
RECOVERY SCHOOL DISTRICT
INVITATION FOR BIDS
Frederick Douglas Senior High School Gymnasium HVAC

INVITATION/INSTRUCTIONS Bid no. 682001-1021-7

Bid Opening: Tuesday, November 29, 2016 at 2:00 P.M.

Opening Location: RSD Central Office, 1615 Poydras, Suite 400, New Orleans, LA 70112

1. Bids, subject to the conditions stated herein and attached hereto, are hereby invited and will be received at this office until the above noted bid closing time and then publicly opened for furnishing the items and/or services as specified.
2. **YOUR BID SHOULD BE MADE ON THE ATTACHED FORM(S) AND RETURNED WITH THIS "INVITATION" TO THE RECOVERY SCHOOL DISTRICT PURCHASING OFFICE, 1615 POYDRAS ST., SUITE 400, NEW ORLEANS, LA 70112**
3. Alterations to bids will be considered provided they have been received in this office prior to bid closing time.
4. Any bid received after bid closing time will not be considered.
5. **ALL PRICES ARE TO BE QUOTED COMPLETE AND FOB RSD, NEW ORLEANS, LA., unless otherwise stated in specifications by the District.**
6. All prices must be firm unless otherwise stated by District.
7. Do not include State Sales Tax or Federal Excise Tax; same will be added if applicable.
8. Unless otherwise specified all bids shall be binding for 30 calendar days from bid closing time.

BID

PLEASE FILL IN ALL BLANK SPACES

In compliance with the above invitation to bid and subject to the conditions thereof, the undersigned offers and agrees, if this bid is accepted within 30 days from bid closing time to furnish any or all of the items (or sections) at the price set opposite each item (or section).

Bidder: _____ Address: _____
(Name of Firm) (Street or P.O. Box)

By: _____
(Signature) (City, State, Zip Code)

(Typed Name) Phone#: () Fax#: ()

Title: _____ Email: _____

CONTRARY TERMS AND CONDITIONS, GOVERNING LAW: Submittal of any terms and conditions contrary to those contained within this Invitation for Bid may cause your bid to be rejected. By signing this bid, the bidder agrees that any terms and conditions which may be included in their bid are nullified and agrees this contract shall be construed in accordance with and governed by the laws of the State of Louisiana.

AUTHORIZED SIGNATURE: In accordance with R. S. 39:1594(C)(4), the person signing the bid must be: 1) A current corporate officer, partnership member or other individual specifically authorized to submit bids as evidenced in appropriate records on file with the Secretary of State; or 2) An individual authorized to bind the vendor, and the bid is accompanied by a corporate resolution, certification as to the corporate principal, or other documents indicating authority which are acceptable to the District. **By signing this bid, the bidder certifies compliance with the above.**

AFFIRMATIVE ACTION AND ANTI-DISCRIMINATION CLAUSE: You are hereby notified that, during the performance of this contract, the successful bidder (contractor or vendor) must comply with all federal, state and local laws, including those which prohibit discrimination because of race, color, national origin, religion, sex, age, disability or veteran status. See, e.g., The Civil Rights Acts of 1964, The Age Discrimination in Employment Act of 1967, The Civil Rights Act of 1968, The Education Amendment Act of 1972, The Rehabilitation Act of 1973, The Federal Energy Administration Act of 1974, The Energy Reorganization Act of 1974, The Vietnam Era Veteran's Readjustment Act of 1974, The Energy Conservation and Production Act of 1976, The Americans with Disabilities Act of 1990 and Executive Order 11246, as amended.

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DEPARTMENT OF EDUCATION, RECOVERY SCHOOL DISTRICT
Request for Proposals
For
Frederick Douglas Senior High School Gymnasium HVAC
Solicitation No: 682001-1021-7

PART I. ADMINISTRATIVE AND GENERAL INFORMATION

1.1 Procurement Schedule

Event	Date & Time
Advertise solicitation and mail public announcements and post to LaPac. Solicitation issued to prospective Proposers	October 21, 2016
Mandatory Pre-bid Meeting and Site Visit: Frederick Douglass, 3820 St. Claude Ave, New Orleans, LA	3:00PM, November 7, 2016
Deadline for receiving inquiries for addenda	4:30 pm, November 14, 2016
Deadline to issue responses and answer proposer written inquiries	November 18, 2016
Deadline for submitting bids	2:00 pm, November 29, 2016

NOTE: The Louisiana Recovery School District reserves the right to revise this schedule. Revisions, if any, before the Submission Deadline will be formalized by the issuance of an addendum to the solicitation. Revisions after the Submission Deadline, if any, will be by written notification to the eligible proposers.

1.2 Solicitation Availability

This solicitation is available in electronic form at the LaPAC website,

<https://wwwcfprd.doa.louisiana.gov/osp/lapac/dspBid.cfm?search=department&term=105> .

1.3 Inquiries

An inquiry period is hereby firmly set for all interested Proposers to perform a detailed review of the bid documents and to submit any written questions relative thereto. Without exception, all questions **MUST** be in writing and received by the close of business on the Inquiry Deadline date set forth in the Procurement Schedule. Inquiries shall not be entertained thereafter.

The State and/or RSD shall not and cannot permit an open-ended inquiry period, as this creates an unwarranted delay in the procurement cycle and operations of our internal customers. The State and/or RSD reasonably expect and require responsible and interested Bidder to conduct their in-depth ITB review and submit inquiries in a timely manner. The State and/or RSD shall only consider written and timely communications from Bidders.

Only the Director of Procurement has the authority to officially respond to Bidders' written inquiries on behalf of the Recovery School District. Any communications from other individuals are not binding on the RSD and/or State.

No negotiations, decisions, or actions shall be executed by any Proposer as a result of any oral discussions with any RSD and/or State employee or consultant.

Inquiries shall be submitted in writing by an authorized representative of the Proposer, clearly cross-referenced to the relevant ITB section. Only those inquiries received by the established deadline shall be considered by the State and/or RSD. Answers to questions that change or substantially clarify the ITB shall be issued by addendum and provided to all prospective Bidders.

Inquiries concerning this solicitation may be delivered by mail, express courier, e-mail or hand to:

Sabra Reich
Director of Procurement
Louisiana Recovery School District
1615 Poydras Street, Suite 400
New Orleans, LA 70112
E-Mail: Sabra.Reich@rsdla.net
Phone: (504) 301-9585

PART II. BIDDER'S REPRESENTATION

2.1 Each Bidder by making his bid represents that:

2.1.1 They have read and understand the Bidding Documents and their bid is made in accordance there with.

2.1.2 They have visited the site and have familiarized themselves with the local conditions under which the work is to be performed.

The Bidder is advised to carefully consider all Charter Operator's school's physical features and activities, occupancies by students, teachers, and staff and to plan construction activities so as not to disrupt the normal operations and activities of the charter school except as expressly permitted by the Recovery School District in writing.

