/8" IN 10'.</p> <p>ALL PERSONS DESIRING TO SUBMIT A FORMAL BID FOR THE SCOPE OF WORK OUTLINED WITHIN THESE CONSTRUCTION DOCUMENTS SHALL BE RESPONSIBLE FOR VISITING THE SITE PRIOR TO SUBMITTING A FORMAL BID TO FAMILIARIZE THEMSELVES WITH THE SITE.</p>	<p>GENERAL DOOR NOTES:</p> <p>1. ANY DOOR OR FRAME LISTED AS GALVANIZED SHALL BE FABRICATED FROM HOT DIPPED A60 GALVANIZED.</p> <p>2. ALL VERTICAL STIFFENERS TO BE 18 GAUGE SPACED AT 4" O.C.</p> <p>3. ALL WELDS TO BE 2" SPOT WELDS AT 8" O.C. UNLESS OTHERWISE NOTED. ALL WELDS SHALL BE GROUND AND SANDED SMOOTH, CLEANED AND FREE OF WELDING SPOOLS AND REPRIMED IMMEDIATELY AFTER WELDING IS PERFORMED.</p> <p>4. PROVIDE PLASTER GUARDS AND JUNCTION BOXES TO PROTECT HARDWARE PREPARATIONS AND TAPPED MOUNTING HOLES FROM MASONRY GROUT.</p> <p>5. ALL FRAMES INSTALLED ON AN EXTERIOR WALL, OR "WET" AREA OF A BUILDING SHALL BE FULLY GALVANIZED OUTSIDE AND INSIDE OF FRAME.</p> <p>6. FRAMES ARE TO BE MORTISED, DRILLED, TAPPED, AND REINFORCED, FOR ALL HARDWARE IN ACCORDANCE WITH APPROVED HARDWARE SCHEDULE AND TEMPLATES.</p> <p>7. ALL FRAMES TO BE PRE PUNCHED FOR ALL SILENCERS.</p> <p>8. REFER TO SPECIFICATIONS FOR FINISH HARDWARE REQUIREMENTS. CONTRACTOR TO VERIFY HARDWARE SET REQUIREMENTS, QUANTITIES AND LOCATIONS.</p> <p>9. ALL MATERIALS TO BE MARKED LEGIBLY WITH CORRECT INFORMATION TO LOCATE BEFORE ARRIVING ON SITE.</p> <p>10. NO FABRICATION OF MATERIALS SHALL BEGIN UNTIL ARCHITECT AND OWNER HAVE REVIEWED SHOP DRAWING SUBMITTALS.</p> <p>11. MANUFACTURER TO COORDINATE WITH GLAZING AND FINISH HARDWARE MANUFACTURER TO ENSURE COMPATIBILITY WITH ALL PRODUCTS.</p> <p>12. REINFORCE DOORS AND FRAMES FOR SURFACE MOUNTED HARDWARE AS NEEDED.</p> <p>13. ALL FIRE RATED DOORS AND FRAMES MUST BE LISTED AS A UL APPROVED MATERIAL AND LABELED AS SUCH BEFORE ARRIVING ON SITE.</p> <p>14. FURNISH LOOSE ASTRAGALS FOR ALL DOOR PAIRS FOR FIELD INSTALLATION.</p> <p>15. PROVIDE LOUVERS FOR ALL MECHANICAL, ELECTRICAL, AND IDF ROOM DOORS.</p> <p>16. ALL DOOR UNDERCUTS TO BE PERFORMED BY MANUFACTURER, NO FIELD UNDERCUTTING ALLOWED</p> <p>17. APPLY WEATHER STRIPPING PRIOR TO INSTALLING SURFACE APPLIED HARDWARE. DO NOT NOTCH WEATHER STRIPPING.</p> <p>18. PROVIDE COMPATIBLE ASTRAGALS AND SEALS FOR ALL PAIRS OF DOORS.</p> <p>A. REMOVEABLE MULLION - KR822 B. MULLION SEAL - NGP5100S C. MEATING EDGE SEALS - 115NA</p> <p>19. CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SET FOR PAIRS OF DOORS.</p> <p>20. HARDWARE SUPPLIER SHOULD VERIFY ALL QUANTITIES IN THE FOLLOWING SCHEDULE.</p> <p>21. THE FOLLOWING IS A GENERAL LISTING OF HARDWARE REQUIREMENTS AND IS NOT INTENDED FOR USE AS A FINAL HARDWARE SCHEDULE. ANY ITEMS OF HARDWARE REQUIRED BY ESTABLISHED STANDARDS OF PRACTICE, OR TO MEET STATE AND LOCAL CODES SHALL BE FURNISHED WHETHER OR NOT SPECIFICALLY CALLED OUT IN THE FOLLOWING LISTED GROUPS.</p> <p>22. SUPPLIER SHALL SUPPLY HARDWARE FOR EVERY NUMBERED OPENING, WHETHER SPECIFIED IN THE ABOVE HARDWARE SETS OR NOT. HARDWARE SHALL BE SAME AS SIMILAR OPENINGS.</p> <p>23. CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SETS REQUIRED TO BE LABELED AND RATED FOR CODE COMPLIANCE. STANDARDS FOR FIRE RATED DOORS AND FRAMES SHALL BE NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVE'S.</p>	<p>GENERAL INTERIOR FINISH NOTES</p> <p>1. ALL GALVANIZED FRAMES SHALL RECEIVE A GLOSS FINISH, UNLESS OTHERWISE NOTED.</p> <p>2. ALL TRANSITIONS BETWEEN DISSIMILAR FLOORING MATERIALS TO RECEIVE A REDUCER/TRANSITION STRIP MEETING ADA REQUIREMENTS.</p> <p>3. WHEN COLOR OR STYLE IS NOT INDICATED, ARCHITECT AND OWNER WILL SELECT COLOR FROM MFGR.'S STANDARD RANGE.</p> <p>4. ALL MISCELLANEOUS GRILLES, LOUVERS, DIFFUSERS, ACCESS PANELS, LIGHT FIXTURE TRIM, ETC. SHALL BE FINISHED TO MATCH THE SURFACE ON WHICH THEY OCCUR.</p> <p>5. ALL SURFACES TO RECEIVE A FINISH APPLICATION SHALL BE COMPLETELY SMOOTH AND FREE OF DEBRIS. IF SURFACES ARE NOT ACCEPTABLE NOTIFY THE ARCHITECT TO HAVE SURFACES CORRECTED BEFORE APPLYING FINISH APPLICATION.</p> <p>6. FINISH APPLICATIONS SHALL BE FREE OF IMPERFECTIONS.</p> <p>7. UNLESS OTHERWISE STATED IN THE SPECIFICATIONS, ALL PAINTED SURFACES ARE TO RECEIVE ONE SHOP PRIMED COAT, AND A MINIMUM OF TWO FIELD APPLIED FINISH COATS. PRIME ALL SURFACES ACCORDING TO MANUFACTURER'S SPECIFICATIONS PRIOR TO APPLICATION OF PAINT. THE NUMBER OF COATS SPECIFIED IS THE MINIMUM NUMBER OF COATS. WHEN UNDERCOATS, STAINS, OR OTHER CONDITIONS SHOW THROUGH "FINAL" COAT OF FINISH APPLY ADDITIONAL COATS UNTIL FINISH IS UNIFORM IN COLOR, AND APPEARANCE.</p> <p>8. UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS ALL PAINTED WOOD TRIM, MOLDINGS, DOORS, CASEWORK, METAL DOORS, AND METAL DOOR FRAMES, SHALL RECEIVE A GLOSS FINISH. REFER TO DETAILS UNLESS OTHERWISE STATED.</p> <p>9. ALL MATERIALS AND SURFACES WHICH ARE TO RECEIVE A FINISH SHALL MATCH SAMPLES PROVIDED TO ARCHITECT. CONTRACTOR SHALL PREPARE A SAMPLE OF EACH FINISH ON THE APPROPRIATE SURFACES AND SUBMIT THAT AS A FIELD REVIEW SAMPLE TO THE ARCHITECT FOR REVIEW PRIOR TO PROCEEDING WITH FINISHING OF ANY SURFACE. CONTRACTOR SHALL PROVIDE A FINAL MOCK UP SAMPLE FOR VERIFICATION ON SITE BY ARCHITECT AND OWNER OF SELECTED FINISH BEFORE PROCEEDING WITH FINISHING OF ANY SURFACE.</p> <p>10. REFER TO MANUFACTURER'S PROCEDURES AND RECOMMENDATIONS FOR APPLICATION, INSTALLATION, AND MAINTENANCE OF FINISHES LISTED IN THE LEGEND. IF CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS SHOULD CONFLICT, CONTRACTOR IS TO FOLLOW MANUFACTURER'S INSTRUCTIONS.</p> <p>11. ALL VERTICAL SURFACES TO RECEIVE FINISH SHALL BE THE SAME AS SURFACE DESIGNATION, UNLESS OTHERWISE STATED.</p> <p>12. PROVIDE EPOXY BASED PAINTS IN ALL RESTROOMS, CORRIDORS, AND OTHER HIGH ABUSE AREAS OR WATER BASED AREAS. SHOULD ANY QUESTIONS ARISE REGARDING PAINT FINISH, THE ARCHITECT IS TO BE CONSULTED BEFORE PROCEEDING.</p> <p>13. PROVIDE A BULL NOSE EDGE TILE WHEN STOPPING SHORT OF CEILING FOR ALL WALL TILE APPLICATIONS.</p> <p>14. ALL EXPOSED METALS BOTH INTERIOR AND EXTERIOR TO BE PAINTED, INCLUDING GALVANIZED AND NON GALVANIZED SURFACES.</p> <p>15. SECURITY TYPE SEALANT TO BE USED TO SEAL ALL TRANSITIONS AND GAPS IN BUILDING MATERIALS. COLOR TO MATCH ADJACENT SURFACES.</p> <p>16. GYM STRUCTURE TO BE PAINTED TWO DIFFERENT COLORS. COLORS TO BE SELECTED BY ARCHITECT.</p>						
					<p>GENERAL WINDOW NOTES:</p> <p>1. REVIEW CONTRACT DOCUMENTS. CHECK SHOP DRAWINGS, INSTALLATION INSTRUCTIONS, ARCHITECTURAL DRAWINGS AND SHIPPING LISTS TO BECOME THOROUGHLY FAMILIAR WITH THE PROJECT. THE SHOP DRAWINGS TAKE PRECEDENCE AND INCLUDE SPECIFIC DETAILS FOR THE PROJECT. NOTE ANY FIELD VERIFIED NOTES ON THE SHOP DRAWINGS PRIOR TO INSTALLING. THE INSTALLATION INSTRUCTIONS ARE OF GENERAL NATURE AND COVER MOST CONDITIONS.</p> <p>2. ALL MATERIALS ARE TO BE INSTALLED PLUMB, LEVEL AND TRUE. INSTALL OPERABLE WINDOWS PREGLAZED ONLY.</p> <p>3. ALL WORK SHOULD START FROM BENCH MARKS AND/OR COLUMN LINES AS ESTABLISHED BY THE ARCHITECTURAL DRAWINGS AND THE GENERAL CONTRACTOR WITH GUARANTEED ACCURACY.</p> <p>4. ALL FIELD WELDING MUST BE ADEQUATELY SHIELDED TO AVOID ANY SPLATTER ON GLASS OR ALUMINUM. RESULTS WILL BE UNSIGHTLY AND/OR STRUCTURALLY UNSOUND. ADVISE GENERAL CONTRACTOR AND OTHER TRADES ACCORDINGLY. ALL FIELD WELDS OF STEEL ANCHORS MUST RECEIVE TOUCH-UP PAINT (ZINC CHROMATE) TO AVOID RUST.</p> <p>5. MAKE CERTAIN THAT CONSTRUCTION WHICH WILL RECEIVE YOUR MATERIALS IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IF NOT, NOTIFY THE GENERAL CONTRACTOR IN WRITING AND RESOLVE DIFFERENCES BEFORE PROCEEDING WITH WORK.</p> <p>6. ALUMINUM TO BE PLACED IN DIRECT CONTACT WITH UNCURED MASONRY OR INCOMPATIBLE MATERIALS SHOULD BE ISOLATED WITH A HEAVY COAT OF ZINC CHROMATE OR BITUMINOUS PAINT.</p> <p>7. SEALANTS MUST BE COMPATIBLE WITH ALL MATERIALS WITH WHICH THEY HAVE CONTACT, INCLUDING OTHER SEALANT SURFACES. CONSULT WITH SEALANT MANUFACTURER FOR RECOMMENDATIONS RELATIVE TO JOINT SIZE, SHELF LIFE, COMPATIBILITY, CLEANING/PRIMING, TOOLING, ADHESION, ETC. IT IS THE RESPONSIBILITY OF THE GLAZING CONTRACTOR TO SUBMIT A STATEMENT FROM THE</p>	<p>SEALANT MANUFACTURER INDICATING THAT GLASS AND GLAZING MATERIALS HAVE BEEN TESTED FOR COMPATIBILITY AND ADHESION WITH GLAZING SEALANTS, AND INTERPRETING TEST RESULTS RELATIVE TO MATERIAL PERFORMANCE, INCLUDING RECOMMENDATIONS FOR PRIMERS AND SUBSTRATE PREPARATION REQUIRED TO OBTAIN ADHESION. THE CHEMICAL COMPATIBILITY OF ALL GLAZING MATERIALS AND FRAMING SEALANTS WITH EACH OTHER AND WITH LIKE MATERIALS USED IN GLASS FABRICATION MUST BE ESTABLISHED.</p> <p>8. AS SOON AS A REPRESENTATIVE AMOUNT OF THE WALL HAS BEEN GLAZED (500 SQUARE FEET OR 46.5 M2) A WATER HOSE TEST SHOULD BE CONDUCTED IN ACCORDANCE WITH AAMA 501.2 SPECIFICATIONS TO CHECK THE INSTALLATION. ON ALL JOBS THE HOSE TEST SHOULD BE REPEATED EVERY 500 SQUARE FEET (46.5M2) DURING THE GLAZING OPERATION.</p> <p>9. COORDINATE WITH THE GENERAL CONTRACTOR ANY SEQUENCE WITH OTHER TRADES WHICH OFFSET INSTALLATION (I.E. FIRE PROOFING, BACK-UP WALLS, PARTITIONS, CEILINGS, MECHANICAL DUCTS, CONVERTERS ETC.).</p> <p>10. FINAL CLEANING OF EXPOSED ALUMINUM SURFACES SHOULD BE DONE IN ACCORDANCE WITH AAMA 609.1 FOR ANODIZED ALUMINUM AND 610.1 FOR PAINTED ALUMINUM.</p>						

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M3A ARCHITECTURE

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PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:

SOUTHERN UNIVERSITY

BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McElroy

PROJECT NUMBER: 22-022

DATE: 02/05/2024

DRAWN BY: PLM,NRJ

CHECKED BY: McElroy

REVISIONS: 1. _____
2. _____
3. _____
4. _____

SEAL:

SHEET TITLE:
General Project
Notes

SHEET NUMBER

G1.02

M3ARCHITECTURE, PLLC

DEMOLITION NOTES LEGEND

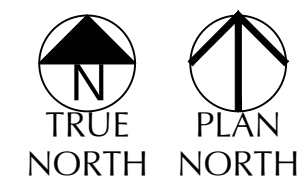
1. DEMOLISH FLOORING IN ITS ENTIRETY (AS PER SPECS.).
2. PREPARE EXISTING DOOR AND FRAME FOR NEW PAINT (AS PER SPECS.).
3. PREPARE ALL EXISTING WALLS TO REMAIN IN PROJECT AREA FOR NEW PAINT (AS PER SPECS.).
4. DEMOLISH EXISTING CEILING FINISH, IN ITS ENTIRETY (AS PER SPECS.).
5. DEMOLISH EXISTING MILLWORK, IN ITS ENTIRETY (AS PER SPECS.).
6. EXISTING WINDOW TO REMAIN AND BE ENCLOSED (AS PER SPECS.).
7. SELECTIVELY DEMOLISH WALL, AS REQUIRED, IN PREPARATION FOR NEW WINDOW (AS PER SPECS.).
8. SELECTIVELY DEMOLISH CEILING AT CORRIDOR, AS REQUIRED, IN PREPARATION FOR NEW CEILING FURRODOWN. PATCH AS REQUIRED.
9. DEMOLISH EXISTING DOOR, FRAME, AND ASSOCIATED COMPONENTS IN THEIR ENTIRETY (AS PER SPECS.).

BASE BID:
ALL SCOPES INCLUDED IN NEWS ROOM 100 AND ADJOINING, EXISTING CORRIDOR

ADD ALT #1:
ALL DATA AND POWER SCOPES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM. ENCASE EXISTING CONTROL ROOM WINDOW.

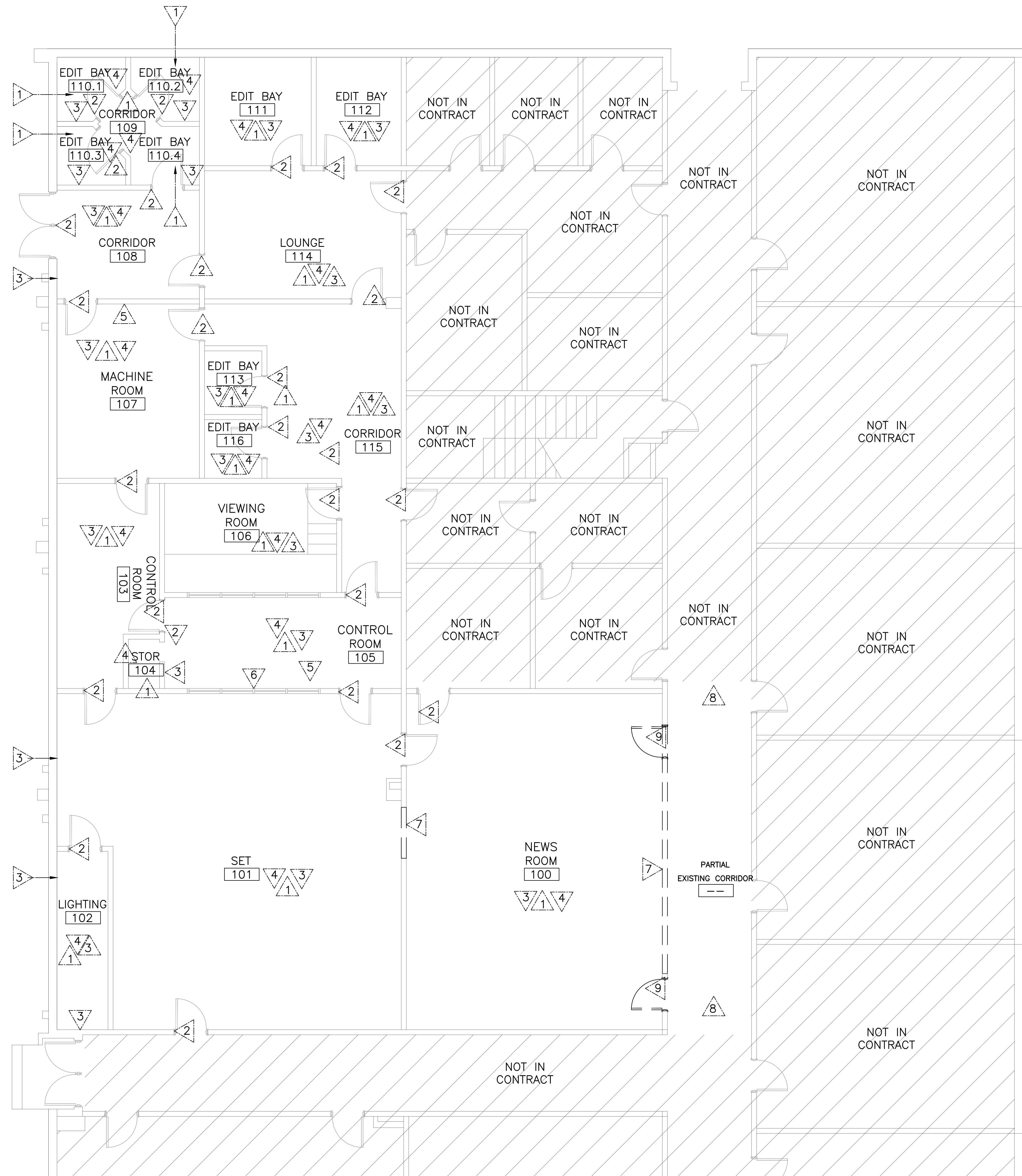
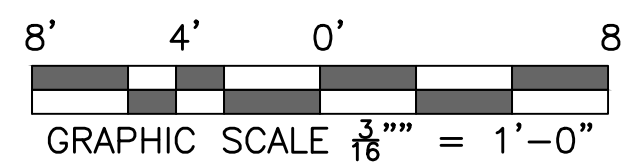
ADD ALT #2:
ALL FINISHES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM.

ADD ALT #3:
INSTALLATION OF NEW SOUND PANELS AND MILLWORK, ENTIRE PROJECT.



Demolition Floor Plan

A1.00 Scale: 3/16"=1'-0"



GENERAL DEMOLITION NOTES

DRAWINGS OF EXISTING CONDITIONS HAVE BEEN COMPILED FROM EXISTING AVAILABLE DATA SUPPLIED TO THE ARCHITECT AND/OR EITHER GATHERED BY THE ARCHITECT. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FOR THE ACCURACY OF THE COMPLETENESS OF INFORMATION RECORDED SHALL BE ASSUMED. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMISSION TO BID.

VERIFY LOCATIONS OF EXISTING MECHANICAL, PLUMBING AND ELECTRICAL UTILITIES. LOCATE AND PROTECT UTILITIES TO REMAIN. DISCONNECT, REMOVE BACK TO NEAREST JUNCTION BOX OR PANEL, AS REQUIRED, AND CAP DESIGNATED UTILITIES WITHIN THE DEMOLITION AREA. REFER TO THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

ALL EXISTING BUILDING UTILITIES SHALL REMAIN IN OPERATION DURING CONSTRUCTION. PROVIDE REROUTING OF UTILITIES SERVING ADJACENT AREAS THAT ARE TO MAINTAIN UNINTERRUPTED SERVICE. ANY TEMPORARY SUSPENSION OF SERVICE SHALL BE COORDINATED AND APPROVED BY UTILITY COMPANIES AND LOCAL OFFICIALS HAVING JURISDICTION NOT LESS THAN TWENTY FOUR (24) HOURS IN ADVANCE.

THE DEMOLITION DRAWING KEYNOTES ARE DIAGRAMMATIC AND GENERAL IN NATURE. THE INTENT IS TO ILLUSTRATE THE COMPLETE DEMOLITION OF THE SPACES AS INDICATED UNLESS OTHERWISE NOTED. FIELD VERIFICATION OF EXISTING CONDITIONS AND SPECIFIC QUANTITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

REMOVAL AND DISPOSAL OF DEMOLITION DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR. LOCATE AND VERIFY THE HAULING ROUTE, THE STORAGE AREA, AND THE LOCATION OF THE DUMPSTER WITH THE OWNER AND/OR ARCHITECT PRIOR TO THE START OF DEMOLITION. DISPOSAL OF RUBBISH SHALL BE DONE IN A LEGAL MANNER.

THE OWNER RESERVES THE RIGHT TO SALVAGE ANY DEMOLISHED ITEM. VERIFY ITEMS TO BE SALVAGED WITH THE OWNER PRIOR TO THE START OF DEMOLITION. REMOVE, PROTECT, CLEAN, REPAIR, FOR REUSE AND TURN OVER SUCH ITEMS AS DIRECTED BY THE OWNER.

IN ORDER TO INSTALL SOME OF THE NEW WORK IT WILL BE NECESSARY FOR THE CONTRACTOR AND HIS SUBCONTRACTORS TO REMOVE AND REPLACE EXISTING WALLS, FLOOR, OR CEILINGS IN THE BUILDING AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL INCLUDE ALL RELATED COSTS IN HIS BASE BID, WHETHER SHOWN OR IMPLIED ON THE PLANS OR NOT.

PROTECT ADJACENT SPACES AND SURFACES NOT SCHEDULED FOR DEMOLITION. PATCH AND REPAIR DAMAGED FINISHES. ITEMS AND FIXTURES TO REMAIN AND/OR REPLACE IN KIND TO MATCH EXISTING FROM DAMAGE DURING THE PROGRESS OF THE WORK. PROVIDE TEMPORARY SAFETY BARRIERS REQUIRED BY CODE AND AS INDICATED TO INSURE THE SAFETY OF WORKERS AND THE PUBLIC.

PROVIDE DUST BARRIERS AROUND OPENINGS, TO AND FROM THE CONSTRUCTION AREA. PROVIDE ALL MEANS NECESSARY TO INHIBIT DUST FROM ENTERING OTHER PORTIONS OF THE FACILITY.

PROVIDE ADEQUATE SHORING, BRACING, BARRICADES, AND PROTECTIVE MEASURES AS REQUIRED TO SAFELY EXECUTE THE WORK IN THE CONSTRUCTION AREA AND THE AREAS ADJACENT TO THE CONSTRUCTION AREA. CEASE OPERATIONS AND NOTIFY THE ARCHITECT IMMEDIATELY IF THE STRUCTURE APPEARS TO BE ENDANGERED. DO NOT RESUME OPERATIONS UNTIL CORRECTIVE MEASURES HAVE BEEN TAKEN.

CONTRACTOR SHALL MAINTAIN REQUIRED MEANS OF EGRESS AND ENSURE THAT EXIT ROUTES ARE SIGNED, LIGHTED, AND PROTECTED IN ACCORDANCE WITH CODE REQUIREMENTS. RELOCATED EXISTING AND/OR PROVIDE SMOKE PROTECTORS AND LIFE SAFETY EQUIPMENT FOR ADEQUATE COVERAGE.

AT FLOOR AREAS SCHEDULED TO RECEIVE NEW FLOOR COVERING, REMOVE EXISTING FLOOR COVERINGS AND PREPARE SUBSTRATE FOR NEW FLOOR COVERINGS PER SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.

AT ABANDONED PENETRATIONS OF FIRE RATED WALLS, CEILING OR FLOOR CONSTRUCTION, COMPLETELY SEAL VOIDS WITH FIRE RATED MATERIALS TO FULL THICKNESS OF THE PENETRATED ELEMENT. ALL PATCHING OF EXISTING WORK TO REMAIN SHALL MATCH FINISH PER SCHEDULE OR WHERE UNSCHEDULED TO MATCH EXISTING FINISHES TO REMAIN, AND SHALL MEET OR EXCEED FIRE RATING INDICATED ON FLOOR PLAN AND ARE REQUIRED BY THE STATE FIRE MARSHALL AND APPLICABLE CODES.

CONTRACTOR IS RESPONSIBLE FOR BUILDING SECURITY DURING ALL PHASES OF CONSTRUCTION. PROTECT ALL OPENINGS FROM WEATHER CONDITIONS AND SECURE THEM TO PREVENT VANDALISM.

DO NOT PERFORM WORK THAT WILL VOID WARRANTIES OF EXISTING WEATHER EXPOSED OR MOISTURE RESISTANT ELEMENTS WITHOUT PRIOR APPROVAL FROM THE OWNER.

ARCHITECT ASSUMES NO RESPONSIBILITY RELATING TO TOXIC MATERIALS, INCLUDING ASBESTOS, AND ASSUMES NO RESPONSIBILITY TO ITS EXISTENCE OR REMOVAL. THE CONTRACTOR WILL TAKE ACTION FOR DIRECTLY CONTRACTING WITH A CONSULTANT OR SPECIALIST, LICENSED BY THE STATE, FOR SUCH SERVICES SHOULD THOSE SERVICES BE REQUIRED ON THE PROJECT. CONTRACTOR TO INCLUDE ALLOWANCE FOR AMOUNT STATED IN SPECIFICATION FOR TESTING OF EXISTING MATERIALS AND/OR REMOVAL OF EXISTING MATERIALS AS NEEDED. SEE PROJECT MANUAL FOR EXACT AMOUNT OF ALLOWANCE.

CONTRACTOR IS RESPONSIBLE TO VISIT THE PROJECT SITE PRIOR TO BID AND BECOME FAMILIAR WITH ALL VISIBLE EXISTING CONDITIONS. SUBMISSION OF BID WILL BE CONSTRAINED AS CONTRACTORS STATEMENT THAT SITE VISIT HAS OCCURRED. NO CHANGE ORDERS WILL BE PAID FOR COORDINATION WITH VISIBLE EXISTING CONDITIONS.

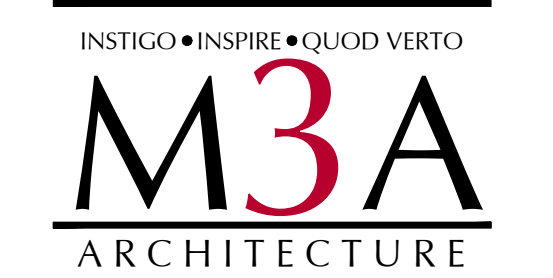
VERIFY ALL EXISTING GRADE ELEVATIONS AND FLOOR ELEVATIONS INDICATED PRIOR TO PROCEEDING WITH ANY WORK.

CONFORM TO ALL CODES AND EXECUTE WORK ONLY WHICH IS IN CONFORMANCE.

KEEP CLEAN ALL EXISTING SPACES AND PROPERTIES ADJACENT TO DEMOLITION/CONSTRUCTION AREAS. ANY DEBRIS SHALL BE REMOVED FROM WORK AREAS DAILY. CLOSE OFF ALL EXISTING TO REMAIN OPENINGS, DUCTS, PIES, ETC THROUGHOUT THE PROJECT TO PREVENT DEBRIS/DUST ENTRY.

PROTECT ALL DEMOLISHED OPENINGS PRIOR TO INSTALLATION OF NEW DOORS, MASONRY INFILL, FIRE RATED PARTITIONS, ETC.

ALL CONCEPTS, AND IDEAS CONVEYED IN CONSTRUCTION DOCUMENTS ARE THE PROPERTY OF M3A ARCHITECTURE, PLLC AND ASSOCIATED CONSULTANTS. THEY ARE SOLELY INTENDED FOR USE ON THIS PROJECT. ANY REUSE, REPRODUCTION OR ANY OTHER UNWARRANTED APPLICATION OF THESE DOCUMENTS ARE STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF M3A ARCHITECTURE, PLLC. DO NOT SCALE FROM DRAWINGS. DIMENSIONS ARE PROVIDED TO ALLOW FOR ACCURATE CONSTRUCTION OF THE PROJECT. QUESTIONS ARISING FROM DIMENSIONS SHOULD BE RESOLVED BY CONTACTING THE ARCHITECT.



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 PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: PLM,NRI
 CHECKED BY: McELROY

REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____



SHEET TITLE:
Demolition Plan

SHEET NUMBER
A1.00

RENOVATION NOTES LEGEND

- 1 PROVIDE NEW FLOORING (AS PER SPECS)
- 2 PRIME AND PAINT EXISTING DOOR AND FRAME (AS PER SPECS).
- 3 PAINT EXISTING WALLS, AS PER SPECS (SEE SCHEDULE).
- 4 PROVIDE NEW CEILING FINISH (AS PER SCHEDULE).
- 5 PROVIDE NEW MILLWORK (AS PER SPECS). SEE DETAILS.
- 6 ENCASE EXISTING WINDOW IN DRYWALL ON METAL STUDS. PROVIDE 2X WOOD BLOCKING FOR OWNER-PROVIDED EQUIPMENT (I.E., TV MONITORS). CONSULT OWNER FOR PLACEMENT.
- 7 PROVIDE GROMMETS ON ALL INTERIOR WALLS, THIS ROOM, U.N.O. SEE ELECTRICAL FOR COORDINATION.
- 8 PROVIDE NEW HOLLOW METAL WINDOW, AS REQ. (AS PER SPECS).
- 9 PROVIDE NEW STOREFRONT, WALL AND CEILING FURRING, AND ASSOCIATED COMPONENTS (AS PER SPECS).
- 10 NO GROMMETS, THIS WALL
- 11 INSTALL NEW ACOUSTICAL SOUND PANELS, AS PER MFRG.
- 12 PROVIDE NEW ALUMINUM DOOR AND FRAME (AS SCHEDULED).