The Bidder shall be especially aware of existing electric, gas, water, telephone and/or other utilities and facilities which may be in the way of or adjacent to the Work, and shall take appropriate action to protect these utilities during the Work.

Every effort has been made to accurately show all pertinent surface and subsurface features accurately. For self-assurance, the Bidder may examine available drawings and documents related the Charter school premises. Such examinations may be made in the Recovery School District Central Office.

2.1.3 This bid is based solely upon the materials, systems and equipment described in the Bidding Documents as advertised and as modified by addenda.

2.1.4 When a discrepancy or ambiguity arises between the written specifications and the drawings, the document which is more stringent, or which benefits the Recovery School District more as determined by the Director of Facilities, shall govern.

2.1.5 This bid is not based on any verbal instructions contrary to the Bidding Documents and addenda.

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

2.3 The Recovery School District reserves the right to examine the Successful Bidder's past payroll records and those of any subcontractor to determine whether the employees being used on the contract are regularly employed. The Recovery School District also reserves the right to question the use of an employee whom it feels is unskilled or untrained on a task that requires a skill. If the bidder intends to use laborers or unskilled workmen on any aspect of the contract, the bidder must furnish a list of the tasks to be performed by said laborers and unskilled workmen with their bid.

2.4 If the Contractor is required to replace any employees because of their failure to comply with these requirements, any time lost on the job shall be the responsibility of the Contractor and shall not be an acceptable reason for requesting extensions of any completion deadlines or waiver of any liquidated

damages specified elsewhere in the bid specifications.

PART III. BIDDING DOCUMENTS

3.1 Copies

3.1.1 Complete bid documents may be obtained from the LaPAC website,

<https://wwwcfprd.doa.louisiana.gov/osp/lapac/dspBid.cfm?search=department&term=105>.

The Bidding Documents consist of the Drawings, the Bid Instructions and all Addenda issued prior to bid opening. Changes to the work made after the contract signing shall be documented by Change Order.

These INSTRUCTIONS TO BIDDERS, including amendments and additions thereto, apply to each and every heading of the TECHNICAL SPECIFICATIONS with the same force as though repeated in full under each heading.

3.1.2 Complete sets of Bidding Documents shall be used in preparing bids; neither the Recovery School District nor the Consultant assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.3 The Recovery School District or Consultant in making copies of the Bidding 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.

3.2 Interpretation or Correction of Bidding Documents

3.2.1 It shall be the Bidder's responsibility to review the LaPAC website for any addenda issued. All issued addenda should be acknowledged on the Proposal Form and shall become part of the Contract. Neither the Recovery School District nor its Consultant(s) will be responsible for any explanation or interpretations of the Documents not covered by written, issued addenda.

The Bidder should acknowledge all issued addenda in the space provided on the Proposal Form. Failure to acknowledge addenda may or may not be cause for the rejection of bid solely at the discretion of the Recovery School District.

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

3.3 Substitutions

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitutions shall be allowed after bid opening.

3.3.2 **No substitution will be considered unless written request for approval has been submitted by the Proposer and has been received by the Recovery School District Representative at least seven (7) days prior to the date for receipt of bids.** 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 Contract Documents if the proposed substitute is used.

Approval, if granted, is given contingent upon Contractor being responsible for any costs which may be necessary to modify the space or facilities needed to accommodate the materials and

equipment approved.

3.3.3 If the Recovery School District approves any proposed substitution, such approval will be set forth in an addendum. Bidders shall not rely upon approvals made in any other manner.

3.4 Addenda

3.4.1 Any addenda will be posted to LaPAC.

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

3.4.3 Addenda shall not be issued within a period of seventy-two (72) hours prior to the time set for the opening of bids, excluding Saturdays, Sundays, and any other legal holidays; however, if the necessity arises to issue an addendum modifying plans and specifications within the seventy-two hour (72) period prior to the time for the opening of bids, then the opening of bids shall be extended exactly one week, without the requirement of re-advertising.

3.4.4 The Recovery School District 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 Recovery School District Office of Procurement Office.

3.4.5 All issued addenda should be acknowledged on the Proposal Form and shall become part of the Contract.

PART IV. BIDDING PROCEDURE

4.1 Form and Style of Bids

4.1.1 Bids shall be submitted on the forms provided by the Recovery School District.

4.1.2 All blanks on the Bid Form shall be filled in by electronic means, typewriter or manually in ink. Signature is required manually by ink.

4.1.3 Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the written words shall govern.

4.1.4 Any interlineations, alteration, modification, erasure or change of any kind on the Bid Form must be initialed by the signer of the bid or his authorized representative.

4.1.5 **Bidders are cautioned to complete all alternates should such be required in the Bid Form. Failure to submit alternate prices will render the proposal informal and shall cause its rejection.**

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

4.1.7 The bid shall include the legal name of Bidder and the bid shall be signed by the person or persons legally authorized to bind the Bidder to a Contract. A bid submitted by an agency shall have a current Power of Attorney attached certifying agent's authority to bind Bidder. The Bidders name and Louisiana contractor's license number on the envelope shall be the same as on the Bid Form.

In accordance with R.S. 38:2212(A)(1)(c), the person signing the bid must be: 1) A current

corporate officer, partnership member or other individual specifically authorized to submit bids as evidenced in appropriate records on file with the secretary of State; or 2) An individual authorized to bind the vendor, and bid is accompanied by a corporate resolution, certification as to the corporate principal, or other documents indicating authority which are acceptable to the Recovery School District. By signing this bid, the bidder certifies compliance with the above.

- 4.1.8 On any bid of Ten Thousand Dollars (\$10,000.00) or more, the Contractor shall certify that he is licensed under R. S. 37:2150-2173 and show his license number on the bid envelope and should fill in the appropriate space on the Bid Form.

The Contractor shall be licensed by the Louisiana State Licensing Board for Contractors under the **Category Mechanical**.

Bids in excess of Ten Thousand Dollars (\$10,000.00) received from contractors not licensed under the above classification will not be considered.

4.2 Submission of Bids

- 4.2.1 Bids shall be sealed in an envelope, box or package with bid documents and will be received until the time specified and at the place specified in these bid documents. It shall be the specific responsibility of the Bidder to deliver his sealed bid to the Recovery School District, Office of Procurement 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.

Important – Clearly mark the outside of the envelope, box or package with the following information and format:

ITB Name: Frederick Douglas Senior High School Gymnasium HVAC
Solicitation Number: 682001-1021-7
Bid Opening Date: November 29, 2016
Bid Opening Time: 2:00 PM

If the bid is \$10,000.00 or more, the license number of the bidder shall also be included.

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 there of such bids shall be sent by Registered or Certified Mail, Return Receipt Requested, addressed to:

Louisiana Recovery School District
Office of Procurement & Contracts
Attention: Sabra Reich
1615 Poydras Street, Suite 400
New Orleans, Louisiana 70112

Bids sent by express or hand delivery shall be delivered to the address above by the time specified within this solicitation.

- 4.2.2 Bids shall be deposited at the designated location prior to the time on the date for receipt of bids

indicated in these Bid documents, or any extension thereof made by addendum. Bids received after the time and date for receipt of bids will be returned unopened.

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

4.2.4 Oral, electronic, telephonic, telegraphic, or faxed bids are invalid and shall not receive consideration. The Recovery School District 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.

4.5 Modification or Withdrawal of Bid

4.5.1 A bid may not be modified, withdrawn, or canceled by the Bidder for a period of thirty (30) calendar days 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 Recovery School District of New Orleans Office of Procurement within forty-eight hours of the bid opening excluding Saturdays, Sundays, and legal holidays. Such errors must be clearly shown by objective evidence drawn from inspection of the original work papers, documents, or materials used in the preparation of the bid sought to be withdrawn. If the Recovery School District Office of Procurement determines that the error is a patently obvious mechanical, clerical, or mathematical error, or unintentional omission of a substantial quantity of work, labor, material, or services, as opposed to a judgment error, and that the bid was submitted in good faith it shall accept the withdrawal and return the bid security to the contractor.

4.5.2 Prior to the time and date designated for receipt of bids, bids submitted early may be modified or withdrawn only by notice to the Recovery School District Office of Procurement at the place and prior to the time designated for receipt of bids.

4.5.3 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.

PART V. CONSIDERATION OF BIDS

5.1 Opening of Bids

5.1.1 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.

5.2 Rejection of Bids

5.2.1 The Recovery School District shall have the right to reject any or all bids and in particular to reject a bid not accompanied by data required by the Bidding Documents or a bid in any way incomplete or irregular. The provisions and requirements of the Instructions to Bidders, the Advertisement for bids, and those required on the bid form shall not be considered as informalities and shall not be waived.

5.2.2 The Recovery School District reserves the right to reject any and all bids at its discretion.

5.3 Acceptance of Bid

5.3.1 It is the intent of the Recovery School District, if any alternates are accepted, 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 Recovery School District shall reserve the right to accept alternates in any order which does not affect determination of the Low Bidder.

5.3.2 Recovery School District upon receipt of bids, shall act within thirty (30) calendar days of such receipt to award contract to the lowest responsible bidder or reject all bids. However, Recovery School District, by mutually written consent, may agree to extend the deadline of award by one or more extensions of thirty calendar days.

PART VI. PERFORMANCE AND PAYMENT BOND

6.1 Bond Required

6.1.1 The Contractor shall pay for and provide a Performance and Payment Bond in the full and just sum of five (5%) percent of the amount of the bid within ten (10) days after written notice from the Recovery School District or its Consultant that the work has been awarded to him. Bond furnished shall be a statutory bond and no modification, omissions, additions in or to the terms of the contract, in the plans and specifications or in the manner and mode of payment shall in any manner diminish, enlarge, or otherwise modify the obligations of the bond. Surety bond shall be written by a surety or insurance company currently on the U.S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register or by an insurance company that is either domiciled in Louisiana or owned by Louisiana residents and is licensed to write surety bonds.

For any public works project, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U.S. Department of the Treasury Financial Management Service list; companies authorized by this paragraph who are not on the treasury list shall not write a bond when the penalty exceeds fifteen percent of its capital and surplus, such capital and surplus being the amount by which the company's assets exceed its liabilities as reflected by the most recent financial statements filed by the company with the Department of Insurance.

In addition, any surety bond written for a public works project shall be written by a surety or insurance company that is currently licensed to do business in the State of Louisiana.

Bond shall be in favor of The Recovery School District..

6.2 Time of Delivery and Form of Bond

6.2.1 The Bidder shall deliver the required bond to the Recovery School District simultaneously with the execution of the Contract.

6.2.2 Bond shall be in the form furnished by Recovery School District Office of Procurement, entitled CONTRACTOR PERFORMANCE AND PAYMENT BOND, a copy of which is included in the Bid Documents.

- 6.2.3 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.

PART VII. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

7.1 Form to be Used

- 7.1.1 Form of the Contract to be used shall be furnished by the Recovery School District Office of Procurement, a copy which is bound in Bidding Documents.

A purchase order and contract will be issued following the award.

7.2 Award

- 7.2.1 In accordance with Louisiana Law, when the Contractor is awarded, the successful Bidder shall, execute the Non-Collusion Affidavit included in the Contract Documents.

The Recovery School District, within thirty days thereafter, shall issue to the contractor a Notice to Proceed with the project. However, upon mutual consent by both parties, the notice to proceed may be extended.

- 7.2.2 After the contract is awarded, no changes will be made to any part without written approval from the Office of Procurement issuing these bid documents. The proposed change will be submitted in writing, with a complete breakdown of all material and labor, and the individual cost of each.

7.3 Successful Bidder's Delivery Schedule

- 7.3.1 The Successful Bidder will provide a delivery construction schedule. Submit within fifteen (15) days after the date established "Commencement of the Work".

- 7.3.2 Schedule Updating: Revise the schedule after each meeting, event, or activity where schedule revisions have been recognized or made. Distribute updated schedule with in seventy-two (72) hours to Project Manager for review.

7.6 Recording Contract

- 7.6.1 The Contractor at his own expense, shall record the original executed Contract and the Performance and Labor and Material Bond with the Recorder of Mortgages, Orleans Parish, within five (5) working days of Contract signing. A NOTICE OF THIS RECORDING SHALL BE SENT TO THE PURCHASING OFFICE BEFORE PURCHASE ORDER AND NOTICE TO PROCEED ARE ISSUED.

- 7.6.2 Recordation of certain Change Orders, see General Conditions 1.16 CHANGES TO THE WORK.

7.7 Payments

- 7.7.1 The Contract shall provide payment equal to not more than ninety per cent (90%) of the total contract amount upon completion of the work. The remaining ten per cent (10%) shall be paid forty-five (45) days after the acceptance of the work by the Recovery School District, provided a clear lien certificate is provided by the Contractor.

- 7.7.2 When an engineer, designer, or architect is involved with the project, all pay requests must have his or her original signature on the original pay request forms before they are submitted to the Recovery School District for processing.

- 7.7.3 No notice of completion, delivery memo, invoice, or other document will be signed, or approvals of any type given for any part of the job or delivery of any equipment or materials, except by the Office of Procurement issuing these bidding documents, or his designee, such designation to be made in writing and signed by the Director of Procurement. All work will be done during normal

working hours unless the Director grants prior written approval, or the Scope of Work requires that the work be done after hours.