BASE BID:
ALL SCOPES INCLUDED IN NEWS ROOM 100 AND ADJOINING, EXISTING CORRIDOR

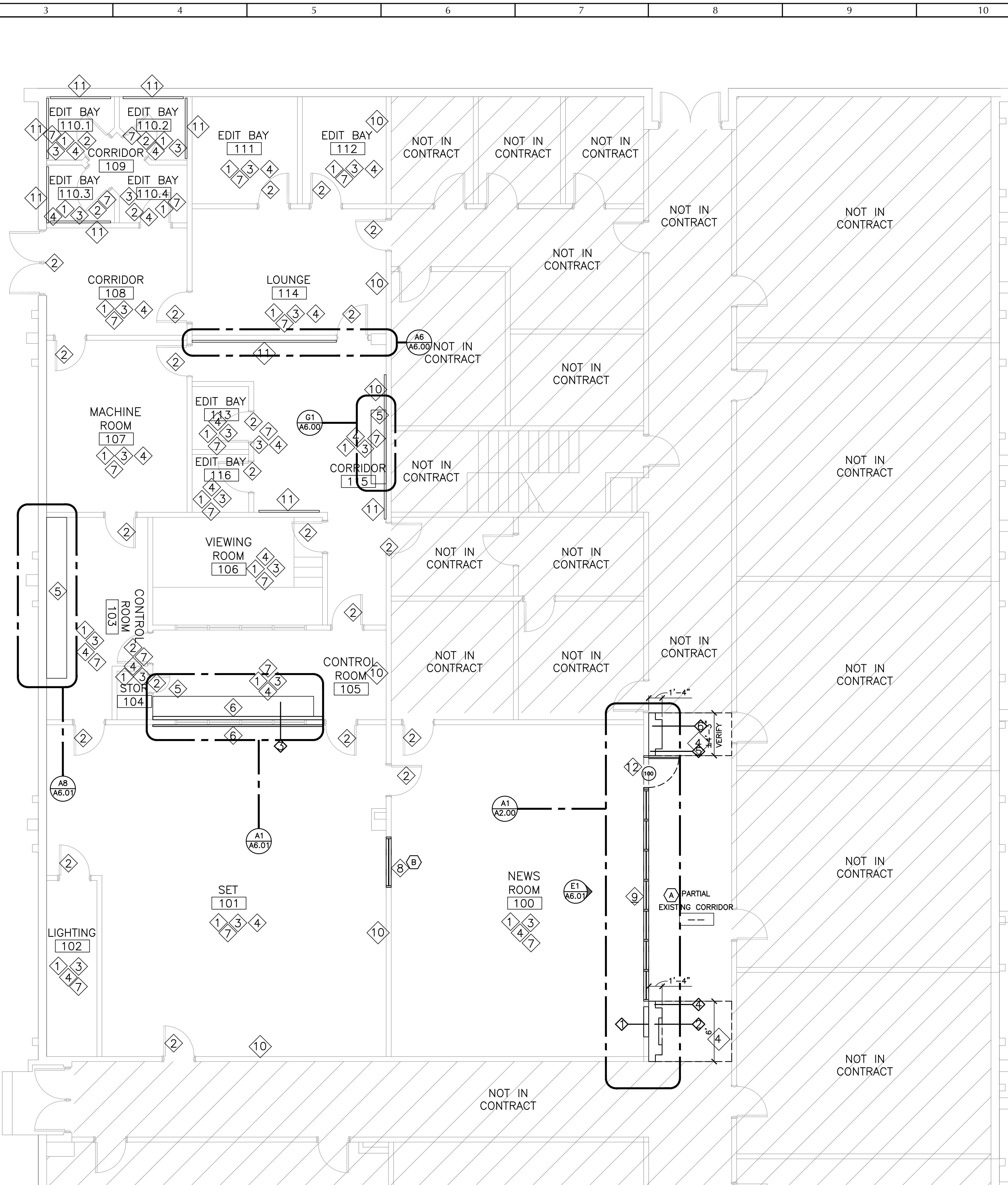
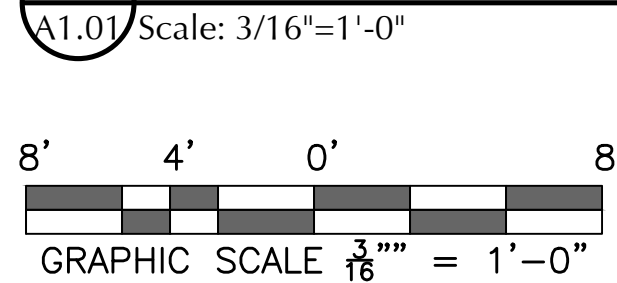
ADD ALT #1:
ALL DATA AND POWER SCOPES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM. ENCASE EXISTING CONTROL ROOM WINDOW.

ADD ALT #2:
ALL FINISHES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM.

ADD ALT #3:
INSTALLATION OF NEW SOUND PANELS AND MILLWORK, ENTIRE PROJECT.



Renovation Floor Plan



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BATON ROUGE, LOUISIANA

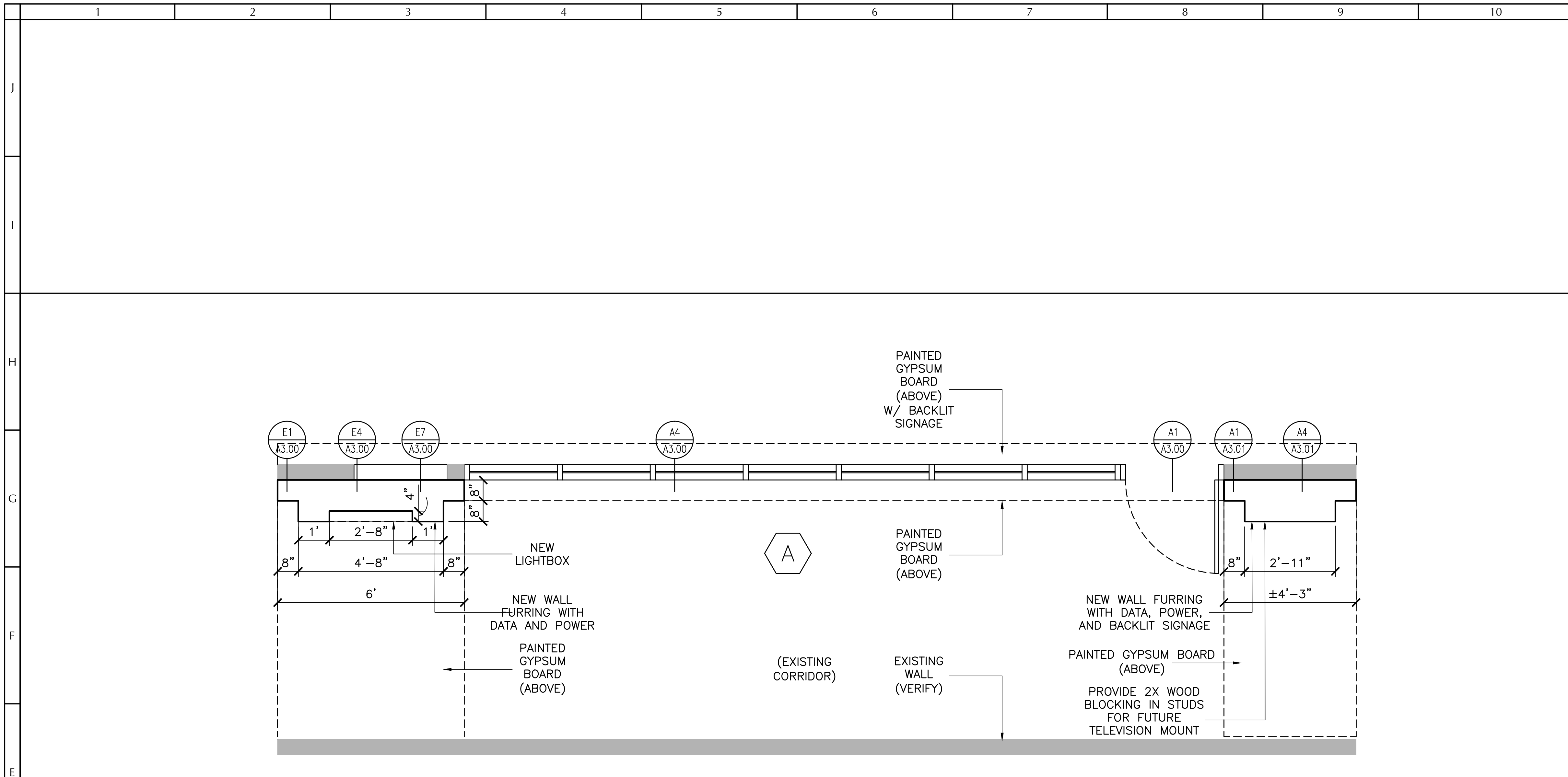
PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: PLM,NRI
CHECKED BY: McELROY

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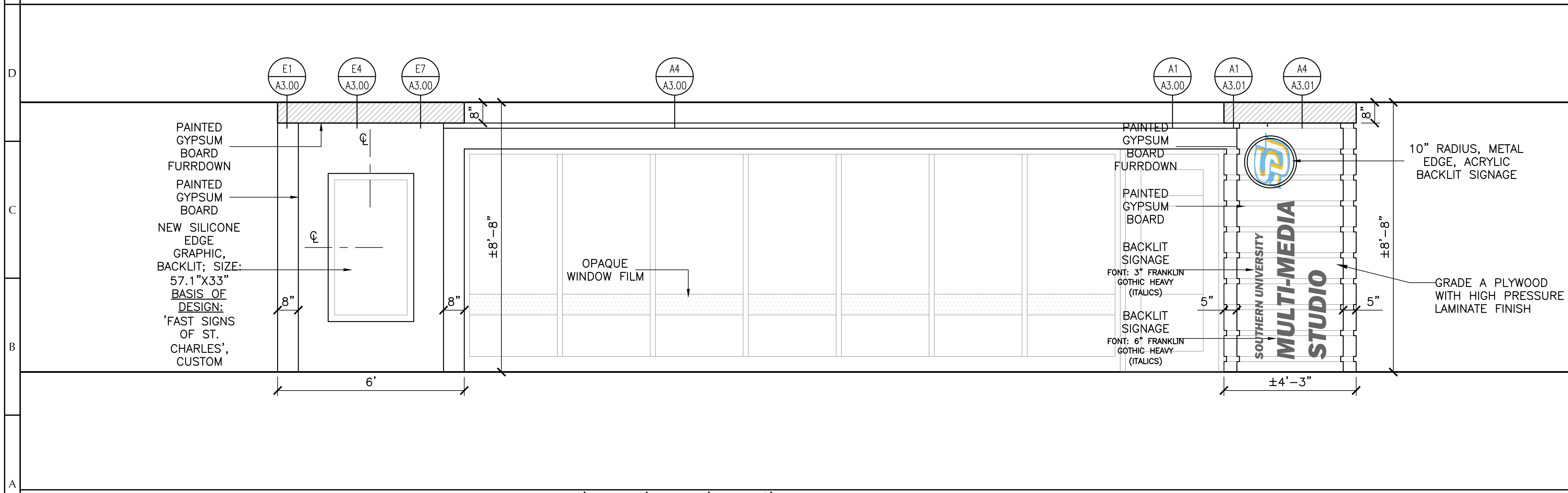
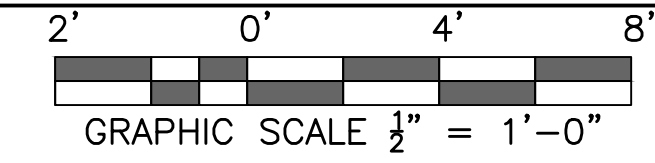


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Renovation Floor Plan

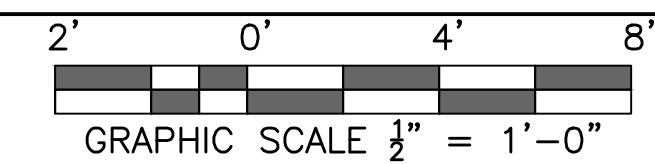
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E1
Enlarged Plan at Corridor
Scale: 1/2"=1'-0"



A1
Elevation at Corridor
Scale: 1/2"=1'-0"



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BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY

PROJECT NUMBER: 22-022

DATE: 02/05/2024

DRAWN BY: PLM,NRI

CHECKED BY: McELROY

REVISIONS: 1 3/8/2024

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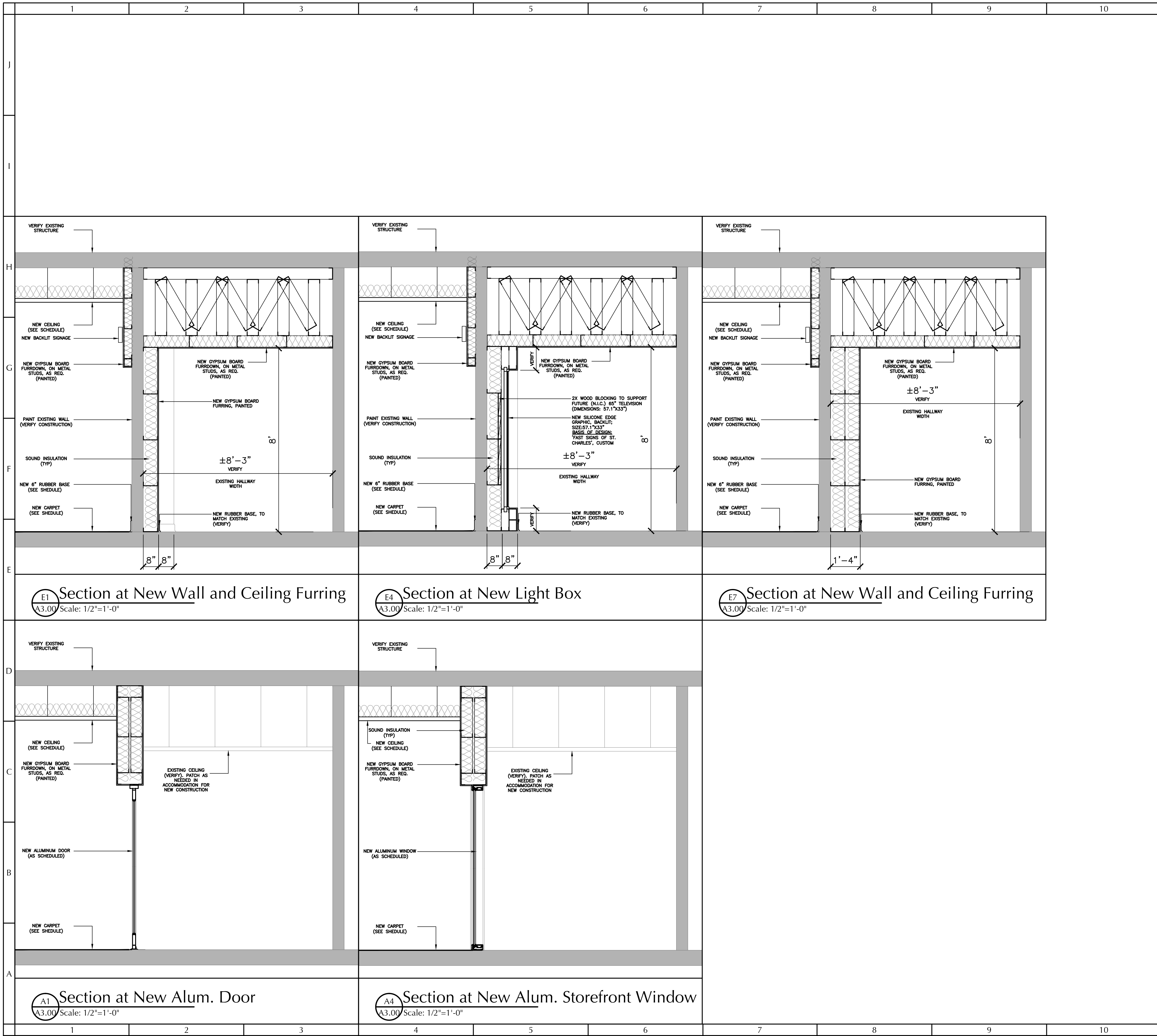
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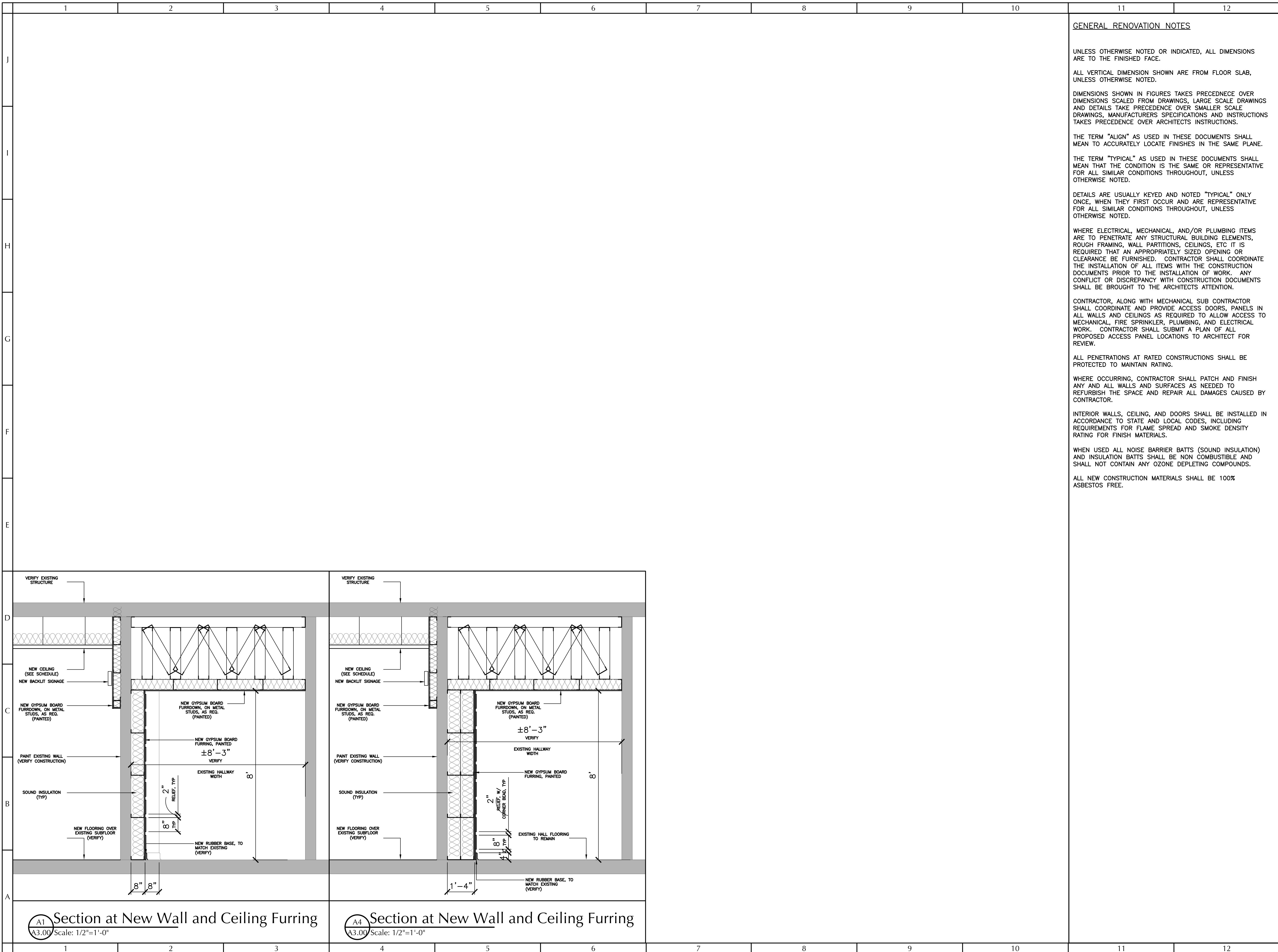
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A3.00

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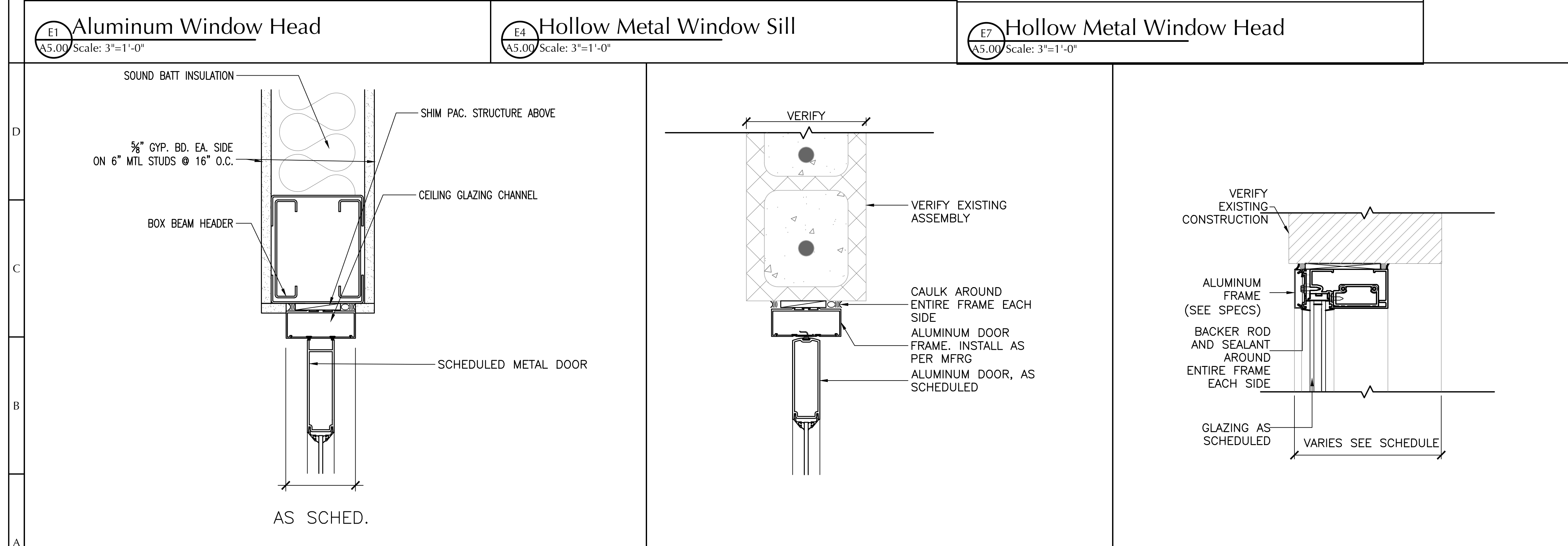
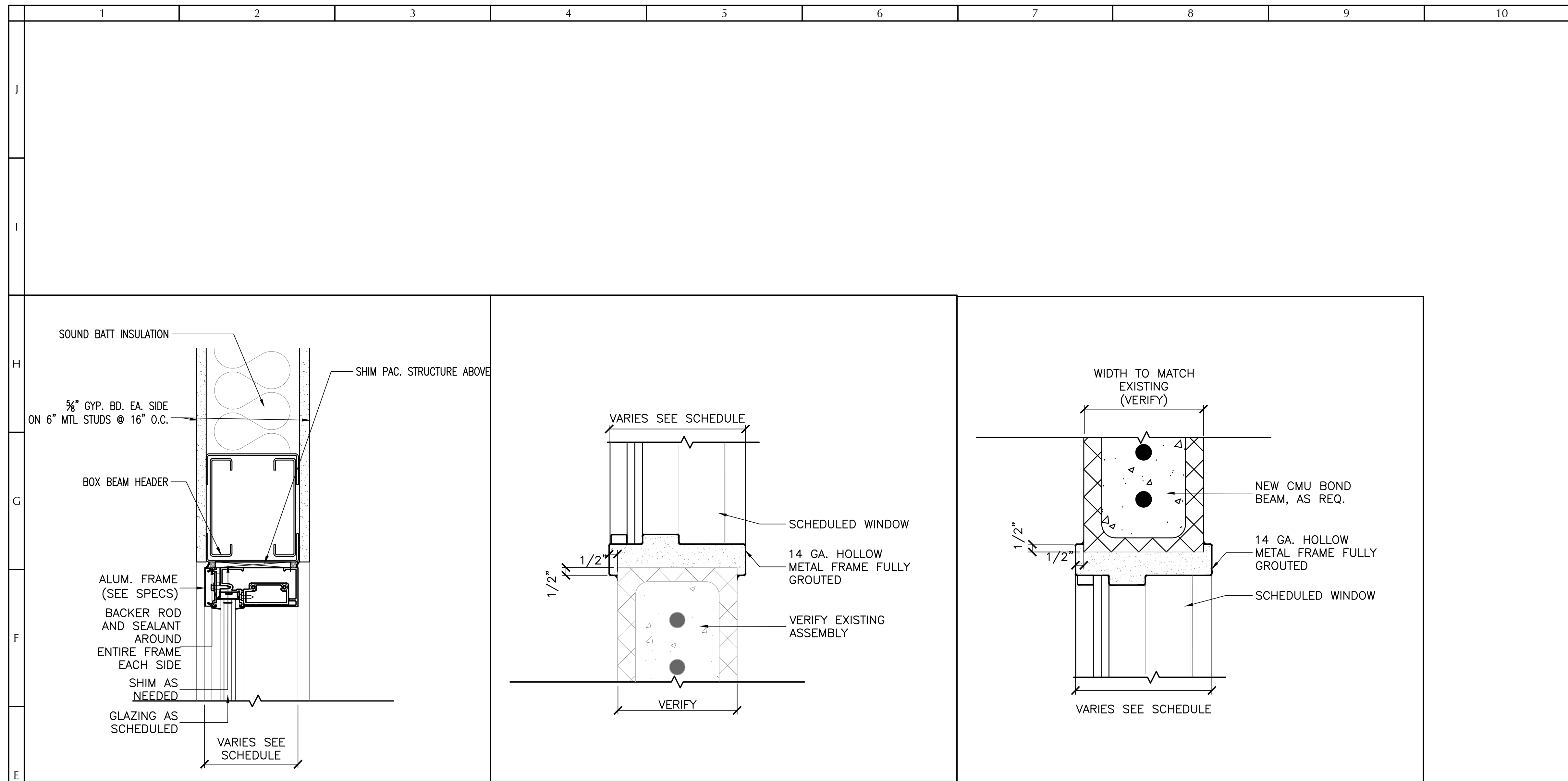
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 CHECKED BY: McELROY

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 2. _____
 3. _____
 4. _____



SHEET TITLE:
 Sections

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 A3.01



GENERAL DOOR AND HARDWARE NOTES:

1. ANY DOOR OR FRAME LISTED AS GALVANIZED SHALL BE FABRICATED FROM HOT DIPPED A60 GALVANIZED.
2. ALL VERTICAL STIFFENERS TO BE 18 GAUGE SPACED AT 4" O.C.
3. ALL WELDS TO BE 2" SPOT WELDS AT 8" O.C. UNLESS OTHERWISE NOTED. ALL WELDS SHALL BE GROUND AND SANDED SMOOTH, CLEANED AND FREE OF WELDING SPOILS AND REPRIMED IMMEDIATELY AFTER WELDING IS PERFORMED.
4. ALL FRAMES INSTALLED ON AN EXTERIOR WALL, OR "WET" AREA OF A BUILDING SHALL BE FULLY GALVANIZED OUTSIDE AND INSIDE OF FRAME.
5. FRAMES ARE TO BE MORTISED, DRILLED, TAPPED, AND REINFORCED, FOR ALL HARDWARE IN ACCORDANCE WITH APPROVED HARDWARE SCHEDULE AND TEMPLATES.
6. ALL FRAMES TO BE PRE PUNCHED FOR ALL SILENCERS.
7. ALL MATERIALS TO BE MARKED LEGIBLY WITH CORRECT INFORMATION TO LOCATE BEFORE ARRIVING ON SITE.
8. NO FABRICATION OF MATERIALS SHALL BEGIN UNTIL ARCHITECT AND OWNER HAVE REVIEWED SHOP DRAWING SUBMITTALS.
9. MANUFACTURER TO COORDINATE WITH GLAZING AND FINISH HARDWARE MANUFACTURER TO ENSURE COMPATIBILITY WITH ALL PRODUCTS.
10. REINFORCE DOORS AND FRAMES FOR SURFACE MOUNTED HARDWARE AS NEEDED.
11. ALL FIRE RATED DOORS AND FRAMES MUST BE LISTED AS A UL APPROVED MATERIAL AND LABELED AS SUCH BEFORE ARRIVING ON SITE.
12. FURNISH LOOSE ASTRAGALS FOR ALL DOOR PAIRS FOR FIELD INSTALLATION.
13. PROVIDE LOUVERS FOR ALL MECHANICAL, ELECTRICAL, AND IDF ROOM DOORS.
14. ALL DOOR UNDERCUTS TO BE PERFORMED BY MANUFACTURER, NO FIELD UNDERCUTTING ALLOWED.
15. APPLY WEATHER STRIPPING PRIOR TO INSTALLING SURFACE APPLIED HARDWARE. DO NOT NOTCH WEATHER STRIPPING.
16. PROVIDE COMPATIBLE ASTRAGALS AND SEALS FOR ALL PAIRS OF DOORS.
19. CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SET FOR PAIRS OF DOORS.
20. HARDWARE SUPPLIER SHOULD VERIFY ALL QUANTITIES IN THE FOLLOWING SCHEDULE.
21. ANY ITEMS OF HARDWARE REQUIRED BY ESTABLISHED STANDARDS OF PRACTICE, OR TO MEET STATE AND LOCAL CODES SHALL BE FURNISHED WHETHER OR NOT SPECIFICALLY CALLED OUT IN THE FOLLOWING LISTED GROUPS.
22. SUPPLIER SHALL SUPPLY HARDWARE FOR EVERY NUMBERED OPENING, WHETHER SPECIFIED IN THE HARDWARE SETS OR NOT. HARDWARE SHALL BE SAME AS SIMILAR OPENINGS.
23. CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SETS REQUIRED TO BE LABELED AND RATED FOR CODE COMPLIANCE. STANDARDS FOR FIRE RATED DOORS AND FRAMES SHALL BE NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVE'S.