7.8 Termination of Contract for Convenience

- 7.8.1 The Recovery School District may, at any time, terminate Contract for the Recovery School District's convenience and without cause. Upon receipt of written notice from the Recovery School District of such termination for the Recovery School District's convenience, the Contractor shall: cease operations as directed by the Recovery School District in the notice; take actions necessary, or that the Recovery School District may direct, for the protection and preservation of the Material, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
- 7.8.2 In case of such termination for the Recovery School District's convenience, the Contractor shall be entitled to receive payment for Work executed along with reasonable overhead and profit.
- 7.8.3 Recovery School District shall not be responsible or otherwise liable for any demobilization costs or incidental or consequential damages resulting from such termination.

7.9 Acceptance of the Work

- 7.9.1 Upon substantial completion of the Work, the Recovery School District shall execute a certificate that the whole work provided for in this agreement has been completed and approved under the terms and conditions thereof. The Contractor shall then file the acceptance of the whole work at his expense with the Recorder of Mortgage of the Parish of Orleans.

PART VIII. COMPLETION TIME AND LIQUIDATED DAMAGES

8.1 Contract Time

- 8.1.1 **One hundred and twenty (120)** calendar days from date of Notice to Proceed. The Bidder's attention is especially directed to the urgency of this work and that time is of the essence.

8.2 Liquidated Damages

- 8.2.1 Time is of the essence and completion of the work must be within the Contract Time for Completion-stated in Paragraph 8.1.1., subject to such extensions as may be granted by the Recovery School District for delays identified as beyond the Contractor's control.

The Contractor will be assessed **\$500.00** for each calendar day during which the work remains incomplete following the time specified for substantial completion, not as a penalty, but as acknowledged liquidated damages.

PART IX. PRE-BID MEETING

- 9.1 A Mandatory Pre-Bid Meeting shall be held at the project site. Provisions for the site inspection are included as part of the mandatory Pre-Bid Meeting to be held at **Frederick Douglass, 3820 St. Claude Ave, New Orleans, LA at 3:00 PM on November 7, 2016**. The Pre-Bid Meeting shall also provide opportunity for a review of the Bid Documents. The purpose of the Pre-Bid Meeting is to familiarize Bidders with the requirements of the Project and the intent of the Bidding Documents, and to receive comments and information from interested Bidders.

- 9.2 Any revision of the Bidding Documents made as a result of the Pre-Bid Meeting shall not be valid unless included in an addendum and posted to the LaPAC website.

PART X. INSURANCE

10.1 The Contractor, prior to commencing work, shall provide at his expense, proof of insurance coverage with insurance companies licensed in the State of Louisiana. Insurance shall be placed with insurers with an A.M. Best's rating of no less than A-:VI.

10.2 Insurance requirements are set forth in "Supplement I" of these documents.

- I. The following Indemnification Agreement shall be, and is hereby, a provision of the contract: The other party agrees to protect, defend, indemnify, save and hold harmless the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense 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 the other party, its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by the other party as a result of any claim, demands, and/or causes of action except of those claims, demands, and/or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees. The other party agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent.
- II. All policies and certificates of insurance of the Contractor/Subcontractor shall contain the following clauses:
- a. The Contractor/Subcontractor's insurer will have no right of recovery or subrogation against the Agency, it being the intention of the parties that the insurance policies so affected shall protect both parties and the primary coverage for any and all losses covered by the below described insurance.
 - b. The Agency 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).
 - c. The insurance companies issuing the policy or policies shall have no recourse against the RSD for payment of any premiums or for assessments under any form of policy.
 - d. Any and all deductibles in the below described insurance policies shall be assumed by and be for the amount of, and at the sole risk of the Contractor/Subcontractor.
- III. **INSURANCE:** The Contractor/Subcontractor, prior to commencing work, shall provide at his own expense, proof of the following insurance coverages required by the bid documents to the RSD insurance by companies authorized in the State of Louisiana. Insurance is to be placed with insurers with an A. M. Best's rating of **A-:VI or higher**. This rating requirement may be waived for workers' compensation coverage only.
- Thirty days prior notice of cancellation shall be given to the RSD by registered mail, return receipt requested, on all of the required coverage provided to the Agency. All notices will name the Contractor/Subcontractor and identify the contract number.
- Insurance coverage specified in the GENERAL CONDITIONS (AIA Document A 201, 1997 Edition) to be provided by the Contractor, and any other insurance described below shall be furnished with the following minimum limits:
- a. Workers' Compensation - Statutory - in compliance with the Compensation Law of the State. Exception: Employers liability to be \$1,000,000 when work is to be over water and involves maritime exposures.
 - b. Commercial General Liability Insurance with a combined single limit per occurrence for bodily injury and property damage. This insurance shall include coverage for bodily injury and property damage, and include the following coverages:
 - 1.Premises - Operations;
 - 2.Broad Form Contractual Liability;
 - 3.Products and Completed Operations;

- 4. Use of Contractors and Subcontractors;
- 5. Personal Injury;
- 6. Broad Form Property Damage;
- 7. Explosion, Collapse and Underground (XCU) Coverage.

NOTE: On the certificate of insurance, under the description of operations, the following wording is required: THE AGGREGATE LOSS LIMIT APPLIES TO EACH PROJECT, or a copy of ISO form CG 25- 03 (current form approved for use in Louisiana) shall be submitted.

COMBINED SINGLE LIMIT (CSL) - AMOUNT OF INSURANCE REQUIRED

Type of Construction	Projects under \$100,000	Projects \$100,001 up to \$1,000,000	Projects over \$1,000,000
New Buildings:			
Each Occurrence/ Minimum Limit	\$500,000	\$1,000,000	\$3,000,000
Aggregate (applicable to this contract only)	\$500,000	\$1,000,000	\$3,000,000
Renovations:			
Each Occurrence/ Minimum Limit	\$500,000	\$1,000,000	\$3,000,000
Aggregate (applicable to this contract only)	\$500,000	\$1,000,000	\$3,000,000

c. Business Automobile Liability Insurance with a combined single limit of \$1,000,000 per occurrence for bodily injury and property damage, unless otherwise indicated. This insurance shall include for bodily injury and property damage the following coverages:

- 1. Owned automobiles;
- 2. Hired automobiles;
- 3. Non-owned automobiles

d. An Umbrella Policy may be used to meet minimum requirements.

- 1. All property losses shall be made payable to and adjusted with the Agency.
- 2. All policies of insurance shall be approved by the contracting Agency prior to the inception of any work.
- 3. Other insurance required is as follows:

Owner's Protective Liability (OPL) Insurance shall be furnished by the Contractor and naming the State of Louisiana as the Named Insured for projects over \$50,000.

	Projects under \$100,000	Projects \$100,001 up to \$1,000,000	Projects over \$1,000,000
CSL- Each Occurrence:	\$500,000	\$1,000,000	\$3,000,000

VII. Property Insurance

The General Contractor shall purchase and maintain property insurance upon the entire work included in the contract for an amount equal to the greater of the full-completed value or the amount of the construction contract including any amendments thereto. The general contractor's policy shall provide "ALL RISK" Builder's Risk insurance (Extended to include the perils of wind, collapse, vandalism/malicious mischief, and theft, including theft of materials whether or not attached to any structure). The "All Risk" Builder's Risk insurance must also cover architect's and engineer's fees that may be necessary to provide plans and 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 those repair and/or replacements

Flood coverage shall be provided by the Contractor on the first floor and below for projects North of the Interstate Corridor beginning at the Texas – Louisiana border at Interstate 10 east to the Baton Rouge junction of Interstate 12, East to Slidell junction with Interstate 10 to the Louisiana – Mississippi border. Flood sub-limit shall equal an amount no lower than 10% of the total contract cost per occurrence. Coverage for roofing projects shall not require flood coverage.

On projects South of this corridor, flood coverage shall be provided by the State of Louisiana, as the owner, through the National Flood Insurance Program (NFIP). The Contractor will be liable for the \$5,000 deductible on the NFIP policy from the Notice to Proceed date through the Notice of Final Acceptance date of the project.

A specialty contractor shall purchase and maintain property insurance upon the system to be installed for an amount equal to the greater of the full-completed value or the amount of the contract including any amendments thereto. The specialty contractor may provide an installation floater with the same coverage as the "ALL RISK" Builder's Risk insurance policy.

The policy must include the interest of the Owner, Contractor, and Subcontractors as their interest may appear. The contractor has the right to purchase coverage or self-insure any exposures not required by the bid specifications, but shall be held liable for all losses, deductibles, self-insurance for coverage not required.

Policies insuring projects involving additions, alterations or repairs to existing buildings or structures 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 the State of Louisiana, Policy of self-insurance or any commercial property insurance policy purchased by the State of Louisiana, Office of Risk Management (ORM) covering in excess of the State of Louisiana, policy of self-insurance, this company agrees to the following procedure to establish coverage and/or the amount of loss:

Any party to a loss may make a written demand for an appraisal of the matter in disagreement. Within 20 days of receipt of written demand, this company 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 will select a competent and impartial umpire. The appraisers will 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 loss that must be borne by each policy. If the 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 loss. Each insurance company (or ORM) agree that the decision of the appraisers and the umpire, if involved, will 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.

VIII. If, at any time, any of the said policies shall be or become unsatisfactory to the Agency, as to form or substance, or if a company issuing any such policy shall be or become unsatisfactory to the RSD, the Contractor/Subcontractor shall promptly obtain a new policy, submit the same to the RSD for approval and submit a certificate thereof as herein above provided.

Upon failure of the Contractor/Subcontractor to furnish, deliver and maintain such insurance as above provided, this contract, at the election of the Agency, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor/Subcontractor to take out and/or to maintain or the taking out and/or maintenance of any required insurance shall not relieve the Contractor/Subcontractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with the obligations of the Contractor/Subcontractor concerning indemnification. The Agency reserves the right to require complete, certified copies of all required insurance policies at any time.

INFORMATION FOR BIDDERS

RISKS AND INDEMNIFICATIONS ASSUMED BY THE CONTRACTOR

- A. Neither the acceptance of the completed work or payment therefore shall release the Contractor/Subcontractor from his obligations from the insurance requirements or indemnification agreement.
1. Additional insurance may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the "Special Conditions" of the contract specifications.
 2. If any of the Property and Casualty insurance requirements are not complied with at their renewal dates, payments to the Contractor/Subcontractor will be withheld until those requirements have been met, or at the option of the RSD, the RSD may pay the Renewal Premium and withhold such payments from any monies due the Contractor/Subcontractor.
 3. All property losses shall be made payable to and adjusted with the RSD.
 4. All policies and certificates of insurance shall be approved by the contracting agency prior to the inception of any work.
 5. Other coverages may be required by the RSD based on specific needs. If such other coverages are required for this contract, those coverages will be described in the "Special Conditions" of the contract specifications.
 6. If at any time any of the foregoing policies shall be or become unsatisfactory to the Agency, as to form or substance, or if a company issuing any such policy shall be or become unsatisfactory to the RSD, the Contractor/Subcontractor shall, upon notice to that effect from the RSD, promptly obtain a new policy, submit the same to the Agency for approval and submit a certificate thereof as herein above provided. Upon failure of the Contractor/Subcontractor to furnish, deliver and maintain such insurance as above provided, this Purchase Order, at the election of the RSD, may be forthwith declared suspended, discontinued or terminated. Failure of the Contractor/Subcontractor to take out and/or maintain or the taking out and/or maintenance of any required insurance, shall not relieve the Contractor/Subcontractor from any liability under the Contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the Contractor/Subcontractor concerning indemnification. The RSD reserves the right to require complete, certified copies of all required insurance policies at any time.

SUBCONTRACTORS

Contractor shall include all subcontractors as insured's under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

CERTIFICATES OF INSURANCE

Contractor shall furnish the RSD with certificates of insurance affecting coverage required by this clause. 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 RSD before work commences. The RSD reserves the right to require complete, certified copies of all required insurance policies at any time.

INSURANCE REQUIREMENTS FOR CONTRACTORS

Contractor shall procure 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, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage "occurrence" form CG 00 01 (current form approved for use in Louisiana). "Claims Made" form is unacceptable.
2. Insurance Services Office form number CA 00 01 (current form approved for use in Louisiana) covering Automobile Liability. The policy shall provide coverage for owned, hired, and non-owned coverage. If an automobile is to be utilized in the execution of this contract, and the vendor/contractor does not own a vehicle, then proof of hired and non-owned coverage is sufficient.
3. Workers' Compensation insurance as required by the Labor Code of the State of Louisiana, including Employers Liability insurance.

B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage (or higher limits depending on size of contract.)
2. Automobile Liability: \$1,000,000 combined single limit per accident, for bodily injury and property damage.
3. Workers Compensation and Employers Liability: Workers' Compensation limits as required by the Labor Code of the State of Louisiana and Employers Liability coverage. Exception: Employers liability limit is to be \$1,000,000 when work is to be over water and involves maritime exposure.

C. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and approved by the RSD. At the option of the RSD, either 1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Agency, its officers, officials, employees and volunteers, or 2) the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

D. OTHER INSURANCE PROVISIONS

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

1. General Liability and Automobile Liability Coverages

- a. The Agency, its officers, officials, employees, Boards and Commissions 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. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its officers, officials, employees or volunteers. It is understood that the business auto policy under "Who is an Insured" automatically provides liability coverage in favor of the State of Louisiana.
- b. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the Agency, its officers, officials, and employees, Boards and Commissions or volunteers.
- c. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Workers' Compensation and Employers' Liability Coverage

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

3. All Coverages

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the Agency.

E. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with an A.M. Best's rating of A-:VI or higher. This rating requirement may be waived for workers' compensation coverage only.

F. VERIFICATION OF COVERAGE

Contractor shall furnish the RSD with certificates of insurance effecting coverage required. 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. The Agency reserves the right to require complete, certified copies of all required insurance policies at any time.