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Door and Window Details

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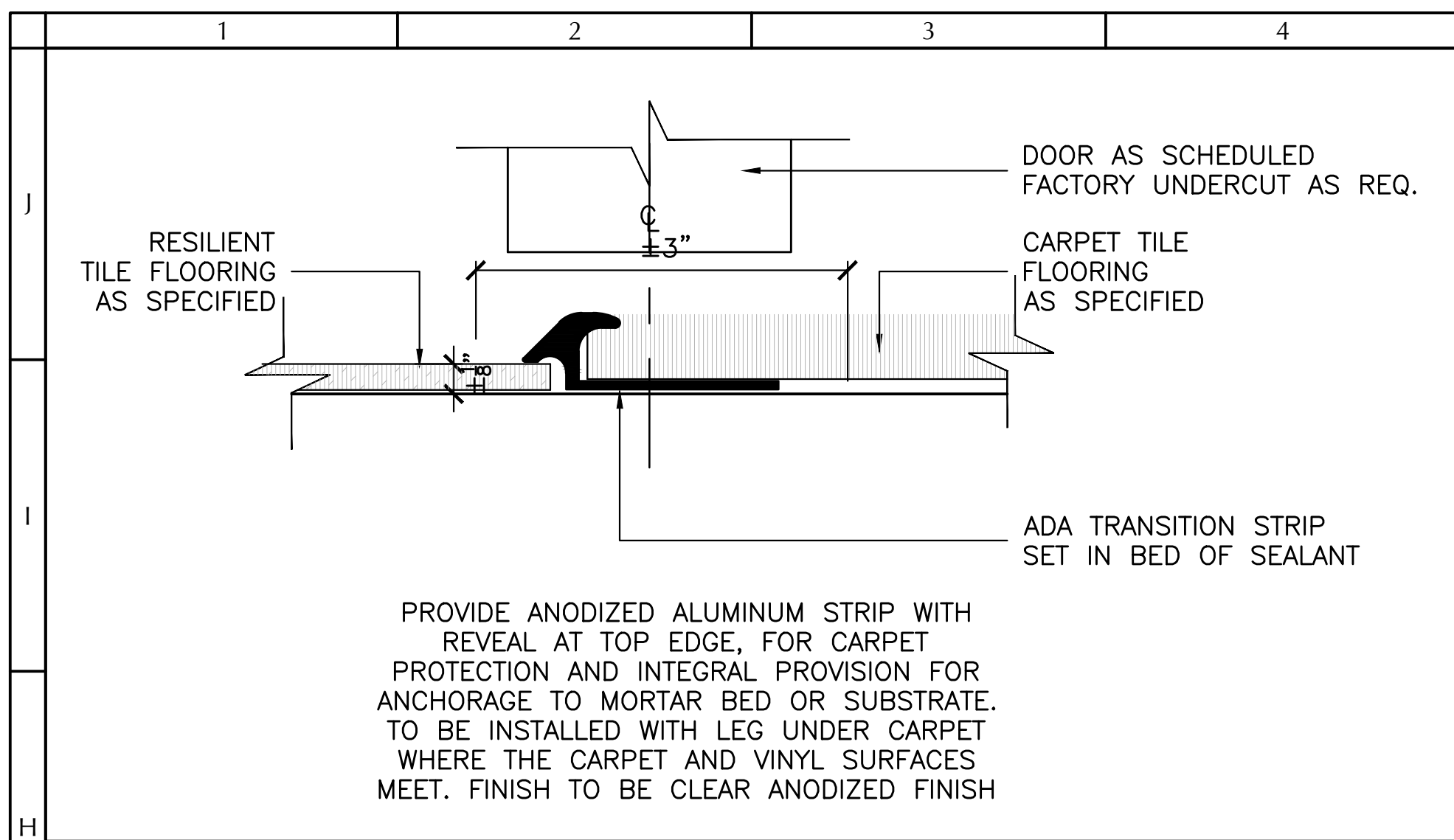
	1	2	3	4	5	6	7	8	9	10	11	12	
J												<p>GENERAL WINDOW NOTES:</p> <ol style="list-style-type: none"> 1. REVIEW CONTRACT DOCUMENTS. CHECK SHOP DRAWINGS, INSTALLATION INSTRUCTIONS, ARCHITECTURAL DRAWINGS AND SHIPPING LISTS TO BECOME THOROUGHLY FAMILIAR WITH THE PROJECT. THE SHOP DRAWINGS TAKE PRECEDENCE AND INCLUDE SPECIFIC DETAILS FOR THE PROJECT. NOTE ANY FIELD VERIFIED NOTES ON THE SHOP DRAWINGS PRIOR TO INSTALLING. THE INSTALLATION INSTRUCTIONS ARE OF GENERAL NATURE AND COVER MOST CONDITIONS. 2. ALL MATERIALS ARE TO BE INSTALLED PLUMB, LEVEL AND TRUE. INSTALL OPERABLE WINDOWS PREGLAZED ONLY. 3. ALL WORK SHOULD START FROM BENCH MARKS AND/OR COLUMN LINES AS ESTABLISHED BY THE ARCHITECTURAL DRAWINGS AND THE GENERAL CONTRACTOR WITH GUARANTEED ACCURACY. 4. ALL FIELD WELDING MUST BE ADEQUATELY SHIELDED TO AVOID ANY SPLATTER ON GLASS OR ALUMINUM. RESULTS WILL BE UNSIGHTLY AND/OR STRUCTURALLY UNSOUND. ADVISE GENERAL CONTRACTOR AND OTHER TRADES ACCORDINGLY. ALL FIELD WELDS OF STEEL ANCHORS MUST RECEIVE TOUCH-UP PAINT (ZINC CHROMATE) TO AVOID RUST. 5. MAKE CERTAIN THAT CONSTRUCTION WHICH WILL RECEIVE YOUR MATERIALS IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IF NOT, NOTIFY THE GENERAL CONTRACTOR IN WRITING AND RESOLVE DIFFERENCES BEFORE PROCEEDING WITH WORK. 6. ALUMINUM TO BE PLACED IN DIRECT CONTACT WITH UNCURED MASONRY OR INCOMPATIBLE MATERIALS SHOULD BE ISOLATED WITH A HEAVY COAT OF ZINC CHROMATE OR BITUMINOUS PAINT. 7. SEALANTS MUST BE COMPATIBLE WITH ALL MATERIALS WITH WHICH THEY HAVE CONTACT, INCLUDING OTHER SEALANT SURFACES. CONSULT WITH SEALANT MANUFACTURER FOR RECOMMENDATIONS RELATIVE TO JOINT SIZE, SHELF LIFE, COMPATIBILITY, CLEANING/PRIMING, TOOLING, ADHESION, ETC. IT IS THE RESPONSIBILITY OF THE GLAZING CONTRACTOR TO SUBMIT A STATEMENT FROM THE SEALANT MANUFACTURER INDICATING THAT GLASS AND GLAZING MATERIALS HAVE BEEN TESTED FOR COMPATIBILITY AND ADHESION WITH GLAZING SEALANTS, AND INTERPRETING TEST RESULTS RELATIVE TO MATERIAL PERFORMANCE, INCLUDING RECOMMENDATIONS FOR PRIMERS AND SUBSTRATE PREPARATION REQUIRED TO OBTAIN ADHESION. THE CHEMICAL COMPATIBILITY OF ALL GLAZING MATERIALS AND FRAMING SEALANTS WITH EACH OTHER AND WITH LIKE MATERIALS USED IN GLASS FABRICATION MUST BE ESTABLISHED. 8. AS SOON AS A REPRESENTATIVE AMOUNT OF THE WALL HAS BEEN GLAZED (500 SQUARE FEET OR 46.5 M2) A WATER HOSE TEST SHOULD BE CONDUCTED IN ACCORDANCE WITH AAMA 501.2 SPECIFICATIONS TO CHECK THE INSTALLATION. ON ALL JOBS THE HOSE TEST SHOULD BE REPEATED EVERY 500 SQUARE FEET (46.5M2) DURING THE GLAZING OPERATION. 9. COORDINATE WITH THE GENERAL CONTRACTOR ANY SEQUENCE WITH OTHER TRADES WHICH OFFSET INSTALLATION (I.E. FIRE PROOFING, BACK-UP WALLS, PARTITIONS, CEILINGS, MECHANICAL DUCTS, CONVERTERS ETC.). 10. FINAL CLEANING OF EXPOSED ALUMINUM SURFACES SHOULD BE DONE IN ACCORDANCE WITH AAMA 609.1 FOR ANODIZED ALUMINUM AND 610.1 FOR PAINTED ALUMINUM. 	
I													
H													
G													
F													
E													
D													
C													
B													
A	<p>A1 Hollow Metal Window Jamb Scale: 3"=1'-0"</p>			<p>A4 Aluminum Window Sill Scale: 3"=1'-0"</p>									

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PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: PLM,NRJ
CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____





ITEM	DESCRIPTION	QUANTITY	MANUFACTURER
H1 STOREFRONT ENTRANCES	CYLINDER	1	CORBIN 3080-178-6-626
	CLOSER	1	LCN 4040XP
	HINGE	3	BY STOREFRONT MFR
	THRESHOLD	1	BY STOREFRONT MFR
	WEATHERSTRIPPING	3	BY STOREFRONT MFR
	EXIT DEVICE	1	VON DUPRIN 98L 996L #17 32D
ADA ASSIST DOORS	FLOOR STOP	1	IVES FS410 26D
	BOTTOM SEAL	1	BY STOREFRONT MFR
FIRE ALARM DOORS	CLOSER	1	RINSON ASS ALBOY 0601 SERIES - SMOKE CHECK V

H1 Transition Detail
A5.02 Scale: NTS

H5 Door Hardware Schedule
A5.02 Scale: NTS

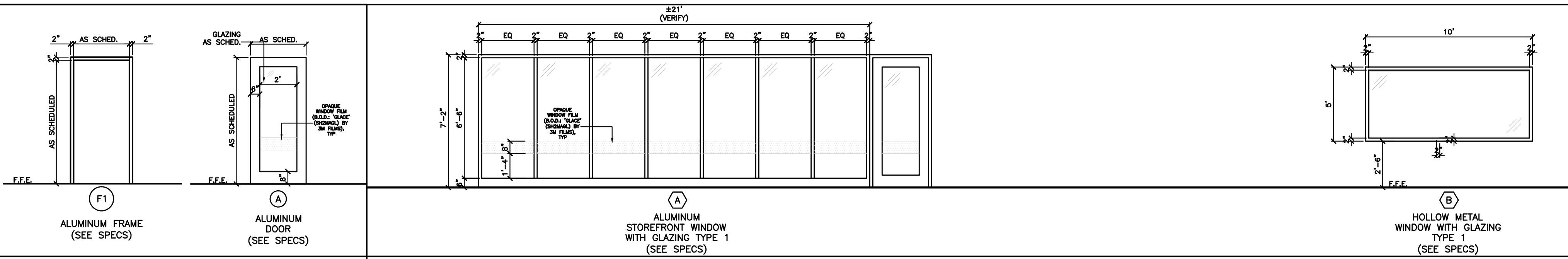
GENERAL DOOR AND HARDWARE NOTES:

- ANY DOOR OR FRAME LISTED AS GALVANIZED SHALL BE FABRICATED FROM HOT DIPPED A60 GALVANIZED.
- ALL VERTICAL STIFFENERS TO BE 18 GAUGE SPACED AT 4" O.C.
- ALL WELDS TO BE 2" SPOT WELDS AT 8" O.C. UNLESS OTHERWISE NOTED. ALL WELDS SHALL BE GROUND AND SANDED SMOOTH, CLEANED AND FREE OF WELDING SPOILS AND REPRIMED IMMEDIATELY AFTER WELDING IS PERFORMED.
- ALL FRAMES INSTALLED ON AN EXTERIOR WALL, OR "WET" AREA OF A BUILDING SHALL BE FULLY GALVANIZED OUTSIDE AND INSIDE OF FRAME.
- FRAMES ARE TO BE MORTISED, DRILLED, TAPPED, AND REINFORCED, FOR ALL HARDWARE IN ACCORDANCE WITH APPROVED HARDWARE SCHEDULE AND TEMPLATES.
- ALL FRAMES TO BE PRE PUNCHED FOR ALL SILENCERS.
- ALL MATERIALS TO BE MARKED LEGIBLY WITH CORRECT INFORMATION TO LOCATE BEFORE ARRIVING ON SITE.
- NO FABRICATION OF MATERIALS SHALL BEGIN UNTIL ARCHITECT AND OWNER HAVE REVIEWED SHOP DRAWING SUBMITTALS.
- MANUFACTURER TO COORDINATE WITH GLAZING AND FINISH HARDWARE MANUFACTURER TO ENSURE COMPATIBILITY WITH ALL PRODUCTS.
- REINFORCE DOORS AND FRAMES FOR SURFACE MOUNTED HARDWARE AS NEEDED.
- ALL FIRE RATED DOORS AND FRAMES MUST BE LISTED AS A UL APPROVED MATERIAL AND LABELED AS SUCH BEFORE ARRIVING ON SITE.
- FURNISH LOOSE ASTRAGALS FOR ALL DOOR PAIRS FOR FIELD INSTALLATION.
- PROVIDE LOUVERS FOR ALL MECHANICAL, ELECTRICAL, AND IDF ROOM DOORS.
- ALL DOOR UNDERCUTS TO BE PERFORMED BY MANUFACTURER, NO FIELD UNDERCUTTING ALLOWED. APPLY WEATHER STRIPPING PRIOR TO INSTALLING SURFACE APPLIED HARDWARE. DO NOT NOTCH WEATHER STRIPPING.
- PROVIDE COMPATIBLE ASTRAGALS AND SEALS FOR ALL PAIRS OF DOORS.
- CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SET FOR PAIRS OF DOORS.
- HARDWARE SUPPLIER SHOULD VERIFY ALL QUANTITIES IN THE FOLLOWING SCHEDULE.
- ANY ITEMS OF HARDWARE REQUIRED BY ESTABLISHED STANDARDS OF PRACTICE, OR TO MEET STATE AND LOCAL CODES SHALL BE FURNISHED WHETHER OR NOT SPECIFICALLY CALLED OUT IN THE FOLLOWING LISTED GROUPS.
- SUPPLIER SHALL SUPPLY HARDWARE FOR EVERY NUMBERED OPENING, WHETHER SPECIFIED IN THE HARDWARE SETS OR NOT. HARDWARE SHALL BE SAME AS SIMILAR OPENINGS.
- CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SETS REQUIRED TO BE LABELED AND RATED FOR CODE COMPLIANCE. STANDARDS FOR FIRE RATED DOORS AND FRAMES SHALL BE NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVE'S.

WINDOW ID	WINDOW						FRAME			GLAZING	NOTES
	SIZE			TYPE	RATING	MAT.	DETAILS				
	WIDTH	HEIGHT	COUNT				HEAD	JAMB	SILL		
A	21'-0"	7'-2"	1	FIXED	NA	AL	E1/A5.00	A8/A5.00	A4/A5.01	G1	ALUMINUM WINDOW
B	10'-0"	5'-0"	1	FIXED	NA	HM	E7/A5.00	A1/A5.01	E4/A5.00	G1	HOLLOW METAL WINDOW

TYP. GLAZING SCHEDULE						PERFORMANCE REQUIREMENTS						NOTES	
GLAZING ID	GLAZING DESCRIPTION	GLAZING THICKNESS	OUTBOARD LITE	INBOARD LITE	MAT.	TRANS	U VALUE	REFLECT OUT	REFLECT IN	SHAD COEF.	SHGC		LSG
G1	TEMPERED	6.4MM (1/2")	6MM C1048 A TYPE 1 C1 Q3	NOT APPLICABLE		--	--	--	--	--	--		--

E1 Door Head Detail
A5.02 Scale: 3"=1'-0"



C1 Door and Frame Legends
A5.02 Scale: NTS

C3 Window Legends
A5.02 Scale: NTS

DOOR NUMBER	DOOR										FRAME			HARDWARE SET	NOTES	
	SIZE			MAT.	PAIR	TYPE	GLAZ	RATING	GLAZ	MAT.	TYPE	DETAILS				
	WIDTH	HEIGHT	THICK									HEAD	JAMB			SILL
100	3'-0"	7'-0"	1 - 1/2"	AL	-	A	G1	-	AL	F1	A1/A5.00	A5/A5.00	TYP	H1	ALUMINUM DOOR AND FRAME	

A1 Door Head Detail
A5.02 Scale: 3"=1'-0"

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- ANY ITEMS OF HARDWARE REQUIRED BY ESTABLISHED STANDARDS OF PRACTICE, OR TO MEET STATE AND LOCAL CODES SHALL BE FURNISHED WHETHER OR NOT SPECIFICALLY CALLED OUT IN THE FOLLOWING LISTED GROUPS.
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- CONTRACTOR RESPONSIBLE FOR MAKING ADJUSTMENTS TO HARDWARE SETS REQUIRED TO BE LABELED AND RATED FOR CODE COMPLIANCE. STANDARDS FOR FIRE RATED DOORS AND FRAMES SHALL BE NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVE'S.

SOUTHERN UNIV. MULTI-MEDIA CENTER
WALL PAINT LEGEND

ID	DESCRIPTION
PT1	SHERWIN-WILLIAMS SKY FALL SW 9049
PT2	SHERWIN-WILLIAMS RAYO DE SOL SW 9020
PT3	SHERWIN-WILLIAMS GRAY SCREEN SW 7071

FINISH LEGEND

CEILING LEGEND		
ID	DESCRIPTION	NOTES
EXP	EXPOSED TO STRUCTURE ABOVE PAINTED	COLORS TO BE SELECTED
LAT	LAY-IN ACOUSTICAL TILE 24"x24" (SEE SPECS)	INSTALLED AS PER MNF. SPECIFICATIONS
GYP	PAINTED GYPSUM BOARD CEILING (SEE SPECS)	COLORS TO BE SELECTED
PT	CEILING FINISH TO BE PAINTED (SEE SPECS)	COLORS TO BE SELECTED
WALL LEGEND		
ID	DESCRIPTION	NOTES
CMU	EXISTING CONCRETE MASONRY UNITS PAINTED	COLORS TO BE SELECTED
CWT	CERAMIC WALL TILE (SEE SPECS)	COLORS TO BE SELECTED
NOTE: NEW INFILL CMU MASONRY TO BE PAINTED		
WALL BASE		
ID	DESCRIPTION	NOTES
RB	6" VINYL WALL BASE (SEE SPECS)	COLORS TO BE SELECTED
FLOOR FINISHES		
ID	DESCRIPTION	NOTES
RFT	RESILIENT FLOOR TILE (SEE SPECS)	1 FIELD COLOR AND 1 ACCENT COLORS MINIMUM TO BE SELECTED
CPT	CARPET FLOOR TILE (SEE SPECS)	1 FIELD COLOR AND 1 ACCENT COLORS MINIMUM TO BE SELECTED

ROOM FINISH SCHEDULE (PAINT)- BASE BID

ROOMS		FINISHES							NOTES
NO.	NAME	FLOOR	BASE	N. WALL	S. WALL	E. WALL	W. WALL	CEILING	
100	NEWS ROOM	CPT	RB	PT3	PT1/PT2	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
101	SET	RFT	RB	PT3	PT1/PT2	PT3	PT3	LAT/PT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
102	LIGHTING	RFT	RB	PT3	PT3	PT1/PT2	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
103	CONTROL ROOM	RFT	RB	PT3	PT3	PT1/PT2	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
104	STORAGE	RFT	RB	PT3	PT3	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
105	CONTROL ROOM	RFT	RB	PT1/PT2	PT3	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
106	VIEWING ROOM	RFT	RB	PT3	PT1/PT2	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
107	MACHINE ROOM	RFT	RB	PT1/PT2	PT1/PT2	PT1/PT2	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
108	CORRIDOR	RFT	RB	PT1/PT2	PT1/PT2	PT1/PT2	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
109	CORRIDOR	RFT	RB	PT1/PT2	PT1/PT2	PT1/PT2	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
110.1	EDIT BAY	RFT	RB	PT3	PT3	PT3	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
110.2	EDIT BAY	RFT	RB	PT3	PT3	PT1/PT2	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
110.3	EDIT BAY	RFT	RB	PT3	PT3	PT3	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
110.4	EDIT BAY	RFT	RB	PT3	PT3	PT3	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
111	EDIT BAY	RFT	RB	PT3	PT3	PT3	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
112	EDIT BAY	RFT	RB	PT3	PT3	PT1/PT2	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
113	EDIT BAY	RFT	RB	PT1/PT2	PT3	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
114	LOUNGE	RFT	RB	PT1/PT2	PT3	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
115	CORRIDOR	RFT	RB	PT3	PT3	PT3	PT1/PT2	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT
116	EDIT BAY	RFT	RB	PT3	PT1/PT2	PT3	PT3	LAT	ALL FINISH COLORS TO BE SELECTED BY ARCHITECT

FOR WALLS DEMARKED 'PT1/PT2', ARCHITECT TO SELECT EITHER PER WALL AFTER BID AWARD.

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GENERAL INTERIOR FINISH NOTES

- ALL GALVANIZED FRAMES SHALL RECEIVE A GLOSS FINISH, UNLESS OTHERWISE NOTED.
- ALL TRANSITIONS BETWEEN DISSIMILAR FLOORING MATERIALS TO RECEIVE A REDUCER/TRANSITION STRIP MEETING ADA REQUIREMENTS.
- WHEN COLOR OR STYLE IS NOT INDICATED, ARCHITECT AND OWNER WILL SELECT COLOR FROM MFGR.'S STANDARD RANGE.
- ALL MISCELLANEOUS GRILLES, LOUVERS, DIFFUSERS, ACCESS PANELS, LIGHT FIXTURE TRIM, ETC. SHALL BE FINISHED TO MATCH THE SURFACE ON WHICH THEY OCCUR.
- ALL SURFACES TO RECEIVE A FINISH APPLICATION SHALL BE COMPLETELY SMOOTH AND FREE OF DEBRIS. IF SURFACES ARE NOT ACCEPTABLE NOTIFY THE ARCHITECT TO HAVE SURFACES CORRECTED BEFORE APPLYING FINISH APPLICATION.
- FINISH APPLICATIONS SHALL BE FREE OF IMPERFECTIONS.
- UNLESS OTHERWISE STATED IN THE SPECIFICATIONS, ALL PAINTED SURFACES ARE TO RECEIVE ONE SHOP PRIMED COAT, AND A MINIMUM OF TWO FIELD APPLIED FINISH COATS. PRIME ALL SURFACES ACCORDING TO MANUFACTURER'S SPECIFICATIONS PRIOR TO APPLICATION OF PAINT. THE NUMBER OF COATS SPECIFIED IS THE MINIMUM NUMBER OF COATS. WHEN UNDERCOATS, STAINS, OR OTHER CONDITIONS SHOW THROUGH "FINAL" COAT OF FINISH APPLY ADDITIONAL COATS UNTIL FINISH IS UNIFORM IN COLOR, AND APPEARANCE.
- UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS ALL PAINTED WOOD TRIM, MOLDINGS, DOORS, CASEWORK, METAL DOORS, AND METAL DOOR FRAMES, SHALL RECEIVE A GLOSS FINISH. REFER TO DETAILS UNLESS OTHERWISE STATED.
- ALL MATERIALS AND SURFACES WHICH ARE TO RECEIVE A FINISH SHALL MATCH SAMPLES PROVIDED TO ARCHITECT. CONTRACTOR SHALL PREPARE A SAMPLE OF EACH FINISH ON THE APPROPRIATE SURFACES AND SUBMIT THAT AS A FIELD REVIEW SAMPLE TO THE ARCHITECT FOR REVIEW PRIOR TO PROCEEDING WITH FINISHING OF ANY SURFACE. CONTRACTOR SHALL PROVIDE A FINAL MOCK UP SAMPLE FOR VERIFICATION ON SITE BY ARCHITECT AND OWNER OF SELECTED FINISH BEFORE PROCEEDING WITH FINISHING OF ANY SURFACE.
- REFER TO MANUFACTURER'S PROCEDURES AND RECOMMENDATIONS FOR APPLICATION, INSTALLATION, AND MAINTENANCE OF FINISHES LISTED IN THE LEGEND. IF CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS SHOULD CONFLICT, CONTRACTOR IS TO FOLLOW MANUFACTURER'S INSTRUCTIONS.
- ALL VERTICAL SURFACES TO RECEIVE FINISH SHALL BE THE SAME AS SURFACE DESIGNATION, UNLESS OTHERWISE STATED.
- PROVIDE EPOXY BASED PAINTS IN ALL RESTROOMS, CORRIDORS, AND OTHER HIGH ABUSE AREAS OR WATER BASED AREAS. SHOULD ANY QUESTIONS ARISE REGARDING PAINT FINISH, THE ARCHITECT IS TO BE CONSULTED BEFORE PROCEEDING.
- PROVIDE A BULL NOSE EDGE TILE WHEN STOPPING SHORT OF CEILING FOR ALL WALL TILE APPLICATIONS.
- ALL EXPOSED METALS BOTH INTERIOR AND EXTERIOR TO BE PAINTED, INCLUDING GALVANIZED AND NON GALVANIZED SURFACES.
- SECURITY TYPE SEALANT TO BE USED TO SEAL ALL TRANSITIONS AND GAPS IN BUILDING MATERIALS. COLOR TO MATCH ADJACENT SURFACES.
- GYM STRUCTURE TO BE PAINTED TWO DIFFERENT COLORS. COLORS TO BE SELECTED BY ARCHITECT.

SOUTHERN UNIV. MULTI-MEDIA CENTER FINISH LEGEND

ID	DESCRIPTION
RFT	RESILIENT FLOOR TILE
	SIDE STRIPE IN CUSTOM COLOR MOHAWK GROUP
LVT	LUXURY VINYL TILE
	PREMIUM WOOD IN 918 SILVER MOHAWK GROUP
CPT	CARPET TILE
	SEE SPECS (ARCHITECT TO SELECT COLOR(S))

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INSTIGO • INSPIRE • QUOD VERTO

M3A
ARCHITECTURE

a professional limited liability company

William L. McElroy, AIA, NCARB

4880 McWILLIE CIRCLE

JACKSON, MISSISSIPPI 39206

TELEPHONE: (601) 981-1227

FACSIMILE: (601) 983-4444

PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY

PROJECT NUMBER: 22-022

DATE: 02/05/2024

DRAWN BY: PLM,NRJ

CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____

SEAL:

SHEET TITLE:

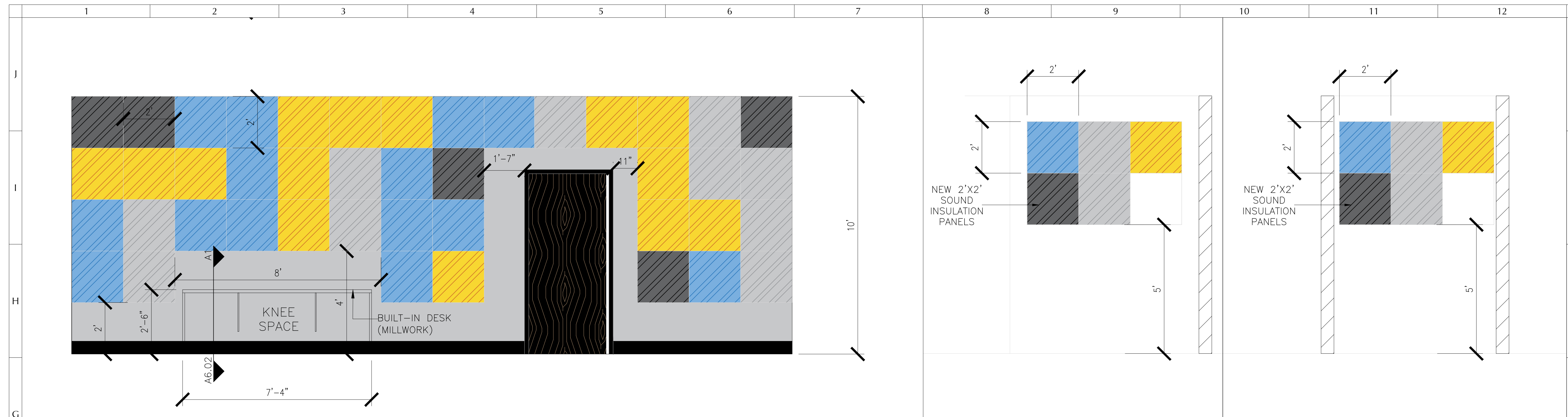
Floor Patterns

SHEET NUMBER

A5.04

M3ARCHITECTURE, PLLC

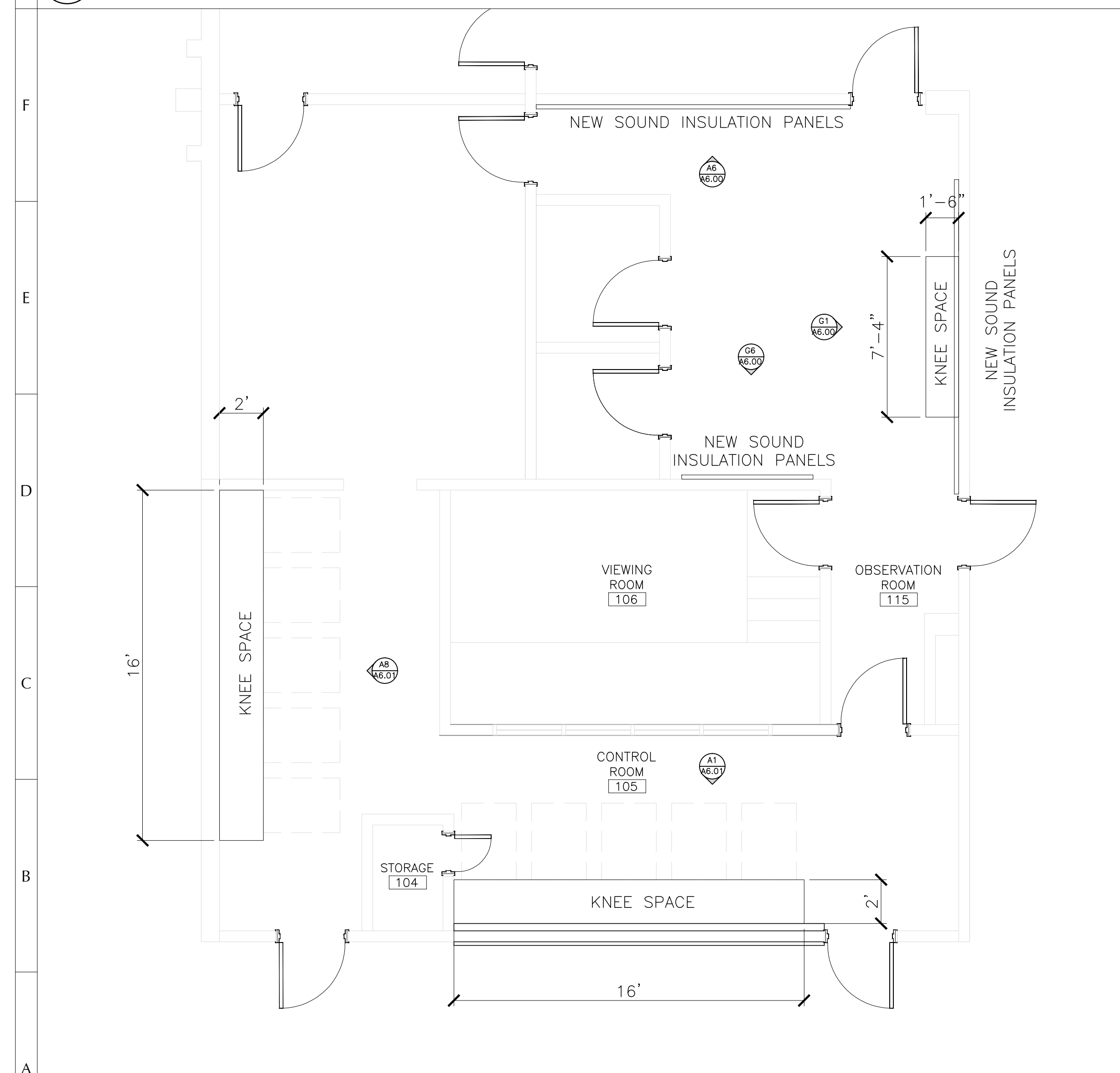
A1 Flooring Pattern
A5.04 Scale: 3/16"



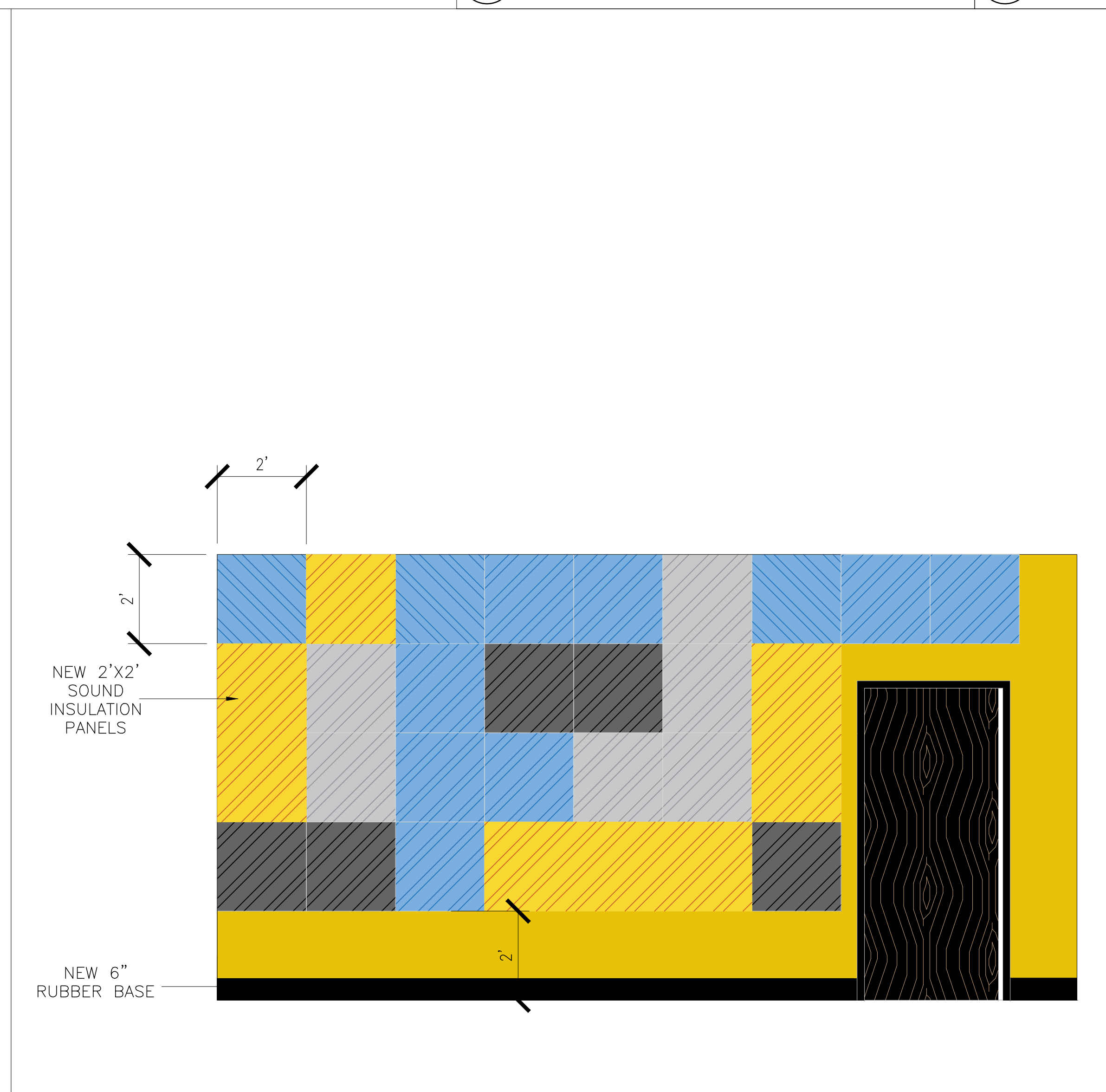
G1 Edit Bay Millwork Elevation
A6.00 Scale: 1/2"=1'-0"

G6 New Sound Panels Elevation
A6.00 Scale: 1/2"=1'-0"

G8 Sound Panels (Edit Bays 110.1-4)
A6.00 Scale: 1/2"=1'-0"



A1 Enlarged Plan at Control Room
A6.00 Scale: 1/2"=1'-0"