INDEMNIFICATION AGREEMENT

The _____ agrees to protect, defend, indemnify, save, and hold harmless the
 {Contractor/Subcontractor/Lessee/Supplier}
 State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants
 and employees, including volunteers, from and against any and all claims, demands, 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 _____, its agents, servants,
 {Contractor/Subcontractor/Lessee/Supplier}
 and employees, or any and all costs, expenses and/or attorney fees incurred by _____
 {Contractor/Subcontractor/Lessee/Supplier}
 as a result of any claims, demands, and/or causes of action except those claims, demands, and/or causes of
 action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards,
 Commissions, its agents, representatives, and/or employees. _____ Agrees to
 {Contractor/Subcontractor/Lessee/Supplier}
 investigate, handle, respond to, provide defense for and defend any such claims, demands, or suits at its sole
 expense and agrees to bear all other costs and expenses related thereto, even if they (claims, etc.) are
 groundless, false or fraudulent.

Accepted by _____

 Company Name

 Signature

 Title

Date Accepted _____

Is Certificate of Insurance Attached? Yes _____ No

Solicitation No.: _____

CONTRACTOR PERFORMANCE AND PAYMENT BOND

(Date)

KNOW ALL MEN BY THESE PRESENTS:

That _____ of _____, as Principal, and _____, as Surety, are held and firmly bound unto the State of Louisiana, and The Recovery School District of New Orleans, in the full and just sum of five (5%) percent of the total amount of this proposal, including all alternates, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U.S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater than the amount for which it obligates itself in this instrument or that it is a Louisiana-domiciled insurance company with at least an A-rating in the latest printing of the A.M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A.M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the obligee on a Contract for:

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

Principal (Bidder)

By _____
Authorized Officer – Owner - Partner

Surety

By _____
Agent or Attorney-In-Fact (seal)

STATE OF LOUISIANA
PARISH OF ORLEANS

FILE NUMBER: _____
P.O. NUMBER: _____
BOND NUMBER: _____

CONTRACT BETWEEN OWNER AND CONTRACTOR
AND PERFORMANCE AND PAYMENT BOND

This agreement entered into this _____ day of _____, 20_____, by _____, hereinafter called the "Contractor", whose business address is _____, and the State of Louisiana, Department of Education, LDOE, Recovery School District, 1615 Poydras St. Suite 400, New Orleans, LA, herein represented by the contracting officer, executing this contract, Patrick Dobard, Superintendent of Recovery School District, 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: To Furnish all labor, materials, tools and equipment necessary for general construction for the Recovery School District - - _____, Orleans Parish, as per the specifications in the ITB in strict accordance with Contract Documents prepared by the agency.

It is recognized by the parties herein that said Contract Documents including by way of example and not of limitation, the Drawings and Specifications in Solicitation Number _____, dated _____ 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 by_____.

Liquidated Damages: Liquidated damages to be assessed per school per day on a sliding scale basis each day the contractor is delinquent in delivering the school for occupancy per the specifications indicated in the bid documentation. The sliding scale will be based on per school contract value. Damages to be assessed as follows:
(you may add penalty per day)

Contract Value _____ Flat Penalty / day _____

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 _____
(in figures)

(in words)

which sum represents the Base Bid.

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 _____
(in figures)

(in words)

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 extensions or other forbearance being hereby waived.

In Witness whereof, the parties hereto on the day and year first above written have executed this agreement in eight (8) counterparts, each of which shall, without proof or accountancy for the other counterparts, be deemed an original thereof.

WITNESSES

OWNER
LDOE RECOVERY SCHOOL DISTRICT

BY _____
Patrick Dobard
SUPERINTENDENT OF RECOVERY SCHOOL
DISTRICT

CONTRACTOR

(Contractor Name)

BY _____
Printed Name: _____
Title: _____

SURETY

(Surety Name)

BY _____
Printed Name: _____
ATTORNEY IN FACT

ADDRESS

TELEPHONE NUMBER

Contract Approved:

This _____ day of _____, 2016

DEPARTMENT OF EDUCATION

BY: _____
Director of Purchasing and Contracts

STATE OF LOUISIANA
PARISH OF ORLEANS

PROJECT NO: _____
NAME: _____
LOCATION: _____

AFFIDAVIT

Before me, the undersigned authority, duly commissioned and qualified within and for the state and parish aforesaid, personally came and appeared _____ representing _____ 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.

(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 services in connection with the construction of the public buildings 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 of the public building or project were in the regular course of their duties for affiant.

PART II.

That affiant, if he be 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 building or project when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public

building or project 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 _____ 20____.

BID DATE: _____

TO: The Recovery School District
Office of Procurement
1615 Poydras Street, Suite 400
New Orleans, Louisiana 70112

Proposal For: _____

Sealed Bid Number: _____

ADDENDA No. _____ Dated _____ No. _____ Dated: _____

No. _____ Dated _____ No. _____ Dated: _____

THE BIDDER: hereby declares and represents that he; a) has carefully examined the Bidding Documents, b) has a clear understanding of the Bidding documents, c) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, d) 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 afore referenced project, all in accordance with the Bidding Documents as prepared by the Recovery School District Purchasing Office and Facility Services.

COMPLETION TIME: The Bidder hereby agrees to commence work under this Contract on a date specified in a written "Notice to Proceed" by the Recovery School District and to fully complete the project within **One Hundred Twenty (120)** consecutive calendar days thereafter, or within the time as may be extended as stipulated in the Bidding Documents.

LIQUIDATED DAMAGES: The Bidder hereby also agrees to pay as Liquidated Damages the sum of **Five Hundred Dollars (\$500.00)** for each consecutive calendar day which the work is not complete beginning with the first day beyond the completion time stated above.

AWARD AND EXECUTION OF CONTRACT: The State shall incur no obligation to the Contractor until the Contract between Recovery School District and Contractor is duly executed.

If the Bidder is notified of the acceptance of the bid within thirty (30) days after the opening of bids, he agrees

to execute and deliver the "Contract Between Recovery School District and Contractor Performance and Payment Bond," a copy of which is attached to the Contract Documents, within five (5) days after notice from the Recovery School District that the instrument is ready for signature.

If the Bidder fails to complete all requirements for executing the "Contract Between Owner and Contractor Performance and Payment Bond" within five (5) days after notification, the Recovery School District may reject the Bid, and award the contract to the next lowest bidder.

REJECTION OF BIDS: The Bidder understands that the Recovery School District reserves the right to reject any or all bids for just cause. In accordance with La. R.S.38:2212 (A) (1) (b), the provisions and requirements of this Section, those stated in the advertisement for bids, and those required on the bid form shall not be considered as informalities and shall not be waived by any public entity.