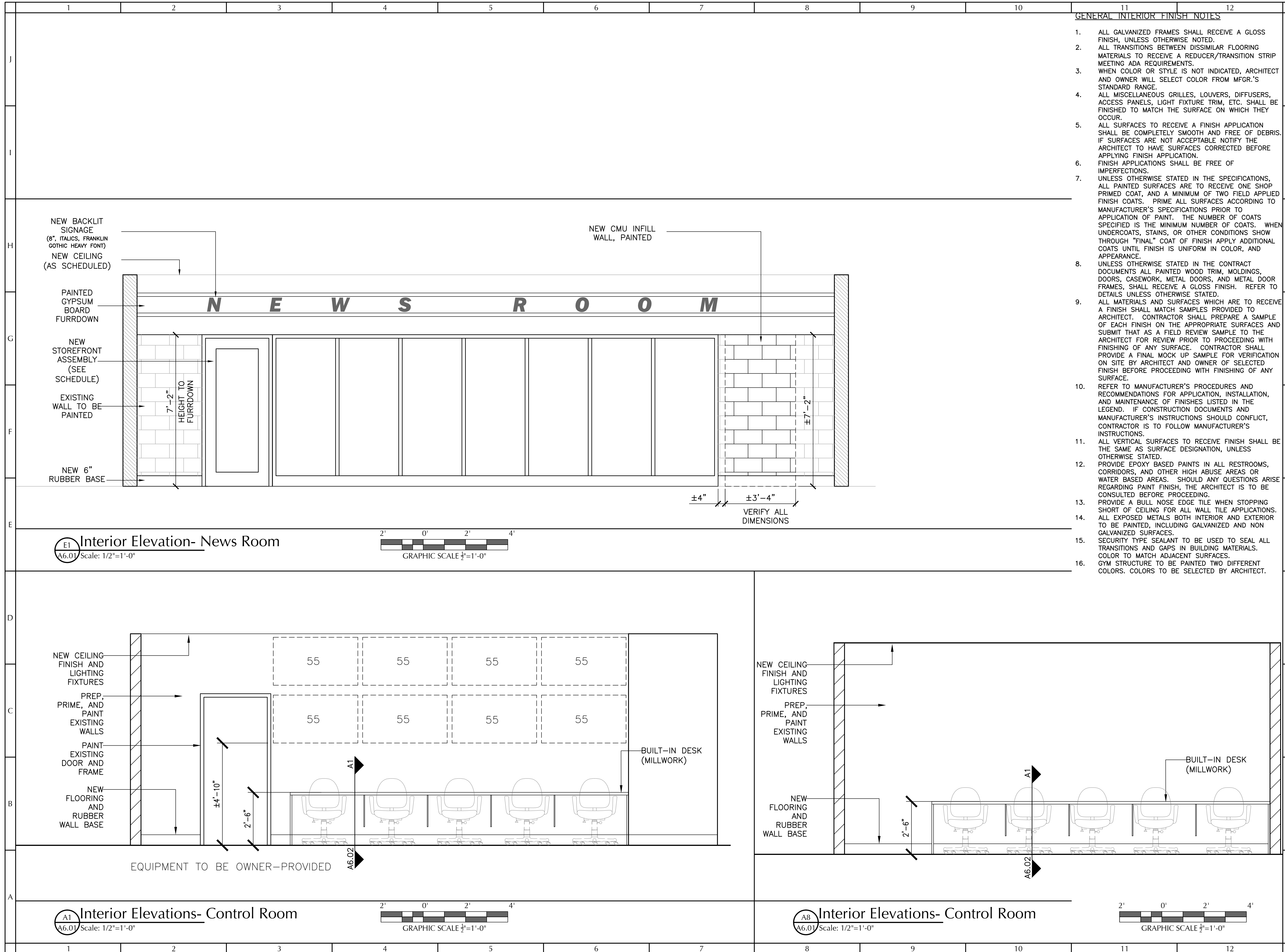


A6 New Sound Panels Elevation
A6.00 Scale: 1/2"=1'-0"

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5. ALL SURFACES TO RECEIVE A FINISH APPLICATION SHALL BE COMPLETELY SMOOTH AND FREE OF DEBRIS. IF SURFACES ARE NOT ACCEPTABLE NOTIFY THE ARCHITECT TO HAVE SURFACES CORRECTED BEFORE APPLYING FINISH APPLICATION.
6. FINISH APPLICATIONS SHALL BE FREE OF IMPERFECTIONS.
7. UNLESS OTHERWISE STATED IN THE SPECIFICATIONS, ALL PAINTED SURFACES ARE TO RECEIVE ONE SHOP PRIMED COAT, AND A MINIMUM OF TWO FIELD APPLIED FINISH COATS. PRIME ALL SURFACES ACCORDING TO MANUFACTURER'S SPECIFICATIONS PRIOR TO APPLICATION OF PAINT. THE NUMBER OF COATS SPECIFIED IS THE MINIMUM NUMBER OF COATS. WHEN UNDERCOATS, STAINS, OR OTHER CONDITIONS SHOW THROUGH "FINAL" COAT OF FINISH APPLY ADDITIONAL COATS UNTIL FINISH IS UNIFORM IN COLOR, AND APPEARANCE.
8. UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS ALL PAINTED WOOD TRIM, MOLDINGS, DOORS, CASEWORK, METAL DOORS, AND METAL DOOR FRAMES, SHALL RECEIVE A GLOSS FINISH. REFER TO DETAILS UNLESS OTHERWISE STATED.
9. ALL MATERIALS AND SURFACES WHICH ARE TO RECEIVE A FINISH SHALL MATCH SAMPLES PROVIDED TO ARCHITECT. CONTRACTOR SHALL PREPARE A SAMPLE OF EACH FINISH ON THE APPROPRIATE SURFACES AND SUBMIT THAT AS A FIELD REVIEW SAMPLE TO THE ARCHITECT FOR REVIEW PRIOR TO PROCEEDING WITH FINISHING OF ANY SURFACE. CONTRACTOR SHALL PROVIDE A FINAL MOCK UP SAMPLE FOR VERIFICATION ON SITE BY ARCHITECT AND OWNER OF SELECTED FINISH BEFORE PROCEEDING WITH FINISHING OF ANY SURFACE.
10. REFER TO MANUFACTURER'S PROCEDURES AND RECOMMENDATIONS FOR APPLICATION, INSTALLATION, AND MAINTENANCE OF FINISHES LISTED IN THE LEGEND. IF CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS SHOULD CONFLICT, CONTRACTOR IS TO FOLLOW MANUFACTURER'S INSTRUCTIONS.
11. ALL VERTICAL SURFACES TO RECEIVE FINISH SHALL BE THE SAME AS SURFACE DESIGNATION, UNLESS OTHERWISE STATED.
12. PROVIDE EPOXY BASED PAINTS IN ALL RESTROOMS, CORRIDORS, AND OTHER HIGH ABUSE AREAS OR WATER BASED AREAS. SHOULD ANY QUESTIONS ARISE REGARDING PAINT FINISH, THE ARCHITECT IS TO BE CONSULTED BEFORE PROCEEDING.
13. PROVIDE A BULL NOSE EDGE TILE WHEN STOPPING SHORT OF CEILING FOR ALL WALL TILE APPLICATIONS.
14. ALL EXPOSED METALS BOTH INTERIOR AND EXTERIOR TO BE PAINTED, INCLUDING GALVANIZED AND NON GALVANIZED SURFACES.
15. SECURITY TYPE SEALANT TO BE USED TO SEAL ALL TRANSITIONS AND GAPS IN BUILDING MATERIALS. COLOR TO MATCH ADJACENT SURFACES.
16. GYM STRUCTURE TO BE PAINTED TWO DIFFERENT COLORS. COLORS TO BE SELECTED BY ARCHITECT.

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GENERAL INTERIOR FINISH NOTES

1. ALL GALVANIZED FRAMES SHALL RECEIVE A GLOSS FINISH, UNLESS OTHERWISE NOTED.
2. ALL TRANSITIONS BETWEEN DISSIMILAR FLOORING MATERIALS TO RECEIVE A REDUCER/TRANSITION STRIP MEETING ADA REQUIREMENTS.
3. WHEN COLOR OR STYLE IS NOT INDICATED, ARCHITECT AND OWNER WILL SELECT COLOR FROM MFGR.'S STANDARD RANGE.
4. ALL MISCELLANEOUS GRILLES, LOUVERS, DIFFUSERS, ACCESS PANELS, LIGHT FIXTURE TRIM, ETC. SHALL BE FINISHED TO MATCH THE SURFACE ON WHICH THEY OCCUR.
5. ALL SURFACES TO RECEIVE A FINISH APPLICATION SHALL BE COMPLETELY SMOOTH AND FREE OF DEBRIS. IF SURFACES ARE NOT ACCEPTABLE NOTIFY THE ARCHITECT TO HAVE SURFACES CORRECTED BEFORE APPLYING FINISH APPLICATION.
6. FINISH APPLICATIONS SHALL BE FREE OF IMPERFECTIONS.
7. UNLESS OTHERWISE STATED IN THE SPECIFICATIONS, ALL PAINTED SURFACES ARE TO RECEIVE ONE SHOP PRIMED COAT, AND A MINIMUM OF TWO FIELD APPLIED FINISH COATS. PRIME ALL SURFACES ACCORDING TO MANUFACTURER'S SPECIFICATIONS PRIOR TO APPLICATION OF PAINT. THE NUMBER OF COATS SPECIFIED IS THE MINIMUM NUMBER OF COATS. WHEN UNDERCOATS, STAINS, OR OTHER CONDITIONS SHOW THROUGH "FINAL" COAT OF FINISH APPLY ADDITIONAL COATS UNTIL FINISH IS UNIFORM IN COLOR, AND APPEARANCE.
8. UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS ALL PAINTED WOOD TRIM, MOLDINGS, DOORS, CASEWORK, METAL DOORS, AND METAL DOOR FRAMES, SHALL RECEIVE A GLOSS FINISH. REFER TO DETAILS UNLESS OTHERWISE STATED.
9. ALL MATERIALS AND SURFACES WHICH ARE TO RECEIVE A FINISH SHALL MATCH SAMPLES PROVIDED TO ARCHITECT. CONTRACTOR SHALL PREPARE A SAMPLE OF EACH FINISH ON THE APPROPRIATE SURFACES AND SUBMIT THAT AS A FIELD REVIEW SAMPLE TO THE ARCHITECT FOR REVIEW PRIOR TO PROCEEDING WITH FINISHING OF ANY SURFACE. CONTRACTOR SHALL PROVIDE A FINAL MOCK UP SAMPLE FOR VERIFICATION ON SITE BY ARCHITECT AND OWNER OF SELECTED FINISH BEFORE PROCEEDING WITH FINISHING OF ANY SURFACE.
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12. PROVIDE EPOXY BASED PAINTS IN ALL RESTROOMS, CORRIDORS, AND OTHER HIGH ABUSE AREAS OR WATER BASED AREAS. SHOULD ANY QUESTIONS ARISE REGARDING PAINT FINISH, THE ARCHITECT IS TO BE CONSULTED BEFORE PROCEEDING.
13. PROVIDE A BULL NOSE EDGE TILE WHEN STOPPING SHORT OF CEILING FOR ALL WALL TILE APPLICATIONS.
14. ALL EXPOSED METALS BOTH INTERIOR AND EXTERIOR TO BE PAINTED, INCLUDING GALVANIZED AND NON GALVANIZED SURFACES.
15. SECURITY TYPE SEALANT TO BE USED TO SEAL ALL TRANSITIONS AND GAPS IN BUILDING MATERIALS. COLOR TO MATCH ADJACENT SURFACES.
16. GYM STRUCTURE TO BE PAINTED TWO DIFFERENT COLORS. COLORS TO BE SELECTED BY ARCHITECT.



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 PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: PLM,NRJ
 CHECKED BY: McELROY

REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____

SEAL: _____

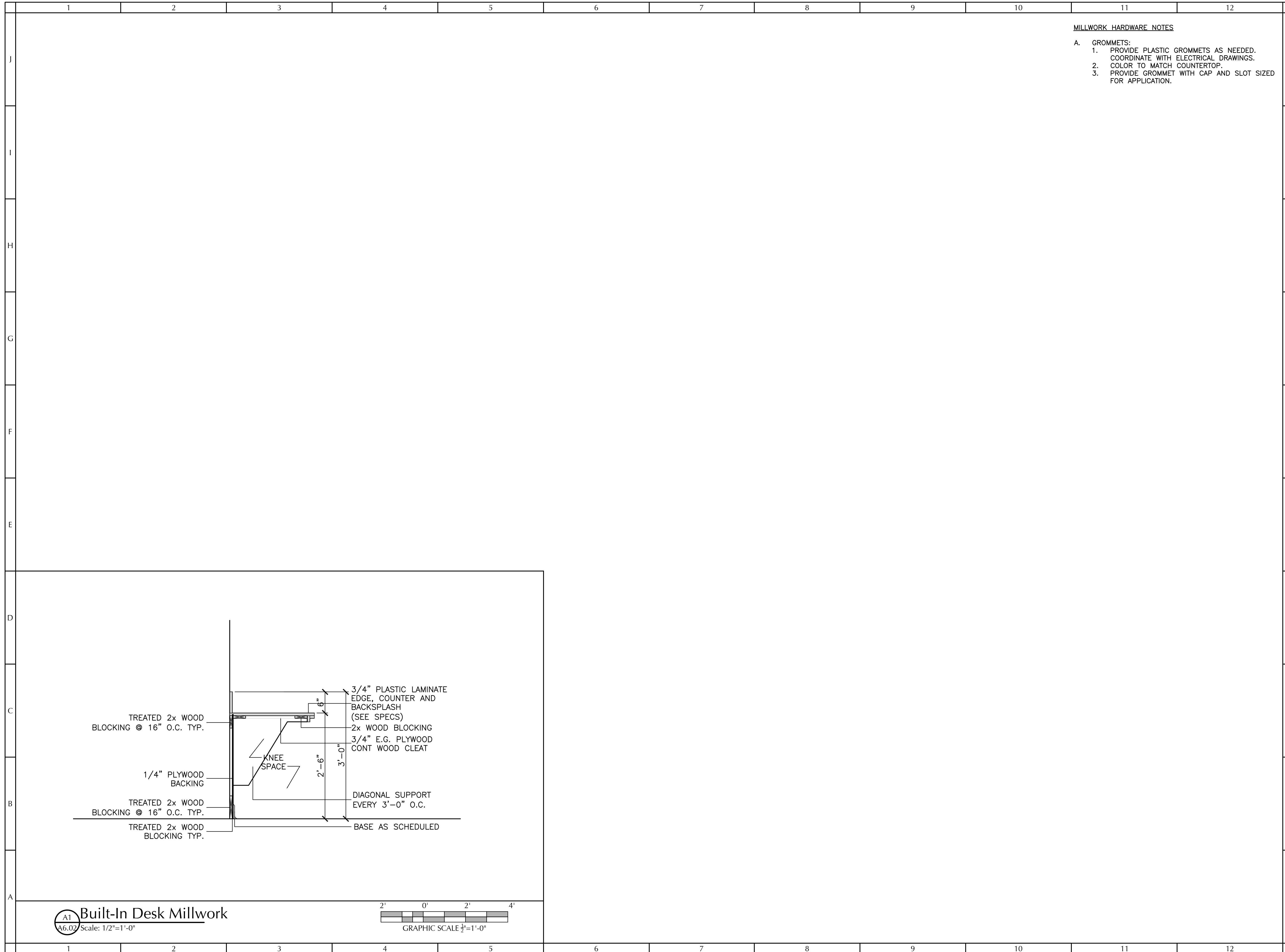
SHEET TITLE:

Interior Elevations

SHEET NUMBER
A6.01

M3ARCHITECTURE, PLLC

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MILLWORK HARDWARE NOTES

- A. GROMMETS:
1. PROVIDE PLASTIC GROMMETS AS NEEDED. COORDINATE WITH ELECTRICAL DRAWINGS. COLOR TO MATCH COUNTERTOP.
 2. PROVIDE GROMMET WITH CAP AND SLOT SIZED FOR APPLICATION.

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MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: PLM,NRJ
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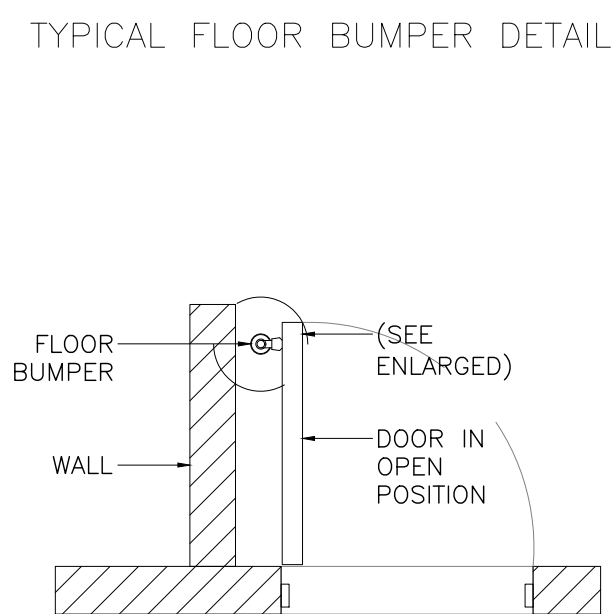
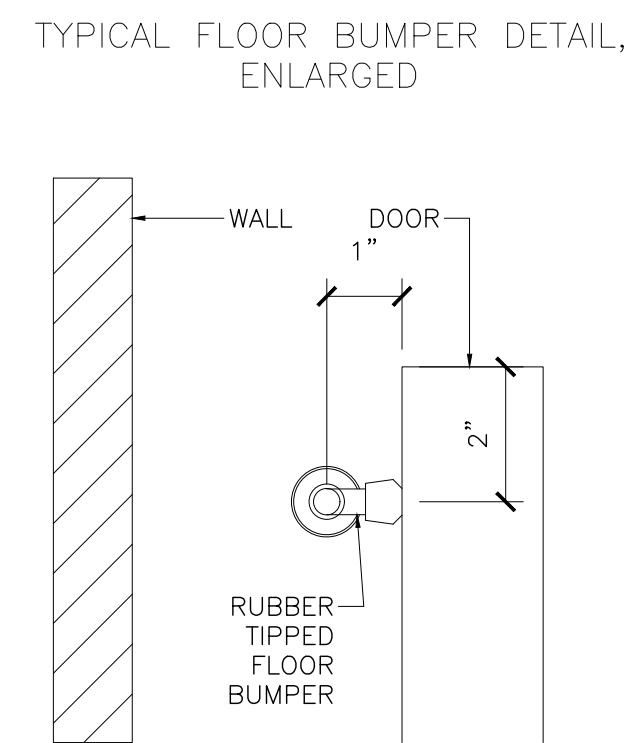
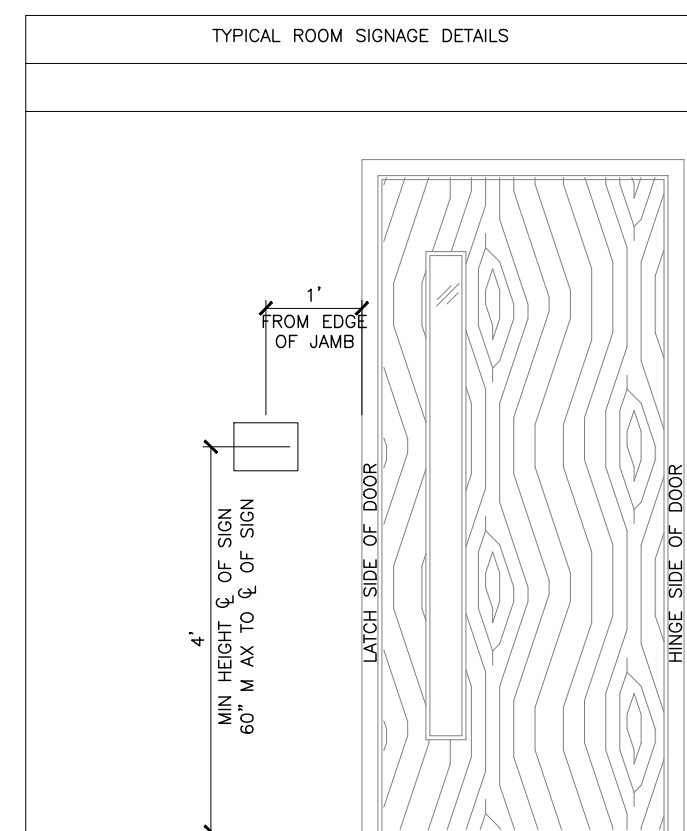
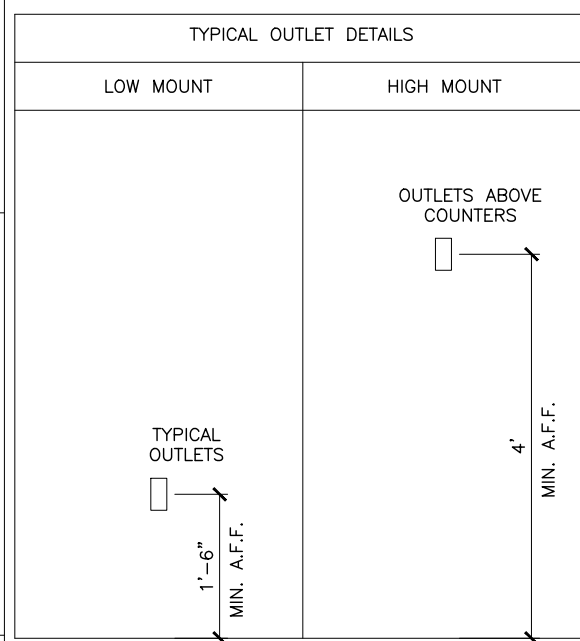
- REVISIONS: 1. _____
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 3. _____
 4. _____



SHEET TITLE:
Millwork Details

SHEET NUMBER
A6.02

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J												
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H												
G												
F												
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A1 **Typ. Interior Details**
A6.03 Scale: NA

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M3A

ARCHITECTURE

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SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY

PROJECT NUMBER: 22-022

DATE: 02/05/2024

DRAWN BY: PLM,NRJ

CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____



SHEET TITLE:

INTERIOR DETAILS

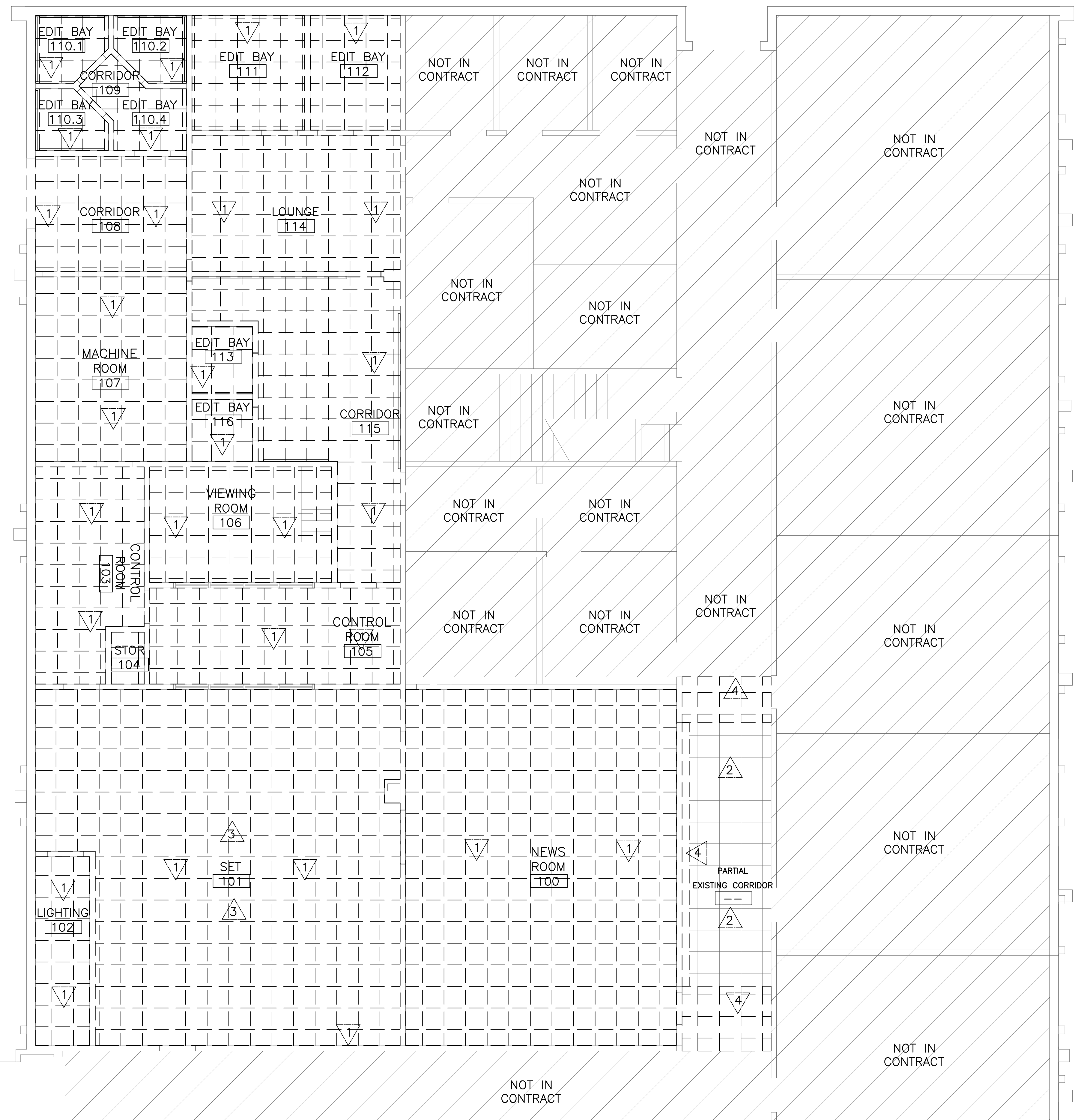
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A6.03

M3ARCHITECTURE, PLLC

CEILING DEMOLITION NOTES LEGEND

- 1. DEMOLISH EXISTING CEILING FINISH, IN ITS ENTIRETY, AS REQUIRED IN PREPARATION FOR NEW CEILING FINISH (AS PER SPECS.).
 - 2. CEILING FINISH TO REMAIN. PATCH AS REQUIRED.
 - 3. REMOVE CEILING STUDIO LIGHTING STRUCTURE, AS REQ., FOR DEMOLITION OF EXISTING CEILING TILE. SALVAGE FOR REINSTALL.
 - 4. SELECTIVELY DEMOLISH EXISTING CEILING FINISH, AS REQ., IN PREPARATION FOR NEW CEILING FINISH. PATCH SURROUNDING FINISH, AS REQ.
- BASE BID:**
ALL SCOPES INCLUDED IN NEWS ROOM 100 AND ADJOINING, EXISTING CORRIDOR
- ADD ALT #1:**
ALL DATA AND POWER SCOPES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM. ENCASE EXISTING CONTROL ROOM WINDOW.
- ADD ALT #2:**
ALL FINISHES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM.
- ADD ALT #3:**
INSTALLATION OF NEW SOUND PANELS AND MILLWORK, ENTIRE PROJECT.



GENERAL DEMOLITION NOTES

DRAWINGS OF EXISTING CONDITIONS HAVE BEEN COMPILED FROM EXISTING AVAILABLE DATA SUPPLIED TO THE ARCHITECT AND/OR EITHER GATHERED BY THE ARCHITECT. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FOR THE ACCURACY OF THE COMPLETENESS OF INFORMATION RECORDED SHALL BE ASSUMED. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMISSION TO BID.

VERIFY LOCATIONS OF EXISTING MECHANICAL, PLUMBING AND ELECTRICAL UTILITIES. LOCATE AND PROTECT UTILITIES TO REMAIN. DISCONNECT, REMOVE BACK TO NEAREST JUNCTION BOX OR PANEL, AS REQUIRED, AND CAP DESIGNATED UTILITIES WITHIN THE DEMOLITION AREA. REFER TO THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

ALL EXISTING BUILDING UTILITIES SHALL REMAIN IN OPERATION DURING CONSTRUCTION. PROVIDE REROUTING OF UTILITIES SERVING ADJACENT AREAS THAT ARE TO MAINTAIN UNINTERRUPTED SERVICE. ANY TEMPORARY SUSPENSION OF SERVICE SHALL BE COORDINATED AND APPROVED BY UTILITY COMPANIES AND LOCAL OFFICIALS HAVING JURISDICTION NOT LESS THAN TWENTY FOUR (24) HOURS IN ADVANCE.

THE DEMOLITION DRAWING KEYNOTES ARE DIAGRAMMATIC AND GENERAL IN NATURE. THE INTENT IS TO ILLUSTRATE THE COMPLETE DEMOLITION OF THE SPACES AS INDICATED UNLESS OTHERWISE NOTED. FIELD VERIFICATION OF EXISTING CONDITIONS AND SPECIFIC QUANTITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

REMOVAL AND DISPOSAL OF DEMOLITION DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR. LOCATE AND VERIFY THE HAULING ROUTE, THE STORAGE AREA, AND THE LOCATION OF THE DUMPSTER WITH THE OWNER AND/OR ARCHITECT PRIOR TO THE START OF DEMOLITION. DISPOSAL OF RUBBISH SHALL BE DONE IN A LEGAL MANNER.

THE OWNER RESERVES THE RIGHT TO SALVAGE ANY DEMOLISHED ITEM. VERIFY ITEMS TO BE SALVAGED WITH THE OWNER PRIOR TO THE START OF DEMOLITION. REMOVE, PROTECT, CLEAN, REPAIR, FOR REUSE AND TURN OVER SUCH ITEMS AS DIRECTED BY THE OWNER.

IN ORDER TO INSTALL SOME OF THE NEW WORK IT WILL BE NECESSARY FOR THE CONTRACTOR AND HIS SUBCONTRACTORS TO REMOVE AND REPLACE EXISTING WALLS, FLOOR, OR CEILINGS IN THE AREAS OF THE BUILDING AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL INCLUDE ALL RELATED COSTS IN HIS BASE BID, WHETHER SHOWN OR IMPLIED ON THE PLANS OR NOT.

PROTECT ADJACENT SPACES AND SURFACES NOT SCHEDULED FOR DEMOLITION. PATCH AND REPAIR DAMAGED FINISHES, ITEMS AND FIXTURES TO REMAIN AND/OR REPLACE IN KIND TO MATCH EXISTING FROM DAMAGE DURING THE PROGRESS OF THE WORK. PROVIDE TEMPORARY SAFETY BARRIERS REQUIRED BY CODE AND AS INDICATED TO INSURE THE SAFETY OF WORKERS AND THE PUBLIC.

PROVIDE DUST BARRIERS AROUND OPENINGS, TO AND FROM THE CONSTRUCTION AREA. PROVIDE ALL MEANS NECESSARY TO INHIBIT DUST FROM ENTERING OTHER PORTIONS OF THE FACILITY.

PROVIDE ADEQUATE SHORING, BRACING, BARRICADES, AND PROTECTIVE MEASURES AS REQUIRED TO SAFELY EXECUTE THE WORK IN THE CONSTRUCTION AREA AND THE AREAS ADJACENT TO THE CONSTRUCTION AREA. CEASE OPERATIONS AND NOTIFY THE ARCHITECT IMMEDIATELY IF THE STRUCTURE APPEARS TO BE ENDANGERED. DO NOT RESUME OPERATIONS UNTIL CORRECTIVE MEASURES HAVE BEEN TAKEN.

CONTRACTOR SHALL MAINTAIN REQUIRED MEANS OF EGRESS AND ENSURE THAT EXIT ROUTES ARE SIGNED, LIGHTED, AND PROTECTED IN ACCORDANCE WITH CODE REQUIREMENTS. RELOCATED EXISTING AND/OR PROVIDE SMOKE PROTECTORS AND LIFE SAFETY EQUIPMENT FOR ADEQUATE COVERAGE.

AT FLOOR AREAS SCHEDULED TO RECEIVE NEW FLOOR COVERING, REMOVE EXISTING FLOOR COVERINGS AND PREPARE SUBSTRATE FOR NEW FLOOR COVERINGS PER SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.

AT ABANDONED PENETRATIONS OF FIRE RATED WALLS, CEILING OR FLOOR CONSTRUCTION, COMPLETELY SEAL VOIDS WITH FIRE RATED MATERIALS TO FULL THICKNESS OF THE PENETRATED ELEMENT. ALL PATCHING OF EXISTING WORK TO REMAIN SHALL MATCH FINISH PER SCHEDULE OR WHERE UNSCHEDULED TO MATCH EXISTING FINISHES TO REMAIN, AND SHALL MEET OR EXCEED FIRE RATING INDICATED ON FLOOR PLAN AND ARE REQUIRED BY THE STATE FIRE MARSHALL AND APPLICABLE CODES.

CONTRACTOR IS RESPONSIBLE FOR BUILDING SECURITY DURING ALL PHASES OF CONSTRUCTION. PROTECT ALL OPENINGS FROM WEATHER CONDITIONS AND SECURE THEM TO PREVENT VANDALISM.

DO NOT PERFORM WORK THAT WILL VOID WARRANTIES OF EXISTING WEATHER EXPOSED OR MOISTURE RESISTANT ELEMENTS WITHOUT PRIOR APPROVAL FROM THE OWNER.

ARCHITECT ASSUMES NO RESPONSIBILITY RELATING TO TOXIC MATERIALS, INCLUDING ASBESTOS, AND ASSUMES NO RESPONSIBILITY TO ITS EXISTENCE OR REMOVAL. THE CONTRACTOR WILL TAKE ACTION FOR DIRECTLY CONTRACTING WITH A CONSULTANT OR SPECIALIST, LICENSED BY THE STATE, FOR SUCH SERVICES SHOULD THOSE SERVICES BE REQUIRED ON THE PROJECT. CONTRACTOR TO INCLUDE ALLOWANCE FOR AMOUNT STATED IN SPECIFICATION FOR TESTING OF EXISTING MATERIALS AND/OR REMOVAL OF EXISTING MATERIALS AS NEEDED. SEE PROJECT MANUAL FOR EXACT AMOUNT OF ALLOWANCE.

CONTRACTOR IS RESPONSIBLE TO VISIT THE PROJECT SITE PRIOR TO BID AND BECOME FAMILIAR WITH ALL VISIBLE EXISTING CONDITIONS. SUBMISSION OF BID WILL BE CONSTRAINED AS CONTRACTORS STATEMENT THAT SITE VISIT HAS OCCURRED. NO CHANGE ORDERS WILL BE PAID FOR COORDINATION WITH VISIBLE EXISTING CONDITIONS.

VERIFY ALL EXISTING GRADE ELEVATIONS AND FLOOR ELEVATIONS INDICATED PRIOR TO PROCEEDING WITH ANY WORK.

CONFORM TO ALL CODES AND EXECUTE WORK ONLY WHICH IS IN CONFORMANCE.

KEEP CLEAN ALL EXISTING SPACES AND PROPERTIES ADJACENT TO DEMOLITION/CONSTRUCTION AREAS. ANY DEBRIS SHALL BE REMOVED FROM WORK AREAS DAILY. CLOSE OFF ALL EXISTING TO REMAIN OPENINGS, DUCTS, PIES, ETC THROUGHOUT THE PROJECT TO PREVENT DEBRIS/DUST ENTRY.

PROTECT ALL DEMOLISHED OPENINGS PRIOR TO INSTALLATION OF NEW DOORS, MASONRY INFILL, FIRE RATED PARTITIONS, ETC.

TRUE NORTH PLAN NORTH

Demolition Ceiling Plan
A1
Scale: 3/16"=1'-0"

8' 4' 0' 8'
GRAPHIC SCALE 3/16" = 1'-0"

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PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: PLM,NRI
CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____



SHEET TITLE:
Demolition Ceiling

SHEET NUMBER
A8.00

CEILING RENOVATION NOTES LEGEND

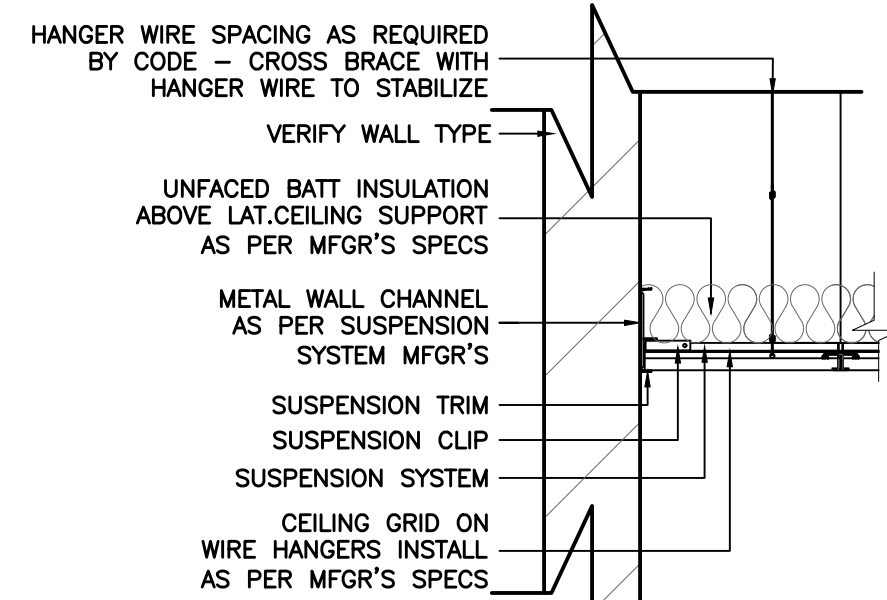
- ① PROVIDE NEW CEILING FINISH (AS PER SCHEDULE).
 - ② REINSTALL EXISTING CEILING, STUDIO LIGHTING STRUCTURE, AS REQ.
 - ③ EXISTING CEILING FINISH TO REMAIN
- BASE BID:**
ALL SCOPES INCLUDED IN NEWS ROOM 100 AND ADJOINING, EXISTING CORRIDOR
- ADD ALT #1:**
ALL DATA AND POWER SCOPES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM. ENCASE EXISTING CONTROL ROOM WINDOW.
- ADD ALT #2:**
ALL FINISHES IN ALL PROJECT ROOMS, EXCLUDING NEWS ROOM.
- ADD ALT #3:**
INSTALLATION OF NEW SOUND PANELS AND MILLWORK, ENTIRE PROJECT.
- ADD ALT #4:**
NEW DIESEL GENERATOR (AS PER ELECTRICAL)

REFLECTED CEILING PLAN KEY NOTES

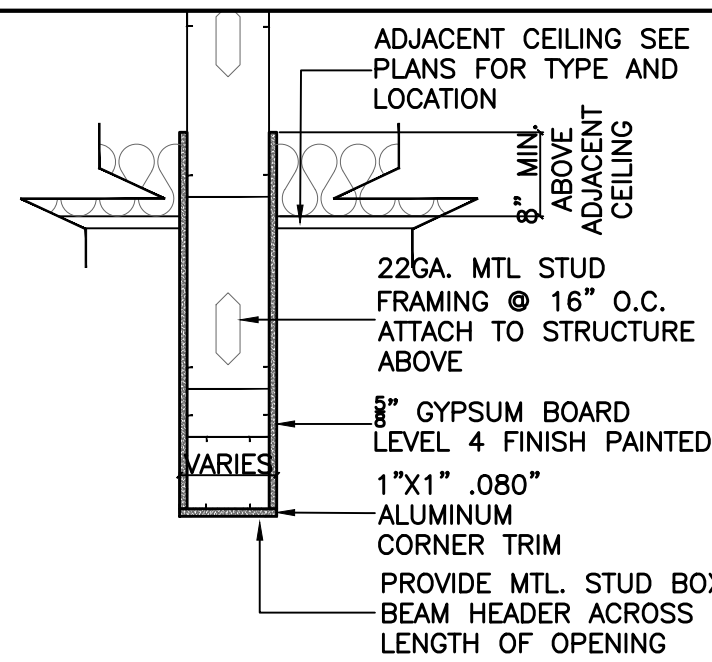
- <09510> SUSPENDED ACOUSTICAL CEILINGS**
09510.1 - 2'x2'x8" PAINTED NATURAL MINERAL FIBER ACOUSTICAL CEILING TILE ASTM E 1284 TYPE III, ON 1/8" INCH SUSPENSION SYSTEM AS PER SPECS AND DETAILS, PROVIDE 6" BATT INSULATION ABOVE, HEIGHT TO BE 10' A.F.F.
09510.2 - 2'x2'x8" PAINTED NATURAL MINERAL FIBER ACOUSTICAL CEILING TILE ASTM E 1284 TYPE III, ON 1/8" INCH SUSPENSION SYSTEM AS PER SPECS AND DETAILS, PROVIDE 6" BATT INSULATION ABOVE, HEIGHT TO BE ±14" (VERIFY EXISTING HEIGHT).
- <09260> GYPSUM BOARD FURRDOWNS**
09260.1 - GYPSUM BOARD FURRDOWN AS PER TYPICAL DETAIL, HEIGHT TO BE 7'-2" A.F.F., PROVIDE MR GYPSUM SHEATHING IN WET AREAS, PROVIDE 6" BATT INSULATION ABOVE
09260.2 - GYPSUM BOARD FURRDOWN AS PER TYPICAL DETAIL, HEIGHT TO BE 8'-0" A.F.F., PROVIDE MR GYPSUM SHEATHING IN WET AREAS, PROVIDE 6" BATT INSULATION ABOVE
- <09900> PAINTS AND COATINGS**
EXPOSED STRUCTURE TO BE PAINTED AS PER MATERIAL AND PAINT SYSTEM REQUIREMENTS PER SPECIFICATIONS. ARCHITECT TO SELECT COLORS, PROVIDE FOR MIN. 2 COLORS PER ROOM

REFLECTED CEILING PLAN LEGEND

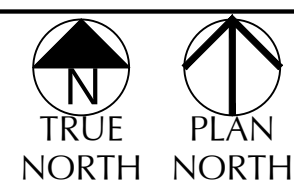
- ▬ GYPSUM BOARD FURRDOWN - SEE RCP KEY NOTES FOR HEIGHTS.
- ▭ SUSPENDED ACOUSTICAL CEILINGS - LAT TYPE 1 UNITS - SEE SPECS



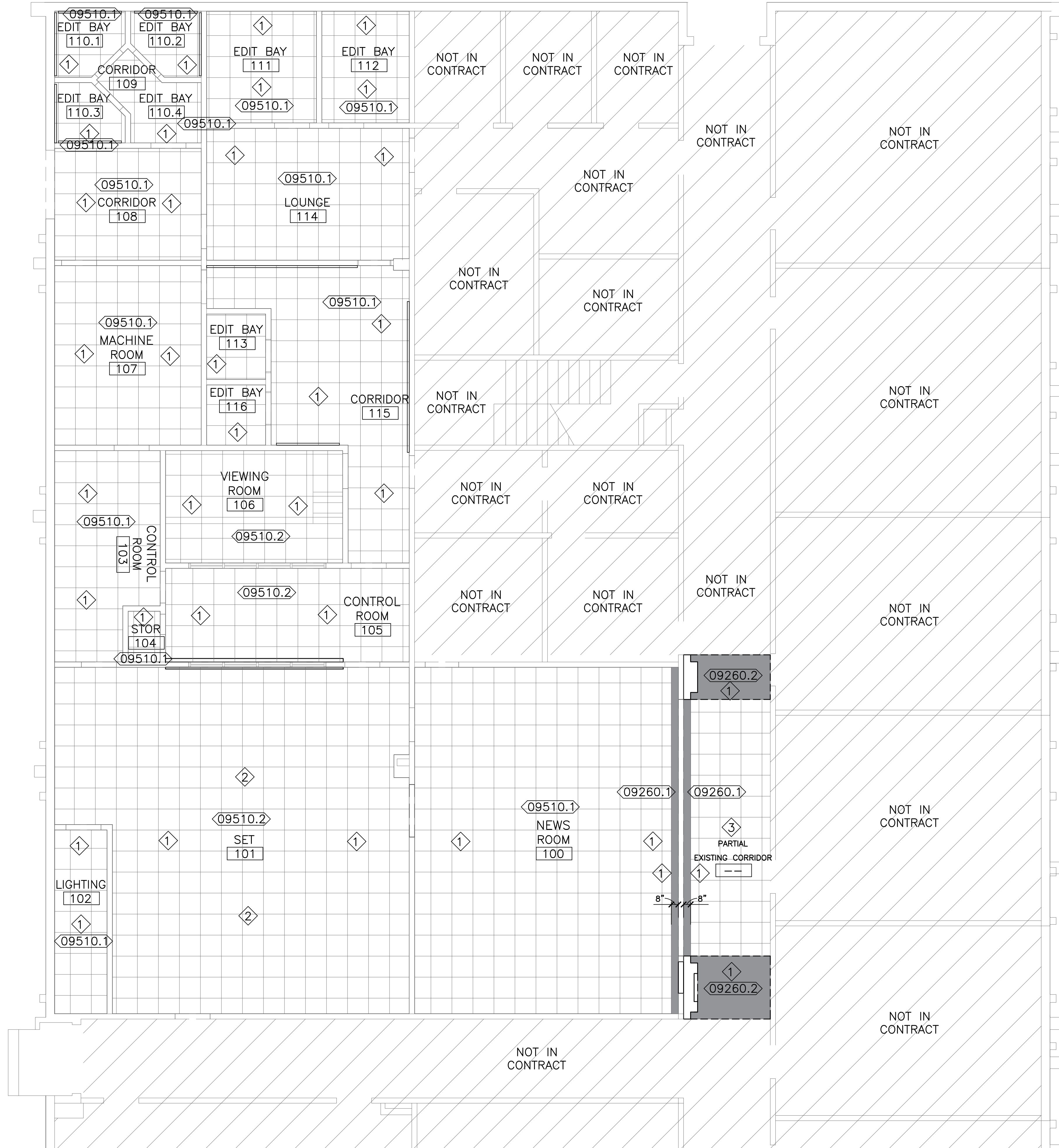
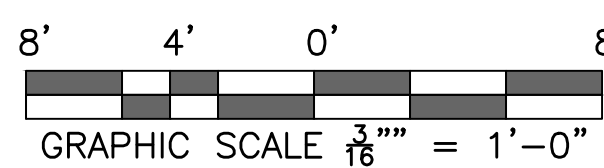
F1 Typ. LAT Detail
A8.01 Scale: 1"=1'-0"



D1 Typ. Furrdown Detail
A8.01 Scale: 3/4"=1'-0"



A1 Renovation Ceiling Plan
A8.01 Scale: 3/16"=1'-0"



GENERAL RENOVATION NOTES

- UNLESS OTHERWISE NOTED OR INDICATED, ALL DIMENSIONS ARE TO THE FINISHED FACE.
- ALL VERTICAL DIMENSION SHOWN ARE FROM FLOOR SLAB, UNLESS OTHERWISE NOTED.
- DIMENSIONS SHOWN IN FIGURES TAKES PRECEDENCE OVER DIMENSIONS SCALED FROM DRAWINGS, LARGE SCALE DRAWINGS AND DETAILS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TAKES PRECEDENCE OVER ARCHITECTS INSTRUCTIONS.
- THE TERM "ALIGN" AS USED IN THESE DOCUMENTS SHALL MEAN TO ACCURATELY LOCATE FINISHES IN THE SAME PLANE.
- THE TERM "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS THE SAME OR REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.
- DETAILS ARE USUALLY KEYED AND NOTED "TYPICAL" ONLY ONCE, WHEN THEY FIRST OCCUR AND ARE REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, UNLESS OTHERWISE NOTED.
- WHERE ELECTRICAL, MECHANICAL, AND/OR PLUMBING ITEMS ARE TO PENETRATE ANY STRUCTURAL BUILDING ELEMENTS, ROUGH FRAMING, WALL PARTITIONS, CEILINGS, ETC IT IS REQUIRED THAT AN APPROPRIATELY SIZED OPENING OR CLEARANCE BE FURNISHED. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ITEMS WITH THE CONSTRUCTION DOCUMENTS PRIOR TO THE INSTALLATION OF WORK. ANY CONFLICT OR DISCREPANCY WITH CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION.
- CONTRACTOR, ALONG WITH MECHANICAL SUB CONTRACTOR SHALL COORDINATE AND PROVIDE ACCESS DOORS, PANELS IN ALL WALLS AND CEILINGS AS REQUIRED TO ALLOW ACCESS TO MECHANICAL, FIRE SPRINKLER, PLUMBING, AND ELECTRICAL WORK. CONTRACTOR SHALL SUBMIT A PLAN OF ALL PROPOSED ACCESS PANEL LOCATIONS TO ARCHITECT FOR REVIEW.
- ALL PENETRATIONS AT RATED CONSTRUCTIONS SHALL BE PROTECTED TO MAINTAIN RATING.
- WHERE OCCURRING, CONTRACTOR SHALL PATCH AND FINISH ANY AND ALL WALLS AND SURFACES AS NEEDED TO REFURBISH THE SPACE AND REPAIR ALL DAMAGES CAUSED BY CONTRACTOR.
- INTERIOR WALLS, CEILING, AND DOORS SHALL BE INSTALLED IN ACCORDANCE TO STATE AND LOCAL CODES, INCLUDING REQUIREMENTS FOR FLAME SPREAD AND SMOKE DENSITY RATING FOR FINISH MATERIALS.
- WHEN USED ALL NOISE BARRIER BATTS (SOUND INSULATION) AND INSULATION BATTS SHALL BE NON COMBUSTIBLE AND SHALL NOT CONTAIN ANY OZONE DEPLETING COMPOUNDS.
- ALL NEW CONSTRUCTION MATERIALS SHALL BE 100% ASBESTOS FREE.

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PROJECT:

MULTI-MEDIA CENTER RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: PLM,NRJ
CHECKED BY: McELROY

REVISIONS: 1. _____
2. _____
3. _____
4. _____

SEAL:

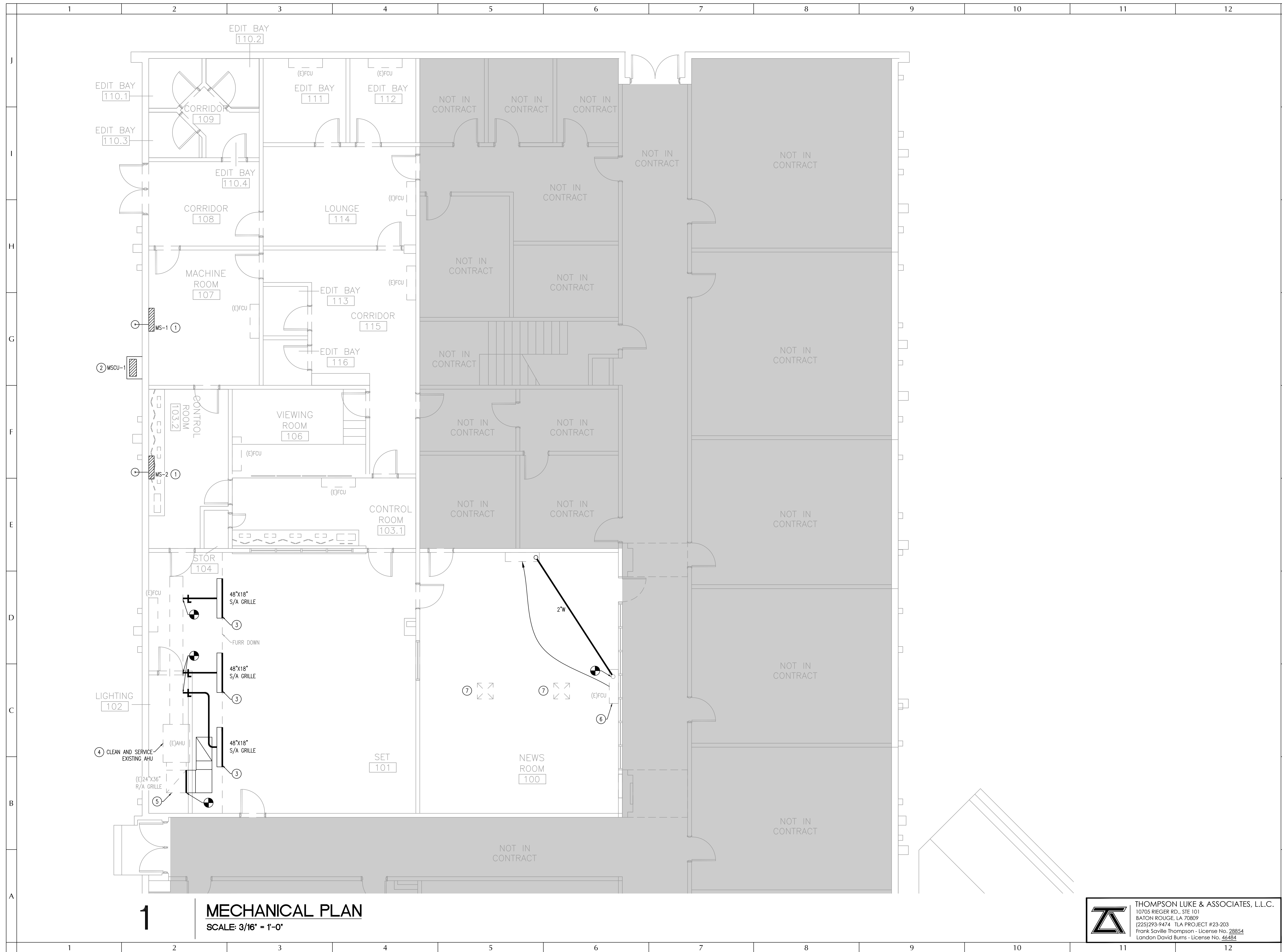


SHEET TITLE:

Renovation Ceiling Plan

SHEET NUMBER

A8.01



1

MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

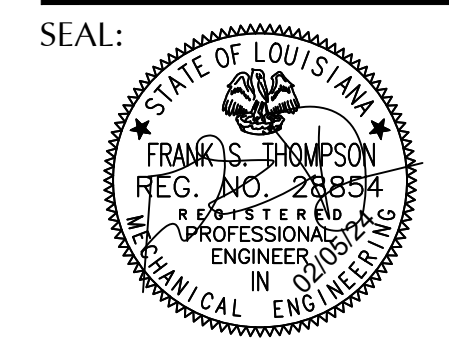
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PROJECT:

BROADCASTING AND MASS
COMMUNICATIONS RENOVATION FOR:
SOUTHERN UNIVERSITY
BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
PROJECT NUMBER: 22-022
DATE: 02/05/2024
DRAWN BY: JTW
CHECKED BY: EST
REVISIONS: 1. _____
2. _____
3. _____
4. _____



SHEET TITLE:
MECHANICAL PLAN

SHEET NUMBER
M1.00

M3A ARCHITECTURE, PLLC

MINI SPLIT AIR HANDLING UNIT SCHEDULE (MS)

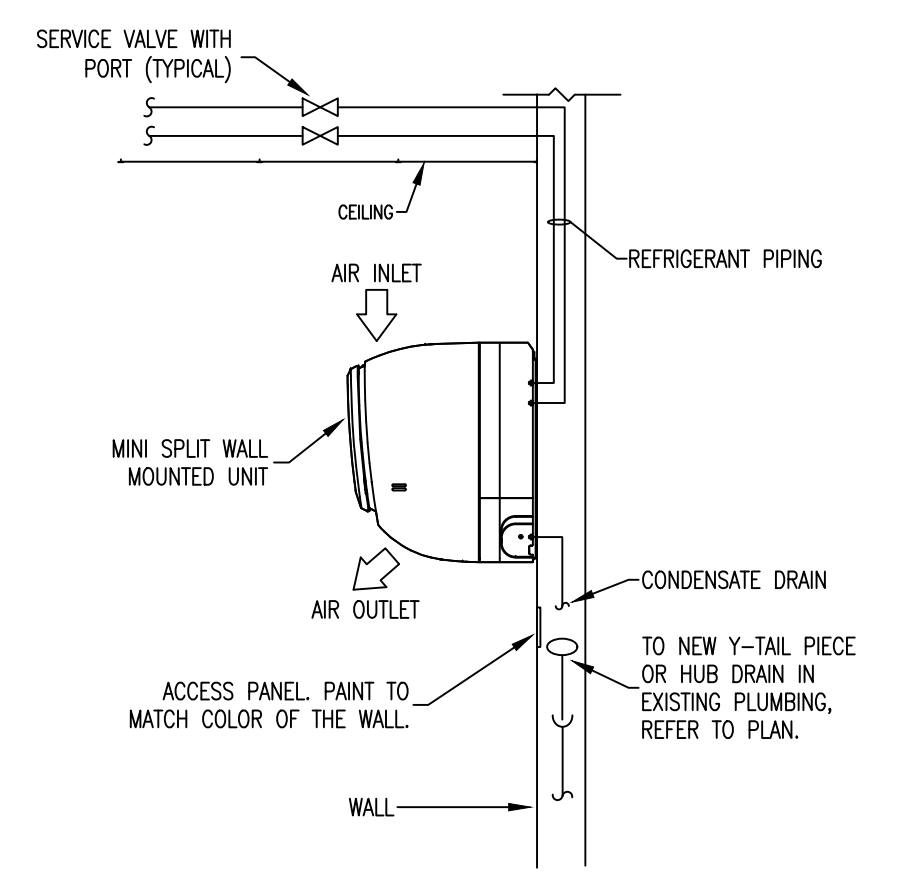
MARK	SERVICE	TYPE	SYSTEM MCA	SYSTEM MFA	ELECTRIC SERVICE	INDOOR UNIT	OPTIONS	NOTES
MS-1	103.2 - CONTROL ROOM	WALL MOUNTED HEAT PUMP	21.9	25	208-1-60	DAIKIN FTXS12LVJU SERIES OR APPROVED EQUAL	REMOTE CONTROLLER	1,2,3
MS-2	107 - MACHINE ROOM	WALL MOUNTED HEAT PUMP	21.9	25	208-1-60	DAIKIN FTXS12LVJU SERIES OR APPROVED EQUAL	REMOTE CONTROLLER	1,2,3

NOTES:
 1. CONDENSATE SHALL BE GRAVITY FED TO DRYWELL.
 2. CONTRACTOR SHALL VERIFY VOLTAGE REQUIREMENTS W/ ELECTRICAL PRIOR TO ORDERING.
 3. UNIT SHALL BE WIRED TO BE COOLING ONLY.

CONDENSING UNIT SCHEDULE (MSCU) R-410A

PLAN MARK	SERVICE	TYPE	COOLING BTUH	HEATING BTUH	SYSTEM MCA	SYSTEM MFA	FAN MOTOR FLA	COMPRESSOR RLA	ELECTRIC SERVICE	OUTDOOR UNIT	NOTES
MSCU-1	MS-2&3	MULTI-PORT COMPACT SIDE DISCHARGE	24,000	24,000	21.9	25	0.25	15.5	208-1-60	DAIKIN 3MXS24RMVJUA SERIES OR APPROVED EQUAL	1,2

NOTES:
 1. UNIT SHALL BE PROVIDED W/ LOW AMBIENT KIT.
 2. CONTRACTOR SHALL VERIFY VOLTAGE REQUIREMENTS W/ ELECTRICAL PRIOR TO ORDERING.

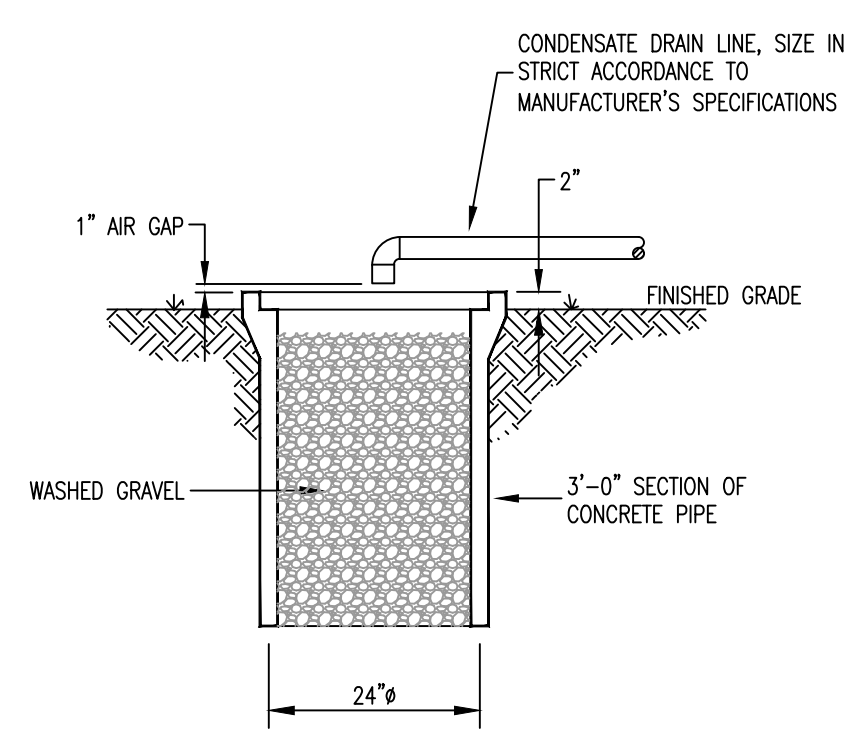
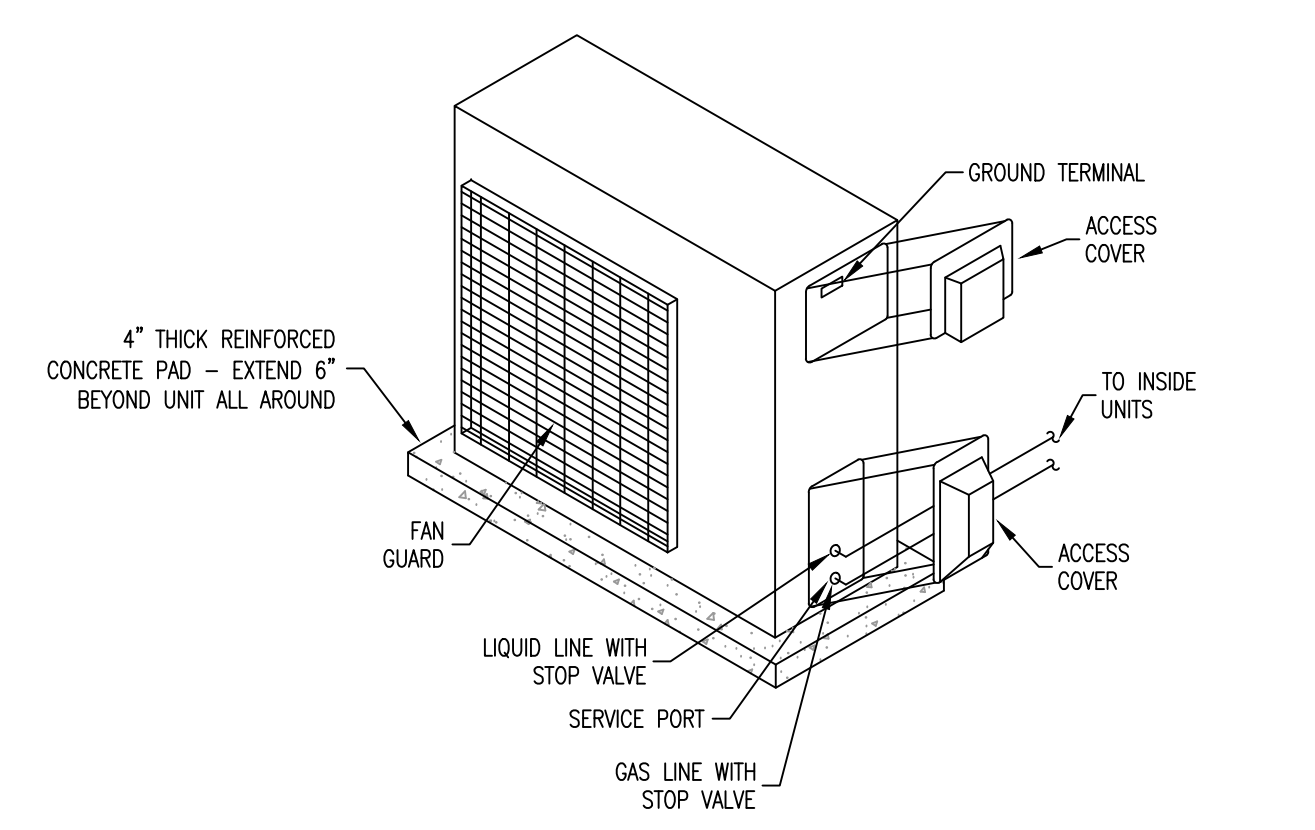


1 MECHANICAL SCHEDULES

SCALE: NO SCALE

2 DETAIL - WALL-MOUNT MINISPLIT AHU

SCALE: NO SCALE



3 DETAIL - MINISPLIT CU

SCALE: NO SCALE

4 DRYWELL

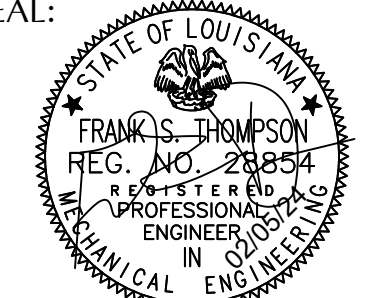
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BROADCASTING AND MASS COMMUNICATIONS RENOVATION FOR:
SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
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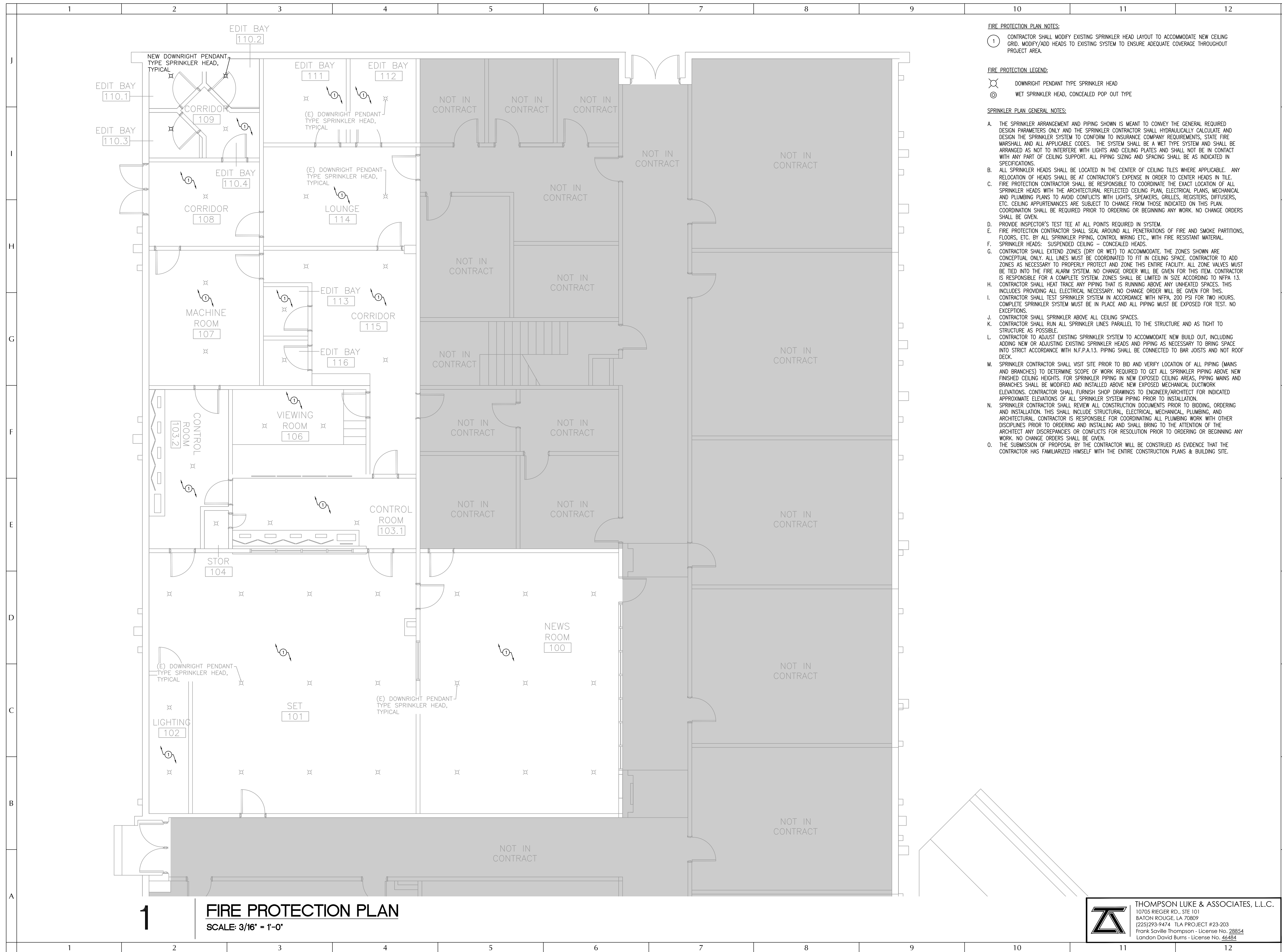
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SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER
M1.01

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FIRE PROTECTION PLAN NOTES:

① CONTRACTOR SHALL MODIFY EXISTING SPRINKLER HEAD LAYOUT TO ACCOMMODATE NEW CEILING GRID. MODIFY/ADD HEADS TO EXISTING SYSTEM TO ENSURE ADEQUATE COVERAGE THROUGHOUT PROJECT AREA.