WITHDRAWAL OF BIDS: The Bidder agrees that this bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled closing time for receiving bids except in accordance with the provisions of R.S.38:2214, C and D. This bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

LICENSE CERTIFICATION: The Bidder should certify that he meets all licensing requirements of this State and is duly and currently licensed under R.S. 37:2150-2173 of the State of Louisiana, and that his Louisiana Contractors License Number is the name of the Bidder shown below shall correspond with the official name on the license.
(Required for bids \$10,000 and up)

BASE BID: For all work required by the Contract Documents (except alternates) the lump sum of:

(figures)

(in words)

My Bid will remain firm for the period of time indicated in the Instructions to Bidders.

ALTERNATES

We, the undersigned, agreed to modify the Base Bid by the amounts stated below for alternates as specified in the Contract Documents. The Owner may accept any or all of the alternates in any order. All alternate work shall be completed within the same time frame as indicated on the Contract Documents for associated work.

Alternate prices shall be inclusive of the costs of materials, labor, balancing and testing of systems as required, overhead and profit, supervision, administration and any and all other costs in connection therewith for work in place and accepted or omitted as the cost may be, and shall hold for the period of time established in the Supplementary General Conditions.

BID ALTERNATE NO. 1 :

Add/Deduct:\$ _____
(figures)

(in words)

BID ALTERNATE NO. 2 :

Add/Deduct:\$ _____
(figures)

(in words)

BID ALTERNATE NO. 3 :

Add/Deduct:\$ _____
(figures)

(in words)

SUBSTITUTIONS

By writing in the words “No Substitutions” on the lines below, we, the undersigned, affirm that we have included all products, materials and systems as specified by name or descriptions (so as to be proprietary) as specified in the project manual, indicated on the drawings or included by the addenda in this Bid without modification.

OR

By indicating below the specification section of each unit of work or item subject to a substitution included with the Bid, we, the undersigned, acknowledge the following:

1. That for each unit of work or item subject to the substitution included with this Bid, we have attached complete evaluation data required for substitutions as indicated in the Instructions to Bidders and General Conditions covering standard of quality and substitutions. Failure to provide complete information will result in rejection of the substitution without revision of Bid cost.

- 2. If any such substitutions are accepted by means of inclusion in the Contract, we will pay to the Owner costs related to such substitution as may be required for redesign or modification to work of other contracts.
- 3. If any such substitutions are rejected, this Bid may be disqualified or, at Owner’s discretion, the Bid may be accepted without such substitutions and without revision to Bid amount. In the case of the latter, we will provide the items or units of work as specified or indicated.
- 4. Substitutions deemed acceptable will be included in the contract only by a Change Order (without changes in time or cost) to be executed with the Agreement.

Specification Section	Item or Unit of Work
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

This Bid is submitted in accordance with and subject to all terms and conditions of the Bidding Documents which are incorporated herein by reference and shall be construed to be part hereof, with the same effect as if such were reported at length herein.

Name of Bidder: _____

By: _____
(Signature)

(typed or printed)

Title: _____

Address: _____

Telephone No: () _____

Date _____

GENERAL CONDITIONS

The general conditions of these specifications, including amendments and additions thereto, apply to each and every heading included in these specifications with the same force as though repeated in full under each heading respectively.

General notes: (see attached drawing)

1. EXISTING CONDITIONS:

All dimensions and conditions tying into or governed by existing construction are approximate and are not purported to be correct. All such dimensions and conditions shall be field verified by the contractor prior to the preparation of shop drawings.

First submittal of shop drawings must contain correct conditions and dimensions obtained from the field. If conditions and dimensions vary greatly from those shown, the contractor shall notify the engineer before preparation of shop drawings.

2. EXISTING UTILITIES:

It is the contractor's responsibility to locate all existing utilities prior to any construction or fabrication. Any conflicts or potential conflicts shall immediately be brought to the attention of the Engineer.

3. DAMAGE TO EXISTING CONSTRUCTION:

All work shall be done in a manner which will not damage adjacent existing construction which is to remain.

4. DISPOSAL OF WASTE MATERIALS:

Remove from owner's property all materials to be demolished as well as all excess excavated material, trash, debris, construction materials, etc. and lawfully dispose of these materials off of the owner's property.

5. EXISTING EQUIPMENT:

The contractor is responsible to temporarily relocate or adjust existing ducts, conduit, stud framing, etc. as required to install new framing or new reinforcing. After repairs are completed existing ducts, conduit are to be placed into their original location. Stud framing, gypsum etc. are to be replaced in kind and area to be left as close to original condition as possible. All materials used for patching shall match existing materials in appearance and quality.

6. SITE INVESTIGATION

Prospective bidders are required to visit the site to make measurements, review existing conditions, and if required, review the Building Plans on file in the Recovery School District Office if the project warrants same. A thorough understanding of the project per these specifications and/or accompanying drawings is imperative. Opportunity for the site visit and inspection is provided under Article 9 of the "Instructions to Bidders."

7. REVIEW OF CONSTRUCTION DOCUMENTS

The Contractor shall carefully study and compare the field conditions, Drawings and Specifications and shall at once report to the Recovery School District Representative errors, inconsistencies or omissions discovered. Maintain one (1) complete set of Construction Documents (Drawings, Specifications, Addenda, and Change Orders) at the site

8. PROJECT MEETINGS

If called by the Recovery School District Representative, a Pre-Construction Meeting between the Contractor, his on-site representative and the Recovery School District Representative will be held in order to clarify and direct Recovery School District policy and specific items of concern as pertain to the Contract. Progress meetings will be scheduled at the discretion of the Recovery School District Representative depending on the progress of the work.

9. COORDINATION

Coordinate installation schedule with the Recovery School District Representative so as not to interfere with the ongoing operation of the Charter School. If for any reason, shut down of utilities is required on this project, it is imperative that the Recovery School District Representative be consulted.

10. SUPERVISION

The Contractor shall provide consistent, capable supervision at all times during the work. Provide telephone service at the Project site. Service may be cellular or hard-wired, at the Contractor's option. Telephone service shall not be discontinued until after final acceptance of the project.

11. SUBSTITUTIONS

Substitutions to specified materials require approval of the Recovery School District Representative prior to bid.(Article 3 of the "Instructions To Bidders".) Substitutions not approved prior to bid are subject to rejection and replacement with the specified materials.

12. SUBMITTALS

Submit all required shop drawings, brochures and samples for review by the Recovery School District Representative prior to ordering and/or installing materials. Equipment or material ordered and/or installed without review by the Recovery School District Representative is subject to rejection. Reproduction and edit of the Contract Documents for use as shop drawings is not permitted.

- a. Shop Drawings: Submit three (3) sets of shop drawings and one (1) will be returned.
- b. Brochures, Cut Sheets, and Technical Data: Submit four (4) copies. Two (2) will be returned.
- c. Samples: Submit one (1) each to be retained by the Recovery School District.