FIRE PROTECTION LEGEND:

⊗ DOWNRIGHT PENDANT TYPE SPRINKLER HEAD
 ⊙ WET SPRINKLER HEAD, CONCEALED POP OUT TYPE

SPRINKLER PLAN GENERAL NOTES:

A. THE SPRINKLER ARRANGEMENT AND PIPING SHOWN IS MEANT TO CONVEY THE GENERAL REQUIRED DESIGN PARAMETERS ONLY AND THE SPRINKLER CONTRACTOR SHALL HYDRAULICALLY CALCULATE AND DESIGN THE SPRINKLER SYSTEM TO CONFORM TO INSURANCE COMPANY REQUIREMENTS, STATE FIRE MARSHALL AND ALL APPLICABLE CODES. THE SYSTEM SHALL BE A WET TYPE SYSTEM AND SHALL BE ARRANGED AS NOT TO INTERFERE WITH LIGHTS AND CEILING PLATES AND SHALL NOT BE IN CONTACT WITH ANY PART OF CEILING SUPPORT. ALL PIPING SIZING AND SPACING SHALL BE AS INDICATED IN SPECIFICATIONS.

B. ALL SPRINKLER HEADS SHALL BE LOCATED IN THE CENTER OF CEILING TILES WHERE APPLICABLE. ANY RELOCATION OF HEADS SHALL BE AT CONTRACTOR'S EXPENSE IN ORDER TO CENTER HEADS IN TILE.

C. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE EXACT LOCATION OF ALL SPRINKLER HEADS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL PLANS, MECHANICAL AND PLUMBING PLANS TO AVOID CONFLICTS WITH LIGHTS, SPEAKERS, GRILLES, REGISTERS, DIFFUSERS, ETC. CEILING APPURTENANCES ARE SUBJECT TO CHANGE FROM THOSE INDICATED ON THIS PLAN. COORDINATION SHALL BE REQUIRED PRIOR TO ORDERING OR BEGINNING ANY WORK. NO CHANGE ORDERS SHALL BE GIVEN.

D. PROVIDE INSPECTOR'S TEST TEE AT ALL POINTS REQUIRED IN SYSTEM.

E. FIRE PROTECTION CONTRACTOR SHALL SEAL AROUND ALL PENETRATIONS OF FIRE AND SMOKE PARTITIONS, FLOORS, ETC. BY ALL SPRINKLER PIPING, CONTROL WIRING ETC., WITH FIRE RESISTANT MATERIAL.

F. SPRINKLER HEADS: SUSPENDED CEILING - CONCEALED HEADS.

G. CONTRACTOR SHALL EXTEND ZONES (DRY OR WET) TO ACCOMMODATE. THE ZONES SHOWN ARE CONCEPTUAL ONLY. ALL LINES MUST BE COORDINATED TO FIT IN CEILING SPACE. CONTRACTOR TO ADD ZONES AS NECESSARY TO PROPERLY PROTECT AND ZONE THIS ENTIRE FACILITY. ALL ZONE VALVES MUST BE TIED INTO THE FIRE ALARM SYSTEM. NO CHANGE ORDER WILL BE GIVEN FOR THIS ITEM. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE SYSTEM. ZONES SHALL BE LIMITED IN SIZE ACCORDING TO NFPA 13.

H. CONTRACTOR SHALL HEAT TRACE ANY PIPING THAT IS RUNNING ABOVE ANY UNHEATED SPACES. THIS INCLUDES PROVIDING ALL ELECTRICAL NECESSARY. NO CHANGE ORDER WILL BE GIVEN FOR THIS.

I. CONTRACTOR SHALL TEST SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA, 200 PSI FOR TWO HOURS. COMPLETE SPRINKLER SYSTEM MUST BE IN PLACE AND ALL PIPING MUST BE EXPOSED FOR TEST. NO EXCEPTIONS.

J. CONTRACTOR SHALL SPRINKLER ABOVE ALL CEILING SPACES.

K. CONTRACTOR SHALL RUN ALL SPRINKLER LINES PARALLEL TO THE STRUCTURE AND AS TIGHT TO STRUCTURE AS POSSIBLE.

L. CONTRACTOR TO ADJUST EXISTING SPRINKLER SYSTEM TO ACCOMMODATE NEW BUILD OUT, INCLUDING ADDING NEW OR ADJUSTING EXISTING SPRINKLER HEADS AND PIPING AS NECESSARY TO BRING SPACE INTO STRICT ACCORDANCE WITH N.F.P.A.13. PIPING SHALL BE CONNECTED TO BAR JOISTS AND NOT ROOF DECK.

M. SPRINKLER CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY LOCATION OF ALL PIPING (MANS AND BRANCHES) TO DETERMINE SCOPE OF WORK REQUIRED TO GET ALL SPRINKLER PIPING ABOVE NEW FINISHED CEILING HEIGHTS. FOR SPRINKLER PIPING IN NEW EXPOSED CEILING AREAS, PIPING MAINS AND BRANCHES SHALL BE MODIFIED AND INSTALLED ABOVE NEW EXPOSED MECHANICAL DUCTWORK ELEVATIONS. CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO ENGINEER/ARCHITECT FOR INDICATED APPROXIMATE ELEVATIONS OF ALL SPRINKLER SYSTEM PIPING PRIOR TO INSTALLATION.

N. SPRINKLER CONTRACTOR SHALL REVIEW ALL CONSTRUCTION DOCUMENTS PRIOR TO BIDDING, ORDERING AND INSTALLATION. THIS SHALL INCLUDE STRUCTURAL, ELECTRICAL, MECHANICAL, PLUMBING, AND ARCHITECTURAL. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PLUMBING WORK WITH OTHER DISCIPLINES PRIOR TO ORDERING AND INSTALLING AND SHALL BRING TO THE ATTENTION OF THE ARCHITECT ANY DISCREPANCIES OR CONFLICTS FOR RESOLUTION PRIOR TO ORDERING OR BEGINNING ANY WORK. NO CHANGE ORDERS SHALL BE GIVEN.

O. THE SUBMISSION OF PROPOSAL BY THE CONTRACTOR WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS FAMILIARIZED HIMSELF WITH THE ENTIRE CONSTRUCTION PLANS & BUILDING SITE.

1 FIRE PROTECTION PLAN
 SCALE: 3/16" = 1'-0"

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PROJECT:

BROADCASTING AND MASS COMMUNICATIONS RENOVATION FOR:
SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McElroy
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: JTW
 CHECKED BY: EST

REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____

SEAL:

SHEET TITLE: **FIRE PROTECTION PLAN**

SHEET NUMBER: **SP1.00**

M3A ARCHITECTURE, PLLC

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SPECIAL SYSTEMS GENERAL NOTES

- 1. VERIFY EXACT LOCATION, VOLTAGE, PHASE, AMPERAGE, ETC. OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ORDERING ELECTRICAL GEAR.
2. FOR ALL CABLE LOCATIONS, PROVIDE ONE (1) 3/4" CONDUIT BACK TO ASSOCIATED DATA CLOSET.
3. PROVIDE AN ADDITIONAL 10% OR ONE (1), WHICHEVER IS GREATER, OF THE FOLLOWING DEVICES WHICH ARE INCLUDED IN THE PROJECT, AND INSTALL THEM AT THE DIRECTION OF THE ARCHITECT, ENGINEER, OR A/HJ DURING THE COURSE OF THE PROJECT. PROVIDE ALL REQUIRED CONDUIT, INTERCONNECTIONS, CONDUCTORS, PROGRAMMING, ETC. AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. INITIATING DEVICES (PULL STATIONS, SMOKE DETECTORS, THERMAL DETECTORS, ETC.), NOTIFICATION APPLIANCES (STROBES, HORN STROBES, SPEAKER STROBES, SPEAKERS, DUCT DETECTORS, ETC.), AND MONITORING MODULES.

TELECOMMUNICATIONS GENERAL NOTES

- 1. PROVIDE 1" CONDUIT AND TWO (2) CAT 6 CABLES AT EACH DATA OUTLET SHOWN. CABLING SHALL ROUTE TO TELEPHONE BACKBOARD IN IT ROOM. ALL TERMINATIONS SHALL BE BY CONTRACTOR.
2. PROVIDE 12" X 24" TELEPHONE PANELS, CABLE SHELVES, PROTECTORS, AND THE BUILDING MAIN ELECTRICAL GROUNDING CONDUCTORS SHALL BE, AT MINIMUM, #6 AWG INSULATED AND STRANDED COPPER. FASTENERS SHALL BE RECESSED AND ANCHORED.
3. CAT 6 CABLES FOR DATA OUTLETS SHALL HAVE BLUE JACKETS AND CAT 6 CABLES FOR VOICE OUTLETS SHALL HAVE WHITE JACKETS.

IDENTIFICATION OF EQUIPMENT GENERAL NOTES

- 1. ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL: PUNCHED OR DRILLED FOR SCREW MOUNTING. WHITE LETTERS ON A DARK GRAY BACKGROUND. MINIMUM LETTER HEIGHT SHALL BE 3/8 INCH. LETTERING AND BACKGROUND COLORS AS INDICATED BELOW:
A. POWER CIRCUITS
A. NORMAL WHITE LETTERING ON BLACK BACKGROUND.
B. EMERGENCY LEGALLY REQUIRED STANDBY OR ESSENTIAL ELECTRICAL SYSTEM PRIOR TO ATS. BLACK LETTERING ON YELLOW BACKGROUND.
C. EMERGENCY OPTIONAL STANDBY: WHITE LETTERING ON PURPLE BACKGROUND.
D. UPS: BLACK LETTERING ON ORANGE BACKGROUND.
B. FIRE ALARM SYSTEM: BLACK LETTERING ON RED BACKGROUND.
2. LABELING INSTRUCTIONS
A. INDOOR EQUIPMENT: ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL. UNLESS OTHERWISE INDICATED, PROVIDE A SINGLE LINE OF TEXT WITH 1/2-INCH-HIGH LETTERS ON 1-1/2-INCH-HIGH LABEL. WHERE 2 LINES OF TEXT ARE REQUIRED, USE LABELS 2 INCHES HIGH.
B. OUTDOOR EQUIPMENT: ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL.
C. EQUIPMENT TO BE LABELED SHALL INCLUDE BUT NOT BE LIMITED TO:
- PANELBOARDS, ELECTRICAL CABINETS, AND ENCLOSURES.
- TRANSFORMERS.
- EMERGENCY SYSTEM BOXES AND ENCLOSURES.
- RECEPTACLES WITH PANEL AND CIRCUIT NUMBERS.
- DISCONNECT SWITCHES.
- ENCLOSED CIRCUIT BREAKERS.
- POWER TRANSFER EQUIPMENT. (ATS/MS)
- FIRE-ALARM CONTROL PANEL AND ANNUNCIATORS
- ALL JUNCTION BOXES. LABEL TO INCLUDE CIRCUIT NUMBERS (PANEL AND NUMBER).
- ALL LIGHTING SWITCH PLATES SHALL HAVE CIRCUIT NUMBERS ON THE BACK OF THE PLATE. (PANEL AND NUMBER).

DEMOLITION GENERAL NOTES

- 1. THE LOCATIONS OF EXISTING CIRCUITS AND EQUIPMENT ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING ELECTRICAL DEVICES, EQUIPMENT, AND WIRING BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTORS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING PORTIONS OF THE ELECTRICAL SYSTEMS.
2. THE CONTRACTOR SHALL REMOVE SUCH EXISTING WORK AS CALLED FOR ON THE DRAWINGS OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.
3. ALL EQUIPMENT REMOVED THAT IS NOT BEING REUSED SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF AS REQUIRED. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL WALK AREAS TO BE RENOVATED WITH OWNER TO IDENTIFY AND DOCUMENT ITEMS TO BE SALVAGED FOR OWNER'S USE.
4. EXCEPT AS OTHERWISE NOTED, ALL EXISTING ELECTRICAL WORK WHICH WILL NOT BE REORDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED UNDER THIS CONTRACT, SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION. OTHER ELECTRICAL WORK OR MATERIAL RENDERED OBSOLETE SHALL BE ABANDONED WHERE CONCEALED AND REMOVED WHERE EXPOSED. OLD, UNUSED WIRING AND DEVICES SHALL BE REMOVED FROM THE ABANDONED (CONCEALED) CONDUITS. OUTLETS SHALL BE PROVIDED WITH BLANK COVERS. ANY CONDUITS STUBBED OUT OF MASONRY SURFACE SHALL BE CUT INTO SURFACE AND PATCHED.
5. WHERE EXISTING ELECTRICAL WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE, THE INSTALLATIONS SHALL BE DISCONTINUED AND RELOCATED AND/OR RECONNECTED TO COORDINATE WITH THE WORK INDICATED ON THE CONTRACT DRAWINGS AS SPECIFIED.
6. WHERE EXISTING RACEWAYS THAT ARE NOT TO BE REUSED INTERFERE WITH NEW WORK, THESE RACEWAYS SHALL BE REMOVED BACK TO THE NEAREST JUNCTION BOX OR PULL BOX AND THE OPENINGS BLANKED.
7. CONTRACTOR SHALL MAINTAIN CONTINUITY OF BRANCH CIRCUITS SERVING MULTIPLE ITEMS OF WHICH ONE OR MORE ARE BEING DEMOLISHED. CONDUCTORS AND CONDUITS FOR THOSE ITEMS BEING DEMOLISHED SHALL BE REMOVED AS FAR AS PRACTICABLE.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ALL EXISTING ELECTRICAL DEVICES/EQUIPMENT AND DATA WIRING NOT REUSED OR NOT NECESSARY FOR THE COMPLETION OF THIS PROJECT.
9. DISCONNECT AND REMOVE ABANDONED PANELBOARDS, DISTRIBUTION EQUIPMENT, LIGHTING, AND DEVICES. REMOVE ASSOCIATED CONDUIT TO NEAREST ABOVE CEILING JUNCTION BOX.
10. IF ANY BRANCH CIRCUIT WIRING FEEDING EQUIPMENT TO REMAIN IN PLACE FOR REUSE IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE THE NEW BRANCH CIRCUIT WIRING OF THE SAME SIZE AND TYPE AS THAT OF THE EXISTING AT NO COST TO THE OWNER.
11. EXISTING DEVICES ARE SHOWN IN GRAY. CONDUIT AND WIRING ARE NOT GENERALLY SHOWN AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ADDITIONAL DEMOLITION WORK AND CLARIFICATION OF INDICATED WORK WILL BE GIVEN BY RFI.
12. COORDINATE THE REMOVAL AND REINSTALLATION (OR PROTECTION IN PLACE) OF EXISTING ELECTRICAL EQUIPMENT AND DEVICES WITH THE WORK OF OTHER TRADES TO REPLACE OR REFINISH EXISTING WALLS AND CEILING.
13. WHERE EXISTING CIRCUITS ARE BEING REMOVED IN EXISTING PANELS, PROVIDE A NEW, NEATLY TYPED DIRECTORY WHICH INDICATES WHERE "SPARE" BREAKERS ARE LOCATED. ANY EXISTING BREAKERS THAT ARE NOT FEEDING DEVICES SHALL REMAIN AND BE LABELED AS A "SPARE."

ELECTRICAL GENERAL NOTES

- 1. ALL ELECTRICAL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AS ADOPTED BY THE A/HJ.
2. THE WORDS "PROVIDE" AND "PROVIDED" AS USED HEREIN SHALL BE UNDERSTOOD TO MEAN, "PROVIDE COMPLETE IN PLACE." THAT IS "FURNISH AND INSTALL." EQUIPMENT AND MATERIAL INDICATED TO BE PROVIDED SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE OF THE MOST SUITABLE GRADE FOR THE PURPOSE INTENDED.
3. ROUTE NEW CONDUIT AND WIRING CONCEALED IN WALLS AND CEILING WHERE POSSIBLE. COORDINATE INSTALLATION OF EXPOSED CONDUIT AND WIRING WITH THE ARCHITECT.
4. CONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE TO NEW HVAC UNITS AS FURNISHED BY THE MECHANICAL CONTRACTOR. VERIFY THE EXACT ELECTRICAL REQUIREMENTS WITH THE REVIEWED HVAC SUBMITTALS PRIOR TO ORDERING ELECTRICAL EQUIPMENT.
5. BEFORE INSTALLATION, CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS TO THE ENGINEER FOR REVIEW COVERING PROPOSED LOCATIONS, MOUNTING, AND ROUTING FOR ALL CONDUITS, SERVICES, FITTINGS, GROUND RODS, SUPPORTS, ETC.
6. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL ROUTE IN MOST DIRECT MANNER AVOIDING ANY OBSTRUCTIONS NOT INDICATED.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL GROUNDING OF EQUIPMENT, DISCONNECT SWITCHES, PANELBOARDS, FOUNDATIONAL STEEL, BLDG STEEL, METAL PIPING, AND TELECOMMUNICATION RACKS, ETC. REGARDLESS OF DEPICTION ON PLAN.
8. MATERIALS AND MANUFACTURERS NOTED ON DRAWINGS ARE TO BE USED AS BASIS OF DESIGN TO ESTABLISH QUALITY AND PERFORMANCE STANDARDS AND SHALL BE PROVIDED AS SPECIFIED. SUBSTITUTIONS WILL BE CONSIDERED WHERE SUFFICIENT PRODUCT INFORMATION IS PROVIDED TO MAKE A PROPER EVALUATION. REVIEW OF A SUBSTITUTION IS AT THE SOLE DISCRETION OF THE PROFESSIONAL.
9. THE CONTRACTOR SHALL SUBMIT COPIES OF THE PRODUCT DATA, SHOP DRAWINGS, ETC. OF ALL MATERIALS NOTED ON THE DRAWINGS. ALL SUBMITTED PRODUCT DATA, SHOP DRAWINGS, ETC. SHALL BE MARKED WITH THE NAME OF THE PROJECT AND SHALL BEAR THE STAMP OF APPROVAL OF THE CONTRACTOR AS EVIDENCE THAT THE MATERIAL HAS BEEN CHECKED BY THE CONTRACTOR.
10. DRAWINGS SPECIFIC TO THIS TRADE DO NOT LIMIT THE RESPONSIBILITY OR WORK REQUIRED BY THE CONTRACT DOCUMENTS. REFER TO DRAWINGS AND SPECIFICATIONS OF OTHER TRADES FOR COMPLETE INFORMATION PRIOR TO BID.
11. WHERE CONFLICTS EXIST AMONG DRAWINGS, SPECIFICATIONS, AND EQUIPMENT SCHEDULES, THE MOST STRINGENT REQUIREMENT OR QUANTITY SHALL APPLY. NOTIFY THE ARCHITECT/ENGINEER OF ALL CONFLICTS FOR RESOLUTION OR INTERPRETATION.
12. NO EQUIPMENT SHALL BE ORDERED OR INSTALLED UNTIL THE PROJECT ENGINEER HAS RECEIVED A COPY STAMPED "NO EXCEPTIONS TAKEN." "NO EXCEPTIONS TAKEN" DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMANCE WITH THE CONTRACT. EXTEND TO QUANTITIES OR DIMENSIONS. IMPLY THAT THE EQUIPMENT CAN BE INSTALLED OR OPERATE SATISFACTORILY, THAT THE EQUIPMENT CONTAINS ALL NECESSARY COMPONENTS, OR THAT IT WILL COORDINATE WITH OTHER REVIEWED ITEMS.
13. OMISSION FROM THIS SHEET OF ANY ITEM SHOWN ELSEWHERE IN THE PLANS DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR ANY ASSOCIATED WORK.
14. COORDINATE INSTALLATION OF NEW ITEMS AND EQUIPMENT WITH THE OWNER'S REPRESENTATIVE AND THE WORK OF OTHER TRADES. THE CONTRACTOR SHALL INQUIRE ALL COSTS ASSOCIATED WITH THE RELOCATION OF EQUIPMENT CONFLICTING WITH NEW WORK BY OTHER TRADES THAT HAS NOT BEEN COORDINATED.
15. WARNING TAPE SHALL BE INSTALLED 6" INCHES BELOW GRADE OVER ALL CONDUITS INCLUDING BUT NOT LIMITED TO FEEDERS, DATA, AND BRANCH CIRCUITS. TAPE SHALL BE PERMANENT AND DISPLAY MESSAGE DESCRIBING THE TYPE OF SERVICE BURIED BENEATH IT.
16. ALL CONDUIT SIZES SHOWN ARE MINIMUM SIZES WHICH SHALL BE UTILIZED. CONTRACTOR SHALL VERIFY THAT ALL WIRING AND CABLES UTILIZED MEET NEC FULL REQUIREMENTS PRIOR TO INSTALLATION OF CONDUIT. ANY CONFLICT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO BIDDING.
17. CONTRACTOR SHALL COORDINATE ALL CONDUIT WALL AND FLOOR PENETRATIONS WITH ALL TRADES AS REQUIRED. ALL PENETRATIONS SHALL BE SEALED WATER-TIGHT.
18. CONTRACTOR SHALL MATCH NEMA RECEPTACLE CONFIGURATION TO MATCH EQUIPMENT PLUGS.
19. CONTRACTOR SHALL PROVIDE HOUSEKEEPING PAD UNDER ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT PROVIDED IN THIS PROJECT.
20. PROVIDE 1/4" MINIMUM DIAMETER PULL ROPE. PULL ROPE SHALL NOT BE NYLON STRING.
21. ALL 120V, 20 AMP BRANCH CIRCUITS OVER 5' SHALL BE A MINIMUM OF #12.
22. ALL CONDUIT RISERS FROM UNDERGROUND SHALL HAVE RIGID METAL SLIPS AND RISERS.
23. PRIOR TO CONSTRUCTION, VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES. AVOID DISTURBANCE OF EXISTING UTILITIES NOT INCLUDED IN THIS PROJECT.
24. FURNISH AND INSTALL ALL EXTERIOR RECEPTACLES WITH WEATHERPROOF COVERS.
25. PROVIDE GFCI RECEPTACLES:
A. ALL EXTERIOR LOCATIONS
B. ALL COMMERCIAL KITCHENS
C. LAUNDRY AREAS
D. WITHIN 6' OF A SINK
E. FOR VENDING MACHINES
26. FOR UNDERGROUND CONDUIT RUNS, PROVIDE (1) PULL BOX FOR EVERY 500-FEET OF CONDUIT LENGTH AND FOR EVERY 360° OF CONDUIT BENDS, UNLESS OTHERWISE INDICATED MORE FREQUENTLY. FOR PULL BOXES LOCATED WITHIN DRIVABLE SURFACES, ENSURE THAT THE PULL BOX IS TRAFFIC RATED. IN THE EVENT THAT A PULL BOX IS REQUIRED ON A UTILITY CONDUIT RUN, ENSURE THAT THE PULL BOX MEETS ALL REQUIREMENTS OF THAT UTILITY.

LIGHTING GENERAL NOTES

- 1. VERIFY THE EXACT LOCATION OF ALL LIGHTING SWITCHES WITH THE ARCHITECT PRIOR TO ROUGH-IN.
2. VERIFY THE EXACT LOCATION OF ALL LIGHTING FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ROUGH-IN.
3. VERIFY THE EXACT LOCATION OF CEILING MOUNTED OCCUPANCY SENSORS WITH THE MANUFACTURER'S SPECIFICATIONS PRIOR TO INSTALLATION FOR MAXIMUM PERFORMANCE.
4. EMERGENCY FIXTURES AND EXIT FIXTURES SHALL BE CONNECTED TO THE NEAREST LIGHTING CIRCUIT. BRANCH CIRCUIT WIRING TO EXIT FIXTURES AND TO BATTERY INVERTERS WITHIN FIXTURES WITH INTEGRAL BATTERY UNITS SHALL BE UNSWITCHED, CONNECTED AHEAD OF ANY CONTROL SWITCHING.
5. WALL MOUNT TYPE "Z" FIXTURES ABOVE DOOR AS SHOWN ON DRAWINGS. COORDINATE WITH THE ARCHITECT PRIOR TO ROUGH-IN.
6. MOUNT TYPE "EM" FIXTURES 8'-0" AFF UNLESS OTHERWISE NOTED.
7. VERIFY THE CEILING TYPES FOR ALL LIGHT FIXTURES TO BE FLUSH MOUNTED OR SUSPENDED AND ADJUST FIXTURE MOUNTING TYPES IN ACCORDANCE WITH THE CEILING TYPE, AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL REQUIRED MOUNTING HARDWARE.
8. ALL VANITY FIXTURES SHALL BE MOUNTED WITH 0'-3" OF SPACE BETWEEN THE BOTTOM OF THE FIXTURE AND THE TOP OF THE MIRROR UNLESS OTHERWISE NOTED.
9. VERIFY THE EXACT MOUNTING LOCATION FOR ANY PHOTOELECTRIC CELLS WITH THE ARCHITECT PRIOR TO ROUGH-IN. ALL PHOTOELECTRIC CELLS MUST FACE NORTH.
10. CONTRACTOR SHALL CONFIRM COMPATIBILITY OF ALL LIGHTING CONTROL DEVICES/SWITCHES/DIMMERS WITH LIGHTING FIXTURES AND BALLASTS/DRIVERS PRIOR TO SUBMITTAL.
11. COORDINATE LOCATION OF LIGHT FIXTURES IN MECHANICAL ROOMS WITH DIVISION 1523 PLANNED EQUIPMENT LOCATION AND DUCT INSTALLATION. WALL MOUNT LIGHTS OR PROVIDE PENDANT MOUNTING AS REQUIRED TO ILLUMINATE THE SPACE.
12. WHERE MULTIPLE OCCUPANCY SENSORS ARE SHOWN IN THE SAME AREA, MOTION DETECTION BY ONE SENSOR SHALL ILLUMINATE ALL LIGHTING IN THE RESPECTIVE AREA.
13. VERIFY DOOR SWINGS PRIOR TO INSTALLING LIGHT SWITCHES. SWITCHES SHALL BE INSTALLED ON STRIKE SIDE OF DOOR UNLESS OBSTRUCTED BY GLAZING OR GRAPHICS.
14. LIGHT SWITCHES SHALL BE CANCELED UNDER A SINGLE PLATE WHERE GROUPED TOGETHER.
15. CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO EXIT SIGN LOCATION TO ENSURE THE SIGN IS VISIBLE THROUGHOUT CORRIDOR SEGMENT. ADJUSTMENTS GREATER THAN 10' FROM LOCATION SHOWN ON PLAN SHALL BE REVIEWED BY ENGINEER PRIOR TO ROUGH-IN.
16. CONTRACTOR SHALL ENSURE THAT DOOR SWINGS ARE NOT GOING TO BE IMPEDED BY THE INSTALLATION OF A LIGHT FIXTURE, FIRE ALARM DEVICE, SENSOR, EXIT SIGN, ETC.

(REFER TO DRAWINGS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS)

FIRE ALARM (PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE FOR POWER AND CONDUIT AND CABLING PER THE MANUFACTURER'S SPECIFICATIONS)

- FACP FIRE ALARM CONTROL PANEL
FAS FIRE ALARM SYSTEM PULL STATION
FAS FIRE ALARM SYSTEM STROBE
FAS FIRE ALARM SYSTEM SPEAKER/STROBE
FAS FIRE ALARM SYSTEM CEILING MOUNT STROBE
FAS FIRE ALARM SYSTEM CEILING MOUNT SPEAKER/STROBE
FAS FIRE ALARM SYSTEM SMOKE DETECTOR

LIGHTING (PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE FOR POWER AND PER THE MANUFACTURER'S SPECIFICATIONS FOR CONTROLS)

- Light fixture symbols: UPPERCASE LETTER(S) INDICATE FIXTURE TYPE; LOWERCASE LETTER(S) INDICATE ASSOCIATED CONTROLS ID; FIXTURES WITH HALF-SHADED REGION SHALL BE EMERGENCY PROVIDE BATTERY BACKUP OR CONNECT TO EMERGENCY CIRCUIT AS INDICATED; SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE DESCRIPTIONS AND MOUNTING TYPES.
EXIT LIGHT FIXTURE: ARROWS (IF USED) INDICATE DIRECTION, FILLED IN QUADRANT(S) INDICATE NUMBER AND ORIENTATION OF ILLUMINATED FACES. LETTER(S) INDICATE FIXTURE TYPE. SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION.
CEILING MOUNTED OCCUPANCY SENSOR WITH 360° COVERAGE: LOCATE AND INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS; TEST AND ADJUST SENSITIVITY AFTER INSTALLATION AND SET TIME DELAY AS REQUIRED BY THE OWNER.
CEILING MOUNTED OCCUPANCY SENSOR, AS ABOVE, CONFIGURED FOR VACANCY OPERATION.
SWITCH: SUBSCRIPT (WHEN USED): NONE - SINGLE POLE TOGGLE SWITCH; 3 - THREE-WAY SWITCH; D - LINEAR SLIDE DIMMER SWITCH; 3D - THREE-WAY LINEAR SLIDE DIMMER SWITCH; 0 - WALL MOUNTED OCCUPANCY SENSOR; 30 - THREE-WAY SWITCH WITH OCCUPANCY SENSOR; V - VACANCY SENSOR; a,b,c etc. - SWITCH ID.

ELECTRICAL SHEET INDEX

Table with 3 columns: Index, Description, Details. Includes E0.00 ELECTRICAL COVER SHEET, E1.01 ELECTRICAL DEMO PLAN, E1.02 ELECTRICAL OVERALL POWER PLAN, E1.03 ELECTRICAL POWER PLAN, E2.00 ELECTRICAL LIGHTING PLAN, E3.00 ELECTRICAL RISER DIAGRAM & SCHEDULES, E3.01 ELECTRICAL ONE LINE DIAGRAM, E3.02 ELECTRICAL ONE LINE DIAGRAM #2, E4.00 ELECTRICAL SCHEDULES, E5.00 ELECTRICAL DETAILS.

ELECTRICAL SYMBOL LEGEND

GENERAL

- KEYNOTE
A-1.3 CIRCUIT TAG: PANEL AND CIRCUIT DESIGNATION AS INDICATED, E.G. PANEL "A", CIRCUIT #1.3

WIRE, CONDUIT, AND RACEWAY

- ABOVE-SLAB CONDUIT & WIRE/CABLING
BELOW-SLAB CONDUIT & WIRE/CABLING; 3/4" MINIMUM CONDUIT SIZE UNON
HOMERUN TO PANEL; TICK MARKS INDICATED NUMBER OF WIRES

DISTRIBUTION

- PANELBOARD, SWITCHBOARD, OR OTHER DISTRIBUTION EQUIPMENT AS NOTED; INSTALL WITH SUFFICIENT WORKING SPACE AND CLEARANCES TO MEET ALL REQUIREMENTS OF NEC SECTION 110.26.
GENERATOR REMOTE ANNUNCIATOR PANEL: PROVIDE CONDUIT/CABLING TO GENERATOR AS REQUIRED PER THE MANUFACTURER'S SPECIFICATIONS.

EQUIPMENT CONNECTIONS (PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE)

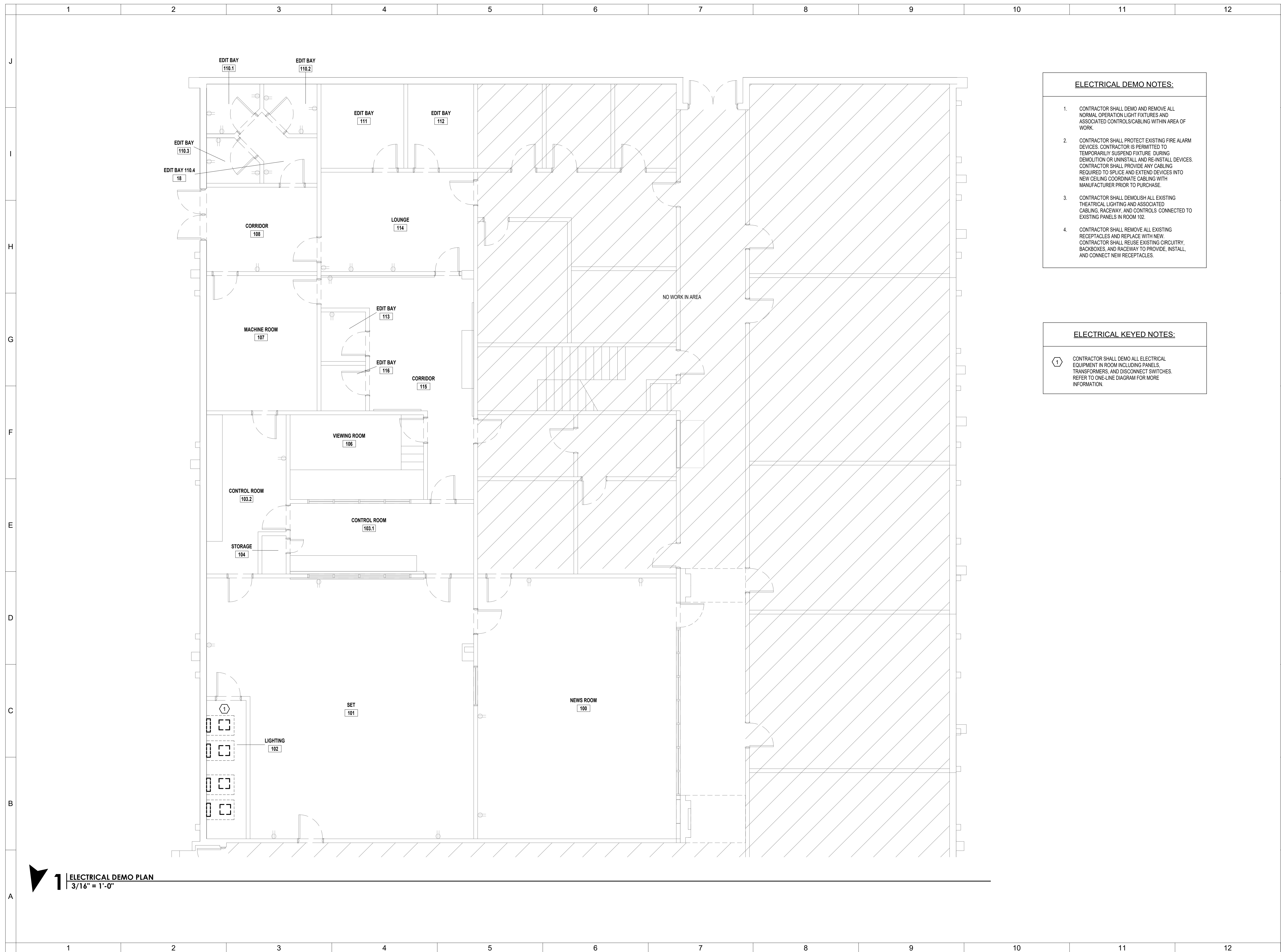
- FUSED SAFETY DISCONNECT SWITCH: LOCATE WITHIN SIGHT OF THE EQUIPMENT SERVED WITH 36" MINIMUM CLEAR WORKING SPACE IN FRONT OF THE SWITCH; DO NOT MOUNT DIRECTLY TO EQUIPMENT.
JUNCTION BOX
ELECTRICAL MOTOR, HORSEPOWER AS NOTED

POWER DEVICES (PROVIDE CONDUIT AND WIRE PER THE PANEL SCHEDULE)

- DUPLEX RECEPTACLE
DUPLEX RECEPTACLE MOUNTED FLUSH TO CEILING OR MOUNTED TO STRUCTURE IN AREAS WITH NO CEILING; SUBSCRIPT (WHEN USED): CR - CORD REEL
ABOVE-COUNTER DUPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
GFCI DUPLEX RECEPTACLE
ABOVE-COUNTER GFCI DUPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
QUADRAPLEX RECEPTACLE
ABOVE-COUNTER QUADRAPLEX RECEPTACLE; MOUNT AT 4" ABOVE COUNTER OR BACKSPASH OR 44" (WHICHEVER IS LOWER)
SPECIAL PURPOSE RECEPTACLE: VERIFY NEMA CONFIGURATION WITH THE MANUFACTURER OF THE EQUIPMENT SERVED
CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE: VERIFY NEMA CONFIGURATION WITH THE MANUFACTURER OF THE EQUIPMENT SERVED

ABBREVIATIONS

Table with 3 columns: Abbreviation, Description, Details. Includes A AMPERE(S), AC ABOVE COUNTER (6" ABOVE BACKSPASH), AF AMPERE(S) FUSED, AFCI ARC FAULT CIRCUIT INTERRUPTER, AFF ABOVE FINISHED FLOOR, AFG ABOVE FINISHED GRADE, AIC ABOVE FINISHED GRADE, AT AMP SYMMETRICAL INTERRUPTING CAPACITY RMS, AWG AMERICAN WIRE GAUGE, BG BELOW GRADE, BLDG BUILDING, BKR BREAKER, C CONDUIT, CAT CATEGORY, CATV CABLE TELEVISION, CB CIRCUIT BREAKER, CKT CIRCUIT, CLG CLG, CORR CORRIDOR, CT CURRENT TRANSFORMER, CTRL CONTROLLER, D TO BE DEMOLISHED, DISC DISCONNECT, DIST DISTRIBUTION, DWG DRAWING, E EXISTING TO REMAIN, EC EMPTY CONDUIT, ECB ENCLOSED CIRCUIT BREAKER, EF EXHAUST FAN, EGC EQUIPMENT GROUNDING CONDUCTOR, EMER EMERGENCY, CLG CLG, EQ EQUAL, EQ EQUIPMENT, EWC ELECTRIC WATER COOLER, EWH ELECTRIC WATER HEATER, EXIST EXISTING, FACP FIRE ALARM CONTROL PANEL, FACPRA FIRE ALARM CONTROL PANEL REMOTE ANNUNCIATOR, FC FOOTCANDLE, FCU FAN COIL UNIT, FLA FULL LOAD AMPERE(S), FOC FIBER OPTIC CABLE, G_GND GROUND, GEC GROUNDING ELECTRODE CONDUCTOR, GFCI GROUND FAULT CIRCUIT INTERRUPTER, GRS GALVANIZED RIGID STEEL, HH HANDHOLE, HP HORSEPOWER, KAIC 1,000 AMP SYMMETRICAL INTERRUPTING CAPACITY RMS, KWHT 1,000 WATT HOURS, KVA 1,000 VOLT AMPERES, LAN LOCAL AREA NETWORK, LC LIGHTING CONTACTOR, LTG LIGHTING, MCA MINIMUM CIRCUIT AMPACITY, MCB MAIN CIRCUIT BREAKER, MCM/KMIL 1,000 CIRCULAR MILS, MECH MECHANICAL, MH MANHOLE, MLO MAIN LUGS ONLY, MOCP MAXIMUM OVERCURRENT PROTECTION, MTD MOUNTED, MTG MOUNTING, NC NORMALLY CLOSED, NEC NATIONAL ELECTRICAL CODE, NEU NEUTRAL, NF NON-FUSED, NIC NOT IN CONTRACT, NL NIGHT LIGHT, NO NORMALLY OPEN, NU WEATHERPROOF IN-USE COVER, OH OVERHEAD, OHE OVERHEAD ELECTRICAL, OSP OUTSIDE PLANT, UPP UTILITY POWER POLE, PB PULL BOX, PH PHASE, PNL PANEL, PV PHOTOVOLTAIC, PVC POLYVINYL CHLORIDE, QTY QUANTITY, RCPT RECEPTACLE, REQD REQUIRED, SF SUPPLY FAN, SN SOLID NEUTRAL, SPD SURGE PROTECTIVE DEVICE, STD STANDARD, TEL TELEPHONE, TELECOM TELECOMMUNICATIONS, TGB TELECOMMUNICATIONS GROUND BUS, TMGB TELECOMMUNICATIONS MAIN GROUND BUS, TTB TELECOM TERMINAL BOARD, TV TELEVISION, TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION, UG UNDERGROUND, UGP UNDERGROUND PRIMARY, UGS UNDERGROUND SECONDARY, UH UNIT HEATER, UL UNDERWRITERS LABORATORY, INC., UON UNLESS OTHERWISE NOTED, V VOLTS, VAC VOLTS ALTERNATING CURRENT, VDC VOLTS DIRECT CURRENT, VFD VARIABLE FREQUENCY DRIVE, VH WATER HEATER, WP WEATHERPROOF, XFMR TRANSFORMER



ELECTRICAL DEMO NOTES:

- CONTRACTOR SHALL DEMO AND REMOVE ALL NORMAL OPERATION LIGHT FIXTURES AND ASSOCIATED CONTROLS/CABLING WITHIN AREA OF WORK.
- CONTRACTOR SHALL PROTECT EXISTING FIRE ALARM DEVICES. CONTRACTOR IS PERMITTED TO TEMPORARILY SUSPEND FIXTURE DURING DEMOLITION OR UNINSTALL AND RE-INSTALL DEVICES. CONTRACTOR SHALL PROVIDE ANY CABLING REQUIRED TO SPLICE AND EXTEND DEVICES INTO NEW CEILING COORDINATE CABLING WITH MANUFACTURER PRIOR TO PURCHASE.
- CONTRACTOR SHALL DEMOLISH ALL EXISTING THEATRICAL LIGHTING AND ASSOCIATED CABLING, RACEWAY, AND CONTROLS CONNECTED TO EXISTING PANELS IN ROOM 102.
- CONTRACTOR SHALL REMOVE ALL EXISTING RECEPTACLES AND REPLACE WITH NEW. CONTRACTOR SHALL REUSE EXISTING CIRCUITRY, BACKBOXES, AND RACEWAY TO PROVIDE, INSTALL, AND CONNECT NEW RECEPTACLES.

ELECTRICAL KEYED NOTES:

① CONTRACTOR SHALL DEMO ALL ELECTRICAL EQUIPMENT IN ROOM INCLUDING PANELS, TRANSFORMERS, AND DISCONNECT SWITCHES. REFER TO ONE-LINE DIAGRAM FOR MORE INFORMATION.

1 | ELECTRICAL DEMO PLAN
3/16" = 1'-0"

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SOUTHERN UNIVERSITY
 BATON ROUGE, LOUISIANA

PROJECT ARCHITECT: McELROY
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: SC
 CHECKED BY: LB

REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____

SEAL:

 SHEET TITLE:

ELECTRICAL DEMO PLAN
 SHEET NUMBER
E1.01
 M3A ARCHITECTURE, PLLC



1 | ELECTRICAL OVERALL PLAN
 1/16" = 1'-0"

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 SHEET TITLE:

**ELECTRICAL
 OVERALL
 POWER PLAN**

SHEET NUMBER
E1.02
 M3A ARCHITECTURE, PLLC

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PROJECT ARCHITECT: McElroy
PROJECT NUMBER: 22-022
DATE: 02/05/2024
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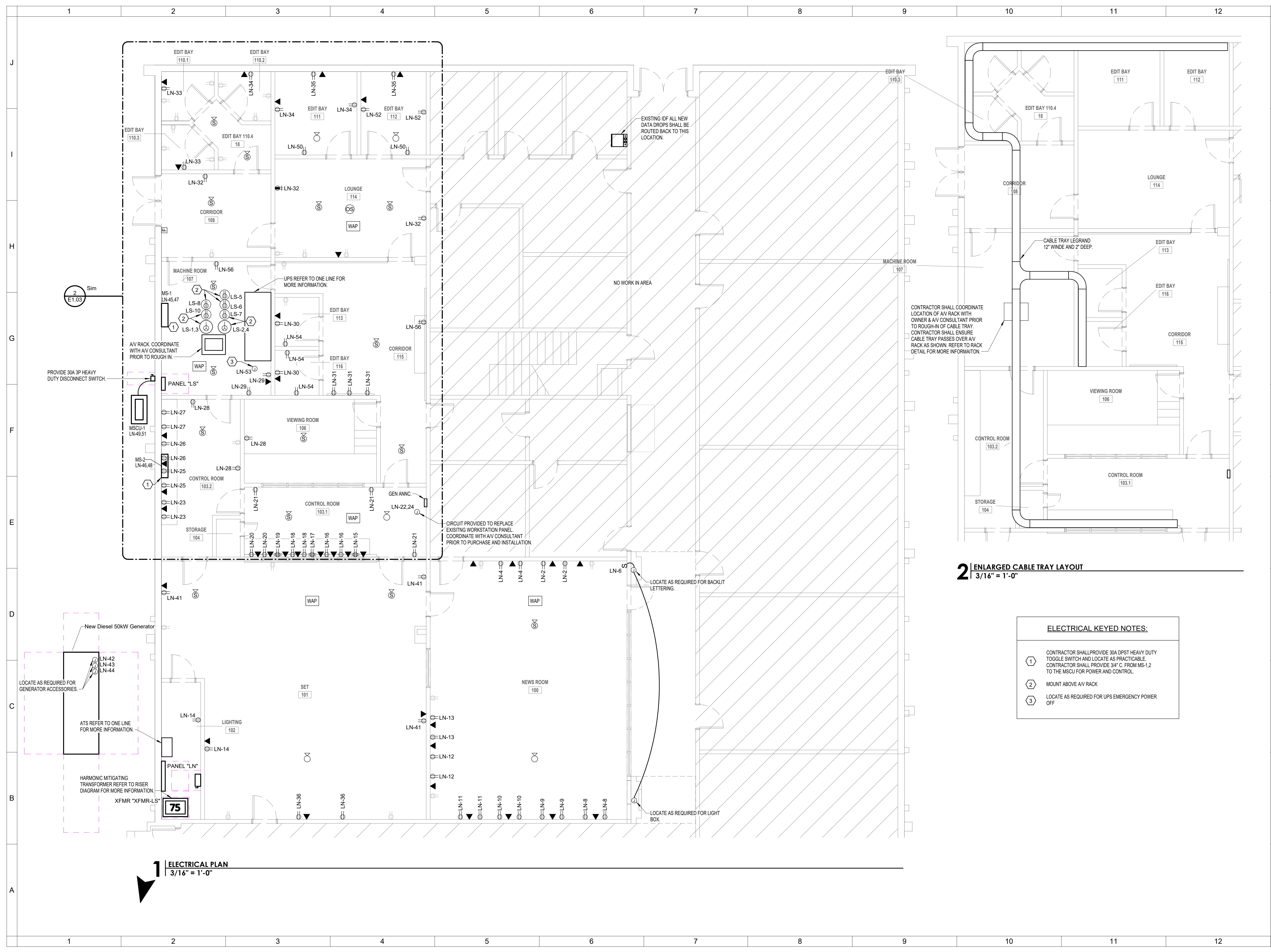
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3. _____
4. _____



SHEET TITLE:
**ELECTRICAL
POWER PLAN**

SHEET NUMBER
E1.03

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2 ENLARGED CABLE TRAY LAYOUT
3/16" = 1'-0"

ELECTRICAL KEYED NOTES:

1	CONTRACTOR SHALL PROVIDE 30A DPST HEAVY DUTY TOGGLE SWITCH AND LOCATE AS PRACTICABLE. CONTRACTOR SHALL PROVIDE 34" C. FROM MS-1,2 TO THE MSJU FOR POWER AND CONTROL.
2	MOUNT ABOVE AV RACK
3	LOCATE AS REQUIRED FOR UPS EMERGENCY POWER OFF

1 ELECTRICAL PLAN
3/16" = 1'-0"



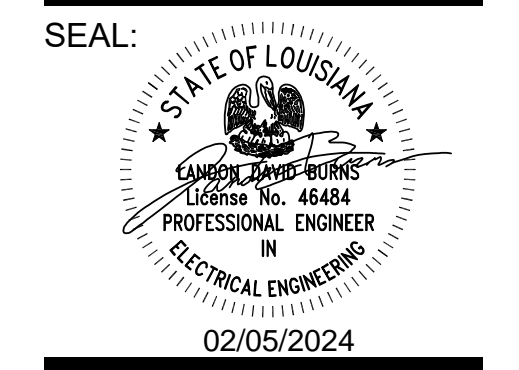
1 LIGHTING PLAN
3/16" = 1'-0"

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SHEET TITLE:
ELECTRICAL LIGHTING PLAN

SHEET NUMBER
E2.00
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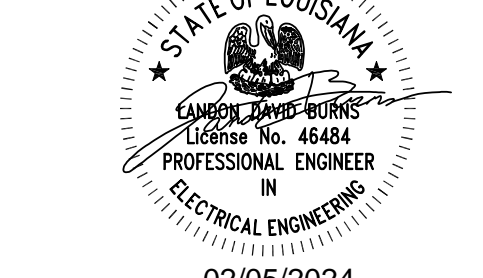
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SHEET TITLE:

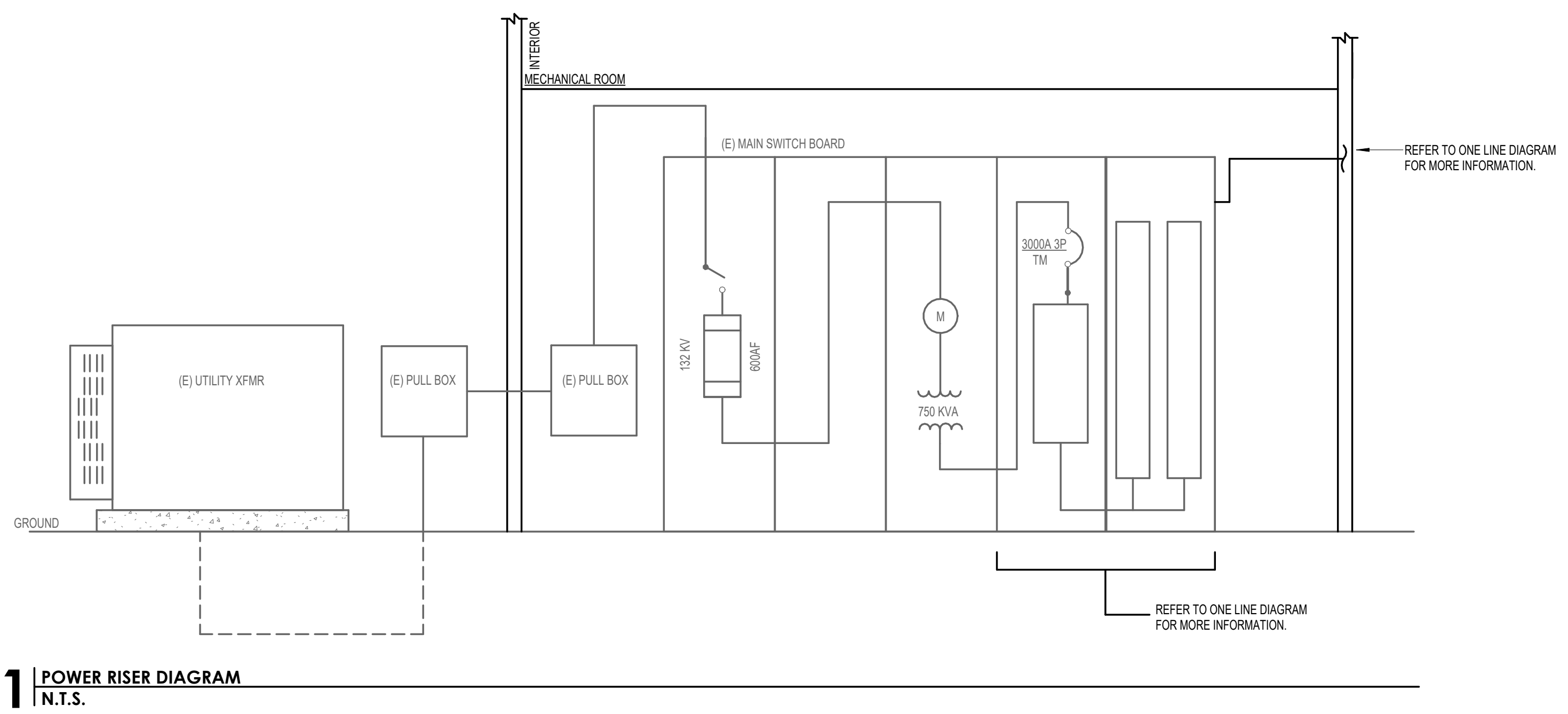
**ELECTRICAL
RISER
DIAGRAM &
SCHEDULES**

SHEET NUMBER

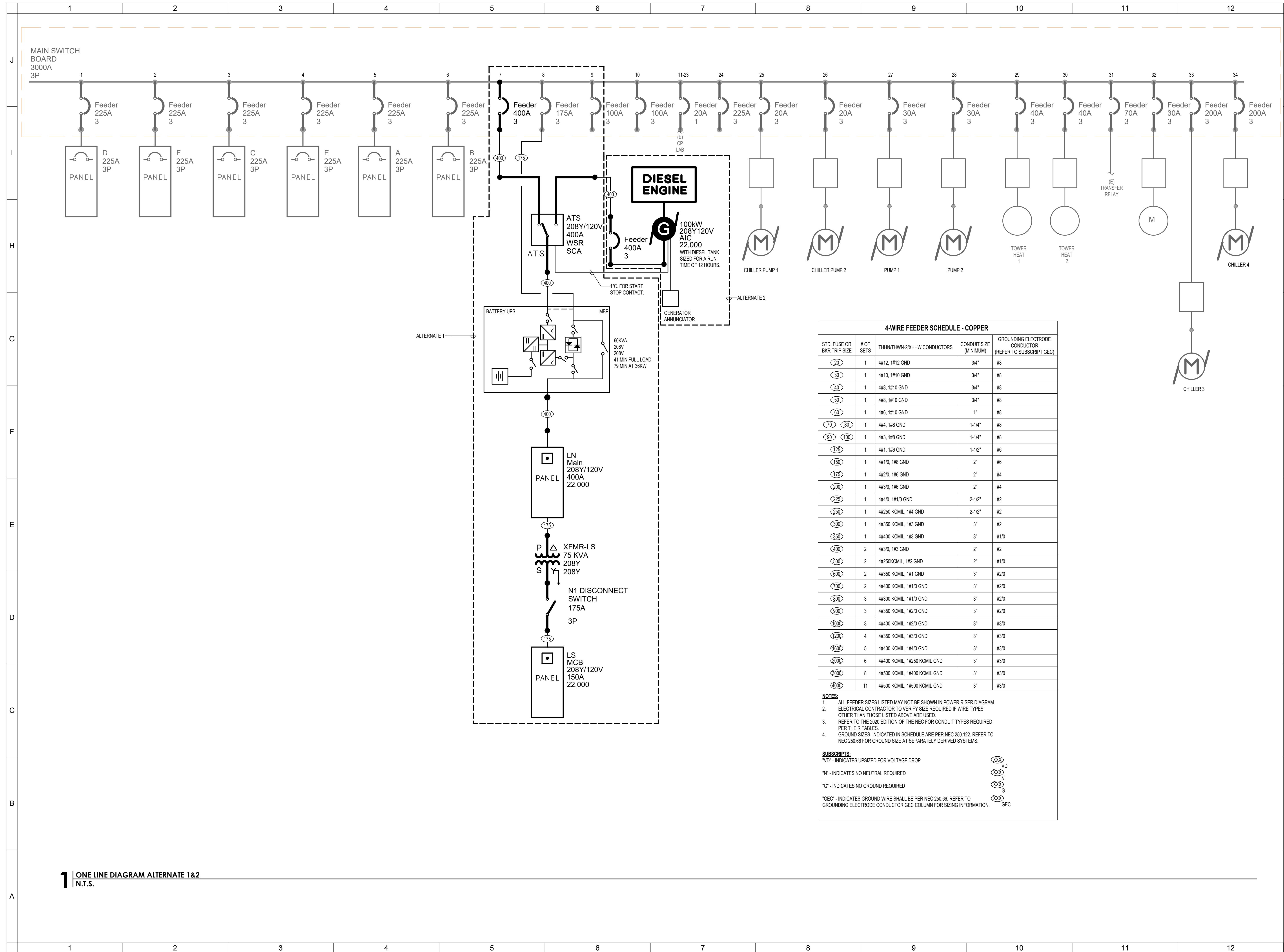
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LIGHTING FIXTURE SCHEDULE												
NOTES: ** FINISH TO BE SELECTED BY ARCHITECT FIXTURE COUNT IS PROVIDED FOR REFERENCE ONLY, CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT QTY.												
MARK	DESCRIPTION	LAMPS	VOLTS	LOAD	TEMP.	LUMENS	MOUNTING	APPROVED FIXTURES				COUNT
								MANUFACTURER	CATALOG NO.	MANUFACTURER	CATALOG NO.	
A	SELECTABLE LUMEN/COLOR TEMP 2'X2' LED FLAT PANEL	LED	UNV	45 VA	3,500/4,000/5,000	1,700/2,400/3,500	GRID	LITHONIA LIGHTING	CPANL 2X2 AL01 SWW7 M4	METALUX	22FPSL2SCT3	67
AE	SELECTABLE LUMEN/COLOR TEMP 2'X2' LED FLAT PANEL WITH EMERGENCY BATTERY BACKUP. COORDINATE LOCATION OF REMOTE TEST SWITCH WITH ARCHITECT PRIOR TO INSTALLATION.	LED	UNV	45 VA	3,500/4,000/5,000	1,700/2,400/3,500	GRID	LITHONIA LIGHTING	CPANL 2X2 AL01 SWW7 M4 ILBLP CP10 HE SD A	METALUX	22FPSL2SCT3 EL14W	36
C	6" LED DOWNLIGHT	LED	UNV	20 VA	3,500	1,500	RECESSED	LITHONIA LIGHTING	LDN6-35K-15-L06-LSS-MVOLT	HALO	HC6-10-D010-HM6-12-835-61-MD-H	6
X	EXIT SIGN WITH RED LETTERS. PROVIDE WITH NUMBER OF FACES AND DIRECTIONAL ARROWS AS INDICATED. FIXTURE SHALL BE PROVIDED WITH INTEGRAL BATTERY BACKUP AND SELF-DIAGNOSTICS.	LED	UNV	1 VA	N/	N/A	CEILING/WALL	LITHONIA LIGHTING	LQM	SURE LITES	LPX	10



4-WIRE FEEDER SCHEDULE - COPPER

STD. FUSE OR BKR TRIP SIZE	# OF SETS	THHN/THWN-2/HHW CONDUCTORS	CONDUIT SIZE (MINIMUM)	GROUNDING ELECTRODE CONDUCTOR (REFER TO SUBSCRIPT GEC)
20	1	4#12, 1#12 GND	3/4"	#8
30	1	4#10, 1#10 GND	3/4"	#8
40	1	4#8, 1#10 GND	3/4"	#8
50	1	4#8, 1#10 GND	3/4"	#8
60	1	4#6, 1#10 GND	1"	#8
70	80	4#4, 1#8 GND	1-1/4"	#8
90	100	4#3, 1#8 GND	1-1/4"	#8
125	1	4#1, 1#6 GND	1-1/2"	#6
150	1	4#10, 1#8 GND	2"	#6
175	1	4#20, 1#6 GND	2"	#4
200	1	4#30, 1#6 GND	2"	#4
225	1	4#40, 1#10 GND	2-1/2"	#2
250	1	4#250 KCMIL, 1#4 GND	2-1/2"	#2
300	1	4#350 KCMIL, 1#3 GND	3"	#2
350	1	4#400 KCMIL, 1#3 GND	3"	#10
400	2	4#30, 1#3 GND	2"	#2
500	2	4#250 KCMIL, 1#2 GND	2"	#10
600	2	4#350 KCMIL, 1#1 GND	3"	#20
700	2	4#400 KCMIL, 1#10 GND	3"	#20
800	3	4#300 KCMIL, 1#10 GND	3"	#20
900	3	4#350 KCMIL, 1#20 GND	3"	#20
1000	3	4#400 KCMIL, 1#20 GND	3"	#30
1200	4	4#350 KCMIL, 1#30 GND	3"	#30
1600	5	4#400 KCMIL, 1#40 GND	3"	#30
2000	6	4#400 KCMIL, 1#250 KCMIL GND	3"	#30
3000	8	4#500 KCMIL, 1#400 KCMIL GND	3"	#30
4000	11	4#500 KCMIL, 1#500 KCMIL GND	3"	#30

NOTES:
1. ALL FEEDER SIZES LISTED MAY NOT BE SHOWN IN POWER RISER DIAGRAM.
2. ELECTRICAL CONTRACTOR TO VERIFY SIZE REQUIRED IF WIRE TYPES OTHER THAN THOSE LISTED ABOVE ARE USED.
3. REFER TO THE 2020 EDITION OF THE NEC FOR CONDUIT TYPES REQUIRED PER THEIR TABLES.
4. GROUND SIZES INDICATED IN SCHEDULE ARE PER NEC 250.122. REFER TO NEC 250.66 FOR GROUND SIZE AT SEPARATELY DERIVED SYSTEMS.

SUBSCRIPTS:
"VD" - INDICATES UPSIZED FOR VOLTAGE DROP
"N" - INDICATES NO NEUTRAL REQUIRED
"G" - INDICATES NO GROUND REQUIRED
"GEC" - INDICATES GROUND WIRE SHALL BE PER NEC 250.66. REFER TO GROUNDING ELECTRODE CONDUCTOR GEC COLUMN FOR SIZING INFORMATION.

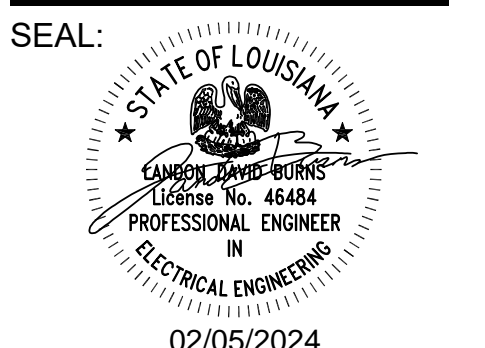
1 ONE LINE DIAGRAM ALTERNATE 1&2
N.T.S.

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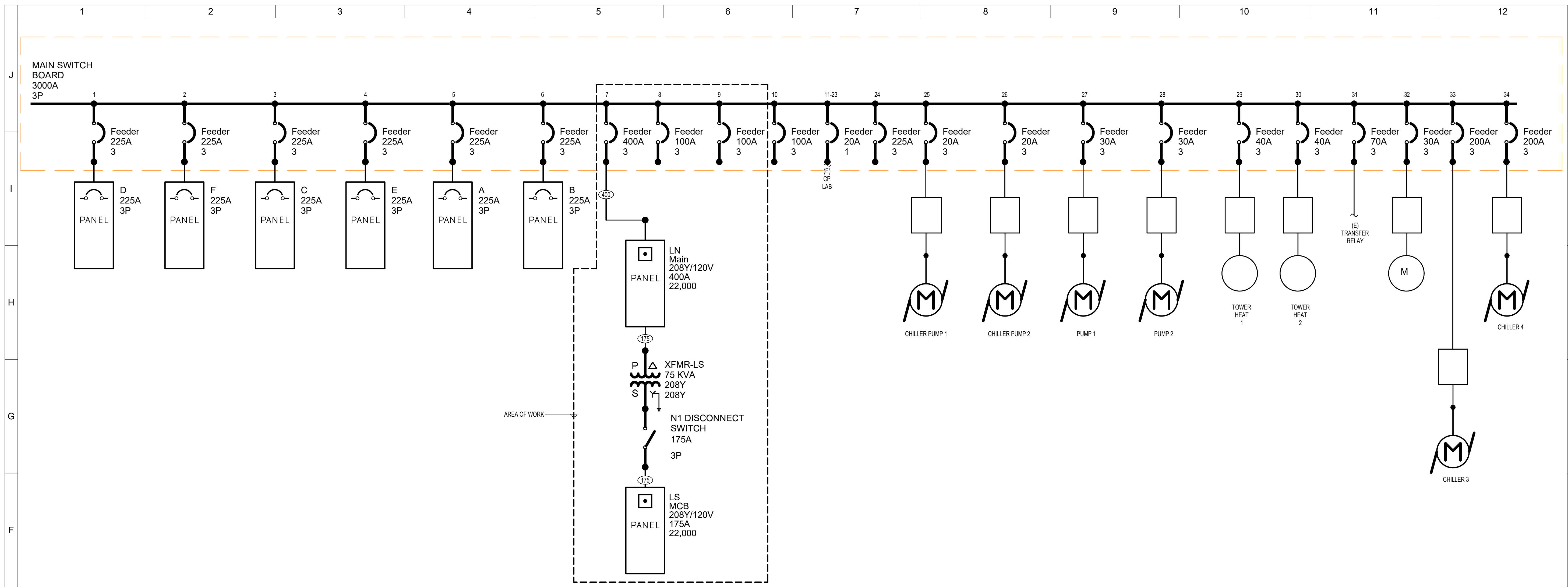
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 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: SC
 CHECKED BY: LB

REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____

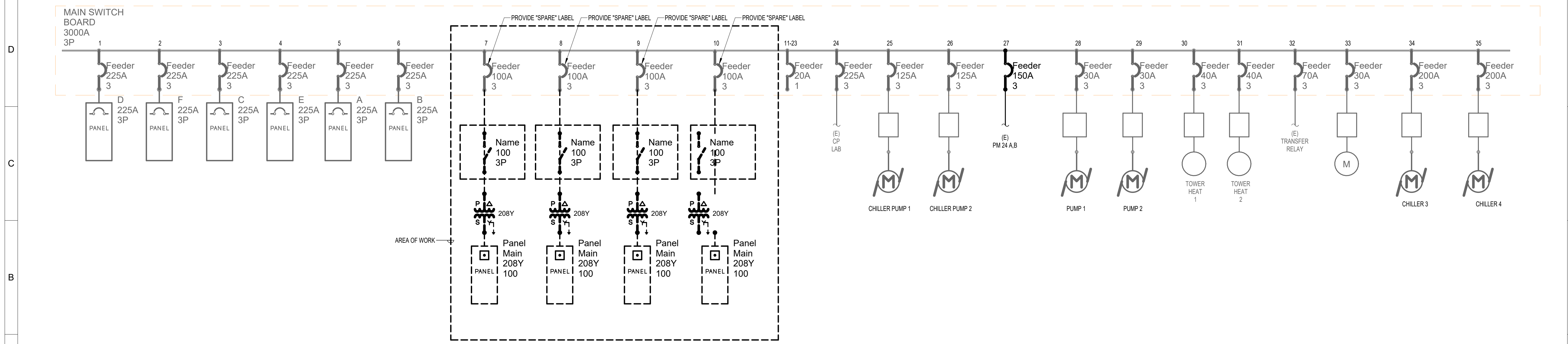


SHEET TITLE:
**ELECTRICAL
 ONE LINE
 DIAGRAM**

SHEET NUMBER
E3.01
 M3A ARCHITECTURE, PLLC



1 ONE LINE DIAGRAM BASE BID
N.T.S.

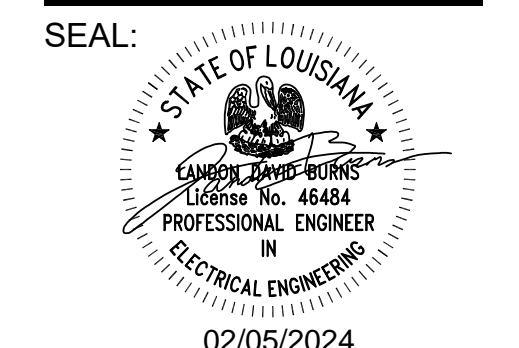


2 DEMO ONE LINE DIAGRAM
N.T.S.

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PROJECT ARCHITECT: McELROY
 PROJECT NUMBER: 22-022
 DATE: 02/05/2024
 DRAWN BY: SC
 CHECKED BY: LB
 REVISIONS: 1. _____
 2. _____
 3. _____
 4. _____



SHEET TITLE:
**ELECTRICAL
 ONE LINE
 DIAGRAM #2**

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Load: 12900 VA</td> </tr> <tr> <td>Receptacles</td> <td></td> <td>6900 VA</td> <td></td> <td>100.00%</td> <td></td> <td>6900 VA</td> <td></td> <td colspan="5">Total Est. Demand: 12900 VA</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="5">Total Conn.: 36 A</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="5">Total Est. Demand: 36 A</td> </tr> <tr> <th colspan="13">Load Summary Notes:</th> </tr> </tbody> </table> </div> <div style="width: 48%;"> <h3 style="text-align: center;">Branch Panel: LN</h3> <p style="text-align: center;">Location: Volts: 120/208 Wye Supply From: LN Phases: 3 Mounting: SURFACE Wires: 4 Enclosure: NEMA-1 Number of Sections: 2</p> <p style="text-align: center;">A.I.C. 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RM REC PET</td><td></td><td>0.5 kVA</td><td>0.3 kVA</td><td>WORKSTATION PANEL</td><td>3/4"</td><td>#10</td><td>#10</td><td>2</td><td>30 A</td><td>22</td></tr> <tr><td>23</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>CONTR. RM REC PET</td><td></td><td>0.4 kVA</td><td>0.3 kVA</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>24</td></tr> <tr><td>25</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>CONTR. RM REC PET</td><td>0.4 kVA</td><td>0.4 kVA</td><td></td><td>CONTR. RM REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>26</td></tr> <tr><td>27</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>CONTR. RM REC PET</td><td></td><td>0.4 kVA</td><td>0.5 kVA</td><td>CONV. REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>28</td></tr> <tr><td>29</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>MEDIA RM REC PET</td><td></td><td>0.4 kVA</td><td>0.4 kVA</td><td>EDIT BAY REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>30</td></tr> <tr><td>31</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>CORRIDOR 115 RECPTS</td><td>0.5 kVA</td><td>0.5 kVA</td><td></td><td>LOUNGE REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>32</td></tr> <tr><td>33</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>EDIT BAY REC PET</td><td></td><td>0.4 kVA</td><td>0.5 kVA</td><td>EDIT BAY REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>34</td></tr> <tr><td>35</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>EDIT BAY REC PET</td><td></td><td>0.4 kVA</td><td>0.4 kVA</td><td>SET REC PET</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>36</td></tr> <tr><td>37</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>CONTROL RM LTS</td><td>1.1 kVA</td><td>1.1 kVA</td><td></td><td>SET LIGHTING</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>38</td></tr> <tr><td>39</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>103.2, 107, 108 RM LTS</td><td></td><td>0.7 kVA</td><td>0.8 kVA</td><td>LOUNGE AND BAY LTS</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>40</td></tr> <tr><td>41</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>SET REC PET</td><td></td><td>0.5 kVA</td><td>0.5 kVA</td><td>GEN. ACC.</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>42</td></tr> <tr><td>43</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>GEN. ACC.</td><td>0.5 kVA</td><td>0.5 kVA</td><td></td><td>GEN. ACC.</td><td>2#12</td><td>#12</td><td>#12</td><td>1</td><td>20 A</td><td>44</td></tr> <tr><td>45</td><td>25 A</td><td>2</td><td>3#10</td><td>#10</td><td>3/4"</td><td></td><td>MS-1</td><td></td><td>2.3 kVA</td><td>2.3 kVA</td><td>MS-2</td><td>3#10</td><td>#10</td><td>#10</td><td>2</td><td>25 A</td><td>46</td></tr> <tr><td>--</td><td>47</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td></td><td></td><td></td><td>2.3 kVA</td><td>2.3 kVA</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>48</td></tr> <tr><td>49</td><td>25 A</td><td>2</td><td>3#10</td><td>#10</td><td>3/4"</td><td></td><td>MSCU-1</td><td>20.8 kVA</td><td>0.4 kVA</td><td></td><td>RECEPT</td><td>3/4"</td><td>#12</td><td>2#12</td><td>1</td><td>20 A</td><td>50</td></tr> <tr><td>--</td><td>51</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td></td><td></td><td></td><td>20.8 kVA</td><td>0.4 kVA</td><td></td><td></td><td></td><td></td><td></td><td>52</td></tr> <tr><td>53</td><td>20 A</td><td>1</td><td>2#12</td><td>#12</td><td>3/4"</td><td></td><td>UPS EMG ON/OFF</td><td></td><td>0.5 kVA</td><td>0.5 kVA</td><td>RECEPT</td><td>3/4"</td><td>#12</td><td>2#12</td><td>1</td><td>20 A</td><td>54</td></tr> <tr><td>--</td><td>55</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td>0.0 kVA</td><td>0.4 kVA</td><td></td><td>RECEPT</td><td>3/4"</td><td>#12</td><td>2#12</td><td>1</td><td>20 A</td><td>56</td></tr> <tr><td>--</td><td>57</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>58</td></tr> <tr><td>--</td><td>59</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>60</td></tr> <tr><td>--</td><td>61</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td>0.0 kVA</td><td>0.0 kVA</td><td></td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>62</td></tr> <tr><td>--</td><td>63</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>64</td></tr> <tr><td>--</td><td>65</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>66</td></tr> <tr><td>--</td><td>67</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td>0.0 kVA</td><td>0.0 kVA</td><td></td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>68</td></tr> <tr><td>--</td><td>69</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>70</td></tr> <tr><td>--</td><td>71</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>72</td></tr> <tr><td>--</td><td>73</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td>0.0 kVA</td><td>0.0 kVA</td><td></td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>74</td></tr> <tr><td>--</td><td>75</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>76</td></tr> <tr><td>--</td><td>77</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>SPARE</td><td>--</td><td>--</td><td>--</td><td>1</td><td>20 A</td><td>78</td></tr> <tr><td>--</td><td>79</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td>0.0 kVA</td><td>0.0 kVA</td><td></td><td>SPD</td><td>--</td><td>--</td><td>--</td><td>3</td><td>30 A</td><td>80</td></tr> <tr><td>--</td><td>81</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>82</td></tr> <tr><td>--</td><td>83</td><td>20 A</td><td>1</td><td>--</td><td>--</td><td>--</td><td>SPARE</td><td></td><td></td><td>0.0 kVA</td><td>0.0 kVA</td><td>--</td><td>--</td><td>--</td><td>--</td><td>--</td><td>84</td></tr> <tr><td colspan="2"></td><td colspan="2"></td><td colspan="2">31578 VA</td><td colspan="2">37588 VA</td><td colspan="2">15545 VA</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2"></td><td colspan="2">284 A</td><td colspan="2">334 A</td><td colspan="2">130 A</td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td></tr> <tr> <th colspan="2">Load Classification</th> <th colspan="2">Connected Load</th> <th colspan="2">Demand Factor</th> <th colspan="2">Estimated Demand</th> <th colspan="5">Panel Totals</th> </tr> <tr> <td>Other</td> <td></td> <td>54165 VA</td> <td></td> <td>100.00%</td> <td></td> <td>54165 VA</td> <td></td> <td colspan="5">Total Conn. Load: 84710 VA</td> </tr> <tr> <td>Receptacle</td> <td></td> <td>12960 VA</td> <td></td> <td>88.58%</td> <td></td> <td>11480 VA</td> <td></td> <td colspan="5">Total Est. Demand: 84401 VA</td> </tr> <tr> <td>Lighting</td> <td></td> <td>4685 VA</td> <td></td> <td>125.00%</td> <td></td> <td>5856 VA</td> <td></td> <td colspan="5">Total Conn.: 235 A</td> </tr> <tr> <td>Miscellaneous</td> <td></td> <td>6000 VA</td> <td></td> <td>100.00%</td> <td></td> <td>6000 VA</td> <td></td> <td colspan="5">Total Est. Demand: 234 A</td> </tr> <tr> <td>Receptacles</td> <td></td> <td>6900 VA</td> <td></td> <td>100.00%</td> <td></td> <td>6900 VA</td> <td></td> <td colspan="5"></td> </tr> <tr> <th colspan="13">Load Summary Notes:</th> </tr> </tbody> </table> </div> </div> <div> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">ALL CONCEPTS, AND IDEAS CONVEYED IN CONSTRUCTION DOCUMENTS ARE THE PROPERTY OF M3A ARCHITECTURE, PLLC AND ASSOCIATED CONSULTANTS. THEY ARE SOLELY INTENDED FOR USE ON THIS PROJECT. ANY REUSE, REPRODUCTION OR ANY OTHER UNWARRANTED OF THESE DOCUMENTS ARE STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF M3A ARCHITECTURE, PLLC. DO NOT SCALE FROM DRAWINGS. DIMENSIONS ARE PROVIDED TO ALLOW FOR ACCURATE CONSTRUCTION OF THE PROJECT. 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McElroy, AIA, NCARB 4880 McWILLIE CIRCLE JACKSON, MISSISSIPPI 39206 TELEPHONE: (601) 981-1227 FACSIMILE: (601) 983-4444</p> <p style="text-align: center;">PROJECT:</p> </div> <div> <p style="writing-mode: vertical-rl; transform: rotate(180deg);"> MASS COMMUNICATIONS DEPARTMENT RENOVATION AT: SOUTHERN UNIVERSITY BATON ROUGE, LOUISIANA </p> </div> <div> <p>PROJECT ARCHITECT: <u>McELROY</u> PROJECT NUMBER: <u>22-022</u> DATE: <u>02/05/2024</u> DRAWN BY: <u>SC</u> CHECKED BY: <u>LB</u></p> <p>REVISIONS: 1. _____ 2. _____ 3. _____ 4. _____</p> </div> <div> <p>SEAL:</p> <p style="text-align: center;">02/05/2024</p> </div> <div> <p>SHEET TITLE: ELECTRICAL SCHEDULES</p> <p>SHEET NUMBER E4.00</p> <p style="text-align: right;">M3A ARCHITECTURE, PLLC</p> </div>												ABR	CKT	TRIP	POLES	WIRE	GND	CONDUIT	Circuit Description	A	B	C	Circuit Description	CONDUIT	GND	WIRE	POLES	TRIP	CKT	ABR	--	3	--	--	--	--	--	A/V RACK	1.5 kVA	1.5 kVA		A/V RACK	3/4"	#12	3#12	2	20 A	2	--	--	5	20 A	1	2#12	#12	3/4"	A/V EQUIPMENT		1.5 kVA	1.5 kVA	A/V EQUIPMENT	3/4"	#12	2#12	1	20 A	6	--	--	7	20 A	1	2#12	#12	3/4"	A/V EQUIPMENT	1.6 kVA	1.6 kVA		A/V EQUIPMENT	3/4"	#12	2#12	1	20 A	8	--	--	9	20 A	1	--	--	--	SPARE		0.0 kVA	1.6 kVA	A/V EQUIPMENT	3/4"	#12	2#12	1	20 A	10	--	--	11	20 A	1	--	--	--	SPARE				SPARE	--	--	--	1	20 A	12	--	--	13	20 A	1	--	--	--	SPARE	0.0 kVA	0.0 kVA		SPARE	--	--	--	1	20 A	14	--	--	15	20 A	1	--	--	--	SPARE		0.0 kVA	0.0 kVA	SPARE	--	--	--	1	20 A	16	--	--	17	20 A	1	--	--	--	SPARE				SPARE	--	--	--	1	20 A	18	--	--	19	20 A	1	--	--	--	SPARE	0.0 kVA	0.0 kVA		SPARE	--	--	--	1	20 A	20	--	--	21	20 A	1	--	--	--	SPARE		0.0 kVA	0.0 kVA	SPARE	--	--	--	1	20 A	22	--	--	23	20 A	1	--	--	--	SPARE				SPARE	--	--	--	1	20 A	24	--	--	25	20 A	1	--	--	--	SPARE	0.0 kVA	0.0 kVA		SPD	--	--	--	3	30 A	26	--	--	27	20 A	1	--	--	--	SPARE		0.0 kVA	0.0 kVA	--	--	--	--	--	--	28	--	--	29	20 A	1	--	--	--	SPARE			0.0 kVA	--	--	--	--	--	--	30	--					6200 VA		4600 VA		2100 VA																55 A		42 A		18 A												Load Classification		Connected Load		Demand Factor		Estimated Demand		Panel Totals					Miscellaneous		6000 VA		100.00%		6000 VA		Total Conn. Load: 12900 VA					Receptacles		6900 VA		100.00%		6900 VA		Total Est. Demand: 12900 VA													Total Conn.: 36 A													Total Est. Demand: 36 A					Load Summary Notes:													ABR	CKT	TRIP	POLES	WIRE	GND	CONDUIT	Circuit Description	A	B	C	Circuit Description	CONDUIT	GND	WIRE	POLES	TRIP	CKT	ABR	1	20 A	1	2#12	#12	3/4"		NEWS RM LTS	1.0 kVA	0.4 kVA		NEWS RM REC PET	3/4"	#12	2#12	1	20 A	2		3	175 A	3	1R	1R	1R		XFMR 'LS'		6.2 kVA	0.4 kVA	NEWS RM REC PET	3/4"	#12	2#12	1	20 A	4		--	5	--	--	--	--	--				4.6 kVA	1.0 kVA	SIGNAGE	3/4"	#12	2#12	1	20 A	6	--	7	--	--	--	--	--		2.1 kVA	0.4 kVA		NEWS RM REC PET	3/4"	#12	2#12	1	20 A	8	9	20 A	1	2#12	#12	3/4"		NEWS RM REC PET		0.4 kVA	0.4 kVA	NEWS RM REC PET	3/4"	#12	2#12	1	20 A	10	11	20 A	1	2#12	#12	3/4"		NEWS RM REC PET		0.4 kVA	0.4 kVA	NEWS RM REC PET	3/4"	#12	2#12	1	20 A	12	13	20 A	1	2#12	#12	3/4"		NEWS RM REC PET	0.4 kVA	0.4 kVA		CONV. REC PET	3/4"	#12	2#12	1	20 A	14	15	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET		0.2 kVA	0.4 kVA	CONTR. RM REC PET	3/4"	#12	2#12	1	20 A	16	17	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET		0.2 kVA	0.4 kVA	CONTR. RM REC PET	3/4"	#12	2#12	1	20 A	18	19	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET	0.2 kVA	0.4 kVA		CONTR. RM REC PET	3/4"	#12	2#12	1	20 A	20	21	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET		0.5 kVA	0.3 kVA	WORKSTATION PANEL	3/4"	#10	#10	2	30 A	22	23	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET		0.4 kVA	0.3 kVA	--	--	--	--	--	--	24	25	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET	0.4 kVA	0.4 kVA		CONTR. RM REC PET	2#12	#12	#12	1	20 A	26	27	20 A	1	2#12	#12	3/4"		CONTR. RM REC PET		0.4 kVA	0.5 kVA	CONV. REC PET	2#12	#12	#12	1	20 A	28	29	20 A	1	2#12	#12	3/4"		MEDIA RM REC PET		0.4 kVA	0.4 kVA	EDIT BAY REC PET	2#12	#12	#12	1	20 A	30	31	20 A	1	2#12	#12	3/4"		CORRIDOR 115 RECPTS	0.5 kVA	0.5 kVA		LOUNGE REC PET	2#12	#12	#12	1	20 A	32	33	20 A	1	2#12	#12	3/4"		EDIT BAY REC PET		0.4 kVA	0.5 kVA	EDIT BAY REC PET	2#12	#12	#12	1	20 A	34	35	20 A	1	2#12	#12	3/4"		EDIT BAY REC PET		0.4 kVA	0.4 kVA	SET REC PET	2#12	#12	#12	1	20 A	36	37	20 A	1	2#12	#12	3/4"		CONTROL RM LTS	1.1 kVA	1.1 kVA		SET LIGHTING	2#12	#12	#12	1	20 A	38	39	20 A	1	2#12	#12	3/4"		103.2, 107, 108 RM LTS		0.7 kVA	0.8 kVA	LOUNGE AND BAY LTS	2#12	#12	#12	1	20 A	40	41	20 A	1	2#12	#12	3/4"		SET REC PET		0.5 kVA	0.5 kVA	GEN. ACC.	2#12	#12	#12	1	20 A	42	43	20 A	1	2#12	#12	3/4"		GEN. ACC.	0.5 kVA	0.5 kVA		GEN. 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PROJECT ARCHITECT: McELROY

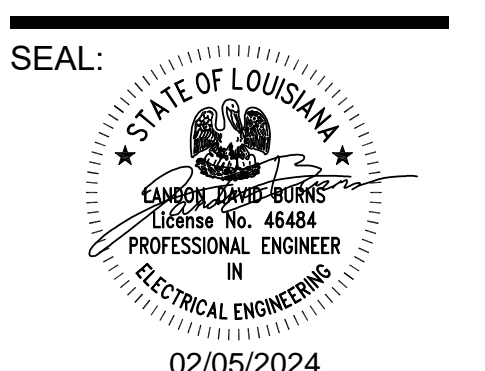
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DATE: 02/05/2024

DRAWN BY: SC

CHECKED BY: LB

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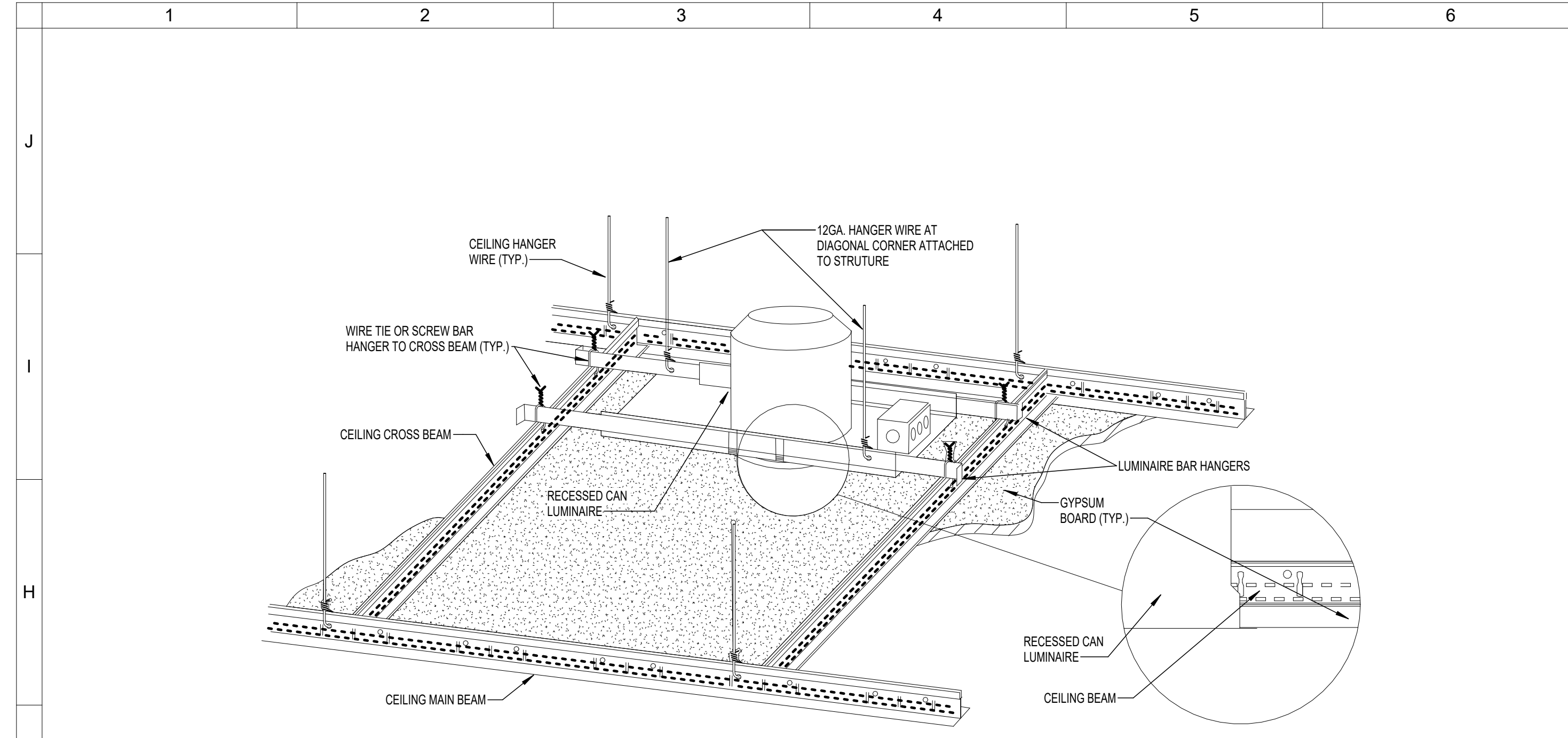
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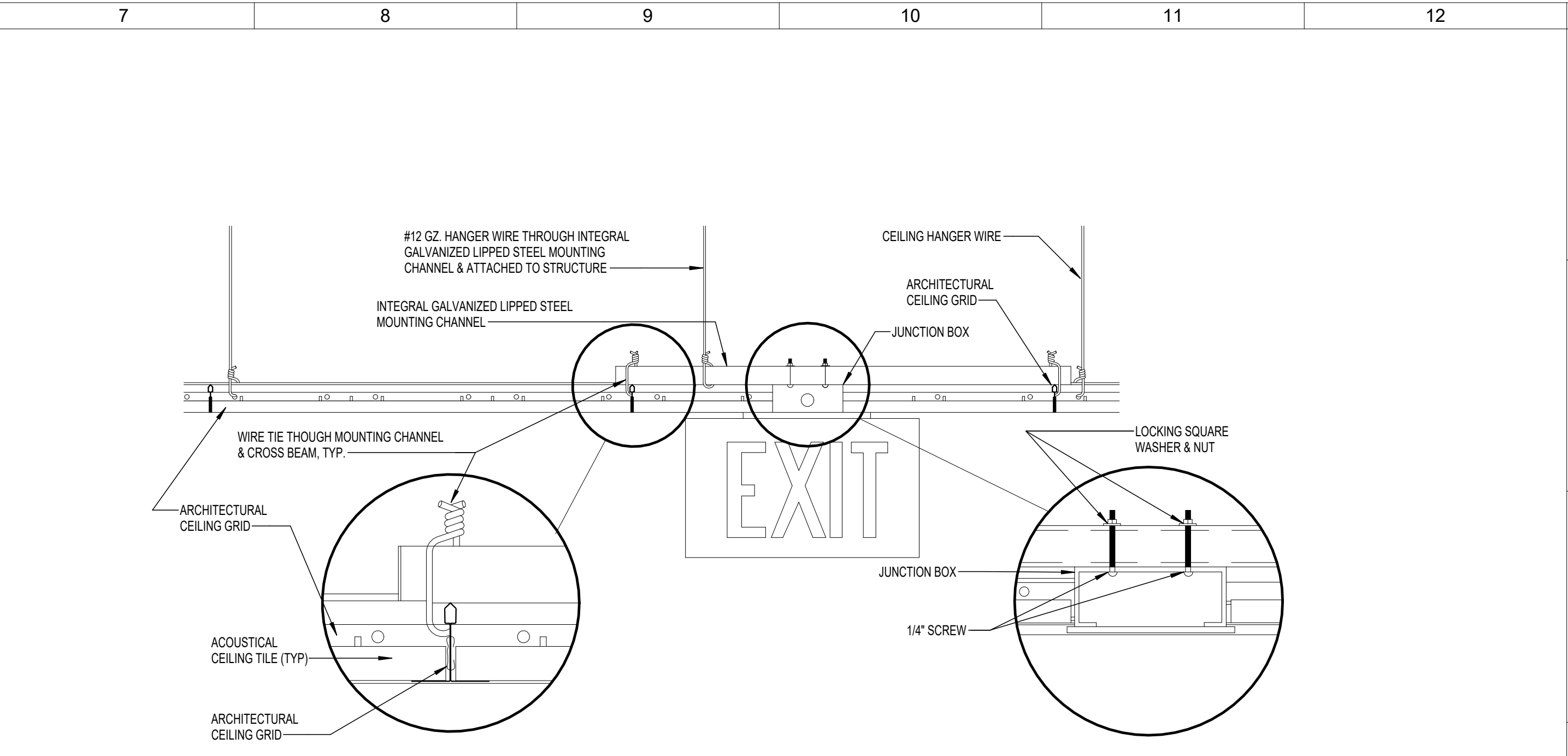
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M3A ARCHITECTURE, PLLC

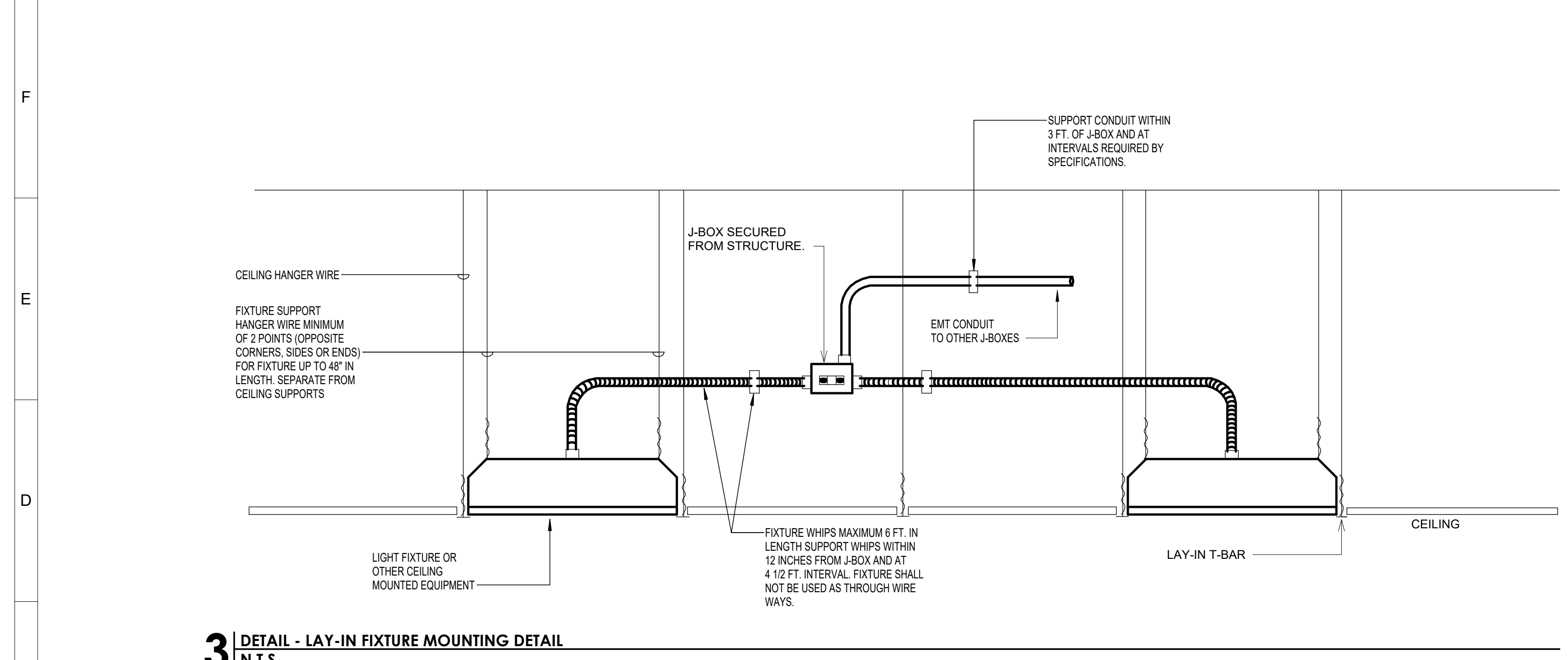
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1 | **DETAIL - DOWNLIGHT MOUNTING**
N.T.S.



2 | **DETAIL - EXIT SIGN MOUNTING**
N.T.S.



3 | **DETAIL - LAY-IN FIXTURE MOUNTING DETAIL**
N.T.S.