13. QUALITY ASSURANCE

Use new materials of quality acceptable to the Recovery School District Representative and meeting all applicable regulations as pertain to this project. Remove and replace all material delivered to site which,

in the opinion of the Representative, does not meet specifications and quality.

The Recovery School District expects quality workmanship and only those who are qualified to perform the tasks in their respective trades are acceptable. The term qualified above is understood to mean "Journeymen" skilled in their respective trades". Correct, at no expense to the Recovery School District, any work performed which, in the opinion of the Recovery School District Representative, is found unacceptable or not according to code.

Where equipment is furnished as part of the bid, the successful bidder must be equipped to provide prompt factory authorized and qualified local service. The qualified service provider must have been in business locally for a minimum of three (3) years and must have an office within fifty (50) miles of New Orleans, LA. Service manuals for all furnished equipment must be supplied as part of the project.

These manuals must include blueprints and schematics of the equipment supplied. The job will not be considered complete until the required manuals and schematics have been supplied to the Recovery School District.

The use and/or inclusion of any hazardous materials, including, but not limited to, asbestos, PCB, or any other hazardous substance which is forbidden by state or federal regulations, laws, or codes is expressly forbidden. If these materials are found to be present as part of the material or equipment supplied, or if existing hazardous materials were disturbed as part of the work done, all remedial actions, fines, and expenditures will be borne by the Contractor.

14. TRAFFIC CONTROL

Coordinate the schedule of delivery vehicles which will interfere with normal campus traffic. When deliveries are made from the street curb, provide sufficient properly attired and equipped flagmen to safely control and maintain the flow of traffic.

It is the policy of the Recovery School District of New Orleans to provide full access to all disabled individuals in all areas possible. Because of this commitment, contractors, vendors or servicing agencies are cautioned to insure that their staff is made aware of this commitment. When parking on the campus of this Recovery School District, it shall be the responsibility of the contractor, vendor or servicing agency to insure that no sidewalks or access ways are blocked at any time. If temporary blocking is required, the Contractor shall assume the responsibility for the safe transit of all disabled persons. Designated parking areas are shown on the Drawings. Park only in authorized areas; comply with all traffic and parking regulations of the Recovery School District.

15. PROTECTION

Protect adjacent buildings and building elements from damage during the work. Protect the site, including trees, shrubs, and vegetation and lawn areas; where damage does occur, restore to original condition replacing damaged vegetation and lawn with equal size and species.

Store construction materials with care; distribute the weight to not endanger the building structure.

Based on information known to the Recovery School District, certain underground utilities have been shown on the Drawings. Locations indicated are approximate only; Contractor shall verify the exact locations of underground utilities.

Damage to existing utilities shall be immediately repaired by the Contractor at his own expense to restore the interrupted service. Work at night and/or on weekends if deemed necessary by the Recovery School District Representative. Restoration may involve repair and/or replacement of damaged section with new, without credit for condition or useable life of the damaged utility.

16. ROUGH IN INSPECTION

At the completion of the rough-in work, schedule a rough-in inspection for the Recovery School District Representative's approval. Give the Recovery School District Representative a 48 hour notice.

17. CLEANUP

Daily, as it accumulates, remove from the work site, all rubbish, debris and unsalvageable material resulting from the work. Do not permit trash to accumulate. Do not use individual building dumpsters for trash disposal.

18. SAFETY

Provide sufficient continuous barricades to identify the work site and restrict entry. Where necessary, equip barricades with warning lights for night use.

Provide measures necessary to ensure and maintain security at the work site; protect from theft, vandalism, personal injury, and property damage. Erect and maintain temporary enclosures and barriers to prevent unauthorized access to the site.

Where indicated on the Drawings, provide a temporary fence to isolate the construction site and restrict unauthorized entry. Use chain link fence material, 6'-0 minimum height, on steel or wood posts spaced a 6'-0 maximum and embedded 2'-6 minimum below existing grade; include personnel and/or equipment access gates. Coordinate fence installation with underground utilities - see 1.11; before installation, confirm fence location and layout with the Recovery School District Representative.

19. WARRANTY

Warranty all workmanship and material for a period of one year from date of acceptance. During this period, the Recovery School District will notify the Contractor of any discrepancy for prompt correction at no expense to the Recovery School District.

At the discretion and initiation of the Recovery School District Representative, a one-year warranty review meeting with the Contractor will be held to review warranty items which remain incomplete.

20. CHANGES TO THE WORK

When required, changes to the work will be documented and the contract price adjusted by written change order issued by the Recovery School District to the Contractor. Time extensions will be handled by change order.

As per LA R.S. 38:2222: Change Orders must be recorded if they meet the following criteria:

Each change order to a public works contract or to a contract for materials and supplies which adds an amount of ten (10) percent or more of the original contract amount AND which additional amount is at least ten (10) thousand dollars OR all change orders to a contract aggregating to an amount of twenty (20) percent or more of the original contract amount AND which additional amount is at least ten (10) thousand dollars shall be recorded by the public entity which entered into the contract in the office of the recorder of mortgages in the parish where the work is to be done or, if not a public work, where the entity domiciled not later than thirty (30) days after the date of the change order which requires that the recordation take place. In addition, the original contract shall be recorded together with the change orders if not previously recorded.

Itemize material and labor costs. Include quantities and unit costs. Submit a separate breakdown for each

Subcontractor. Document all cost.

Compute overhead and profit as follows:

- a. When all of the work is General Contractor work: 15% of the cost the work.
- b. When the work is all Subcontract work: 15% of the cost of the work for Subcontractor's overhead and profit plus 10% of the cost of the work for General Contractor's overhead and profit.
- c. When the work is a combination of General Contractor work and Subcontract work: 15% of the cost of the subcontract work for Subcontractor's overhead and profit plus 10% of the cost of the Subcontractor's work for General Contractor's overhead and profit plus 15% of the cost of general contract work for General Contractor's overhead and profit.
- d. Cost of the work: all costs necessarily incurred in performance of the work and paid by the contractor. This includes:
 1. Wages paid.
 2. Cost of all materials and supplies.
 3. Rental of necessary machinery and equipment.
 4. Applicable taxes, insurance, fringe benefits, unemployment compensation, social security, old age and bond premiums.
 5. Any other documented costs.

26. ACCEPTANCE

When, in the mutual opinions of the Contractor and the Recovery School District Representative, the work is judged substantially complete, a meeting at the site will be held to inspect the work and to identify and list those items which are incomplete and/or not in compliance with the Plans and Specifications. Consultants to the Recovery School District may be in attendance at the meeting as will the subcontractors invited by the Contractor. The list developed forms the "Punch List" for the project. A value equal to the material, labor, equipment and supervision cost incidental to the completion and/or correction of each item on the Punch List will be assessed by the Recovery School District Representative and Consultants. The total value of all items on the Punch List is designated "Special Retainage" and will be withheld from the Contractor's final payment until all items on the Punch List have been completed and/or corrected.

The project will be accepted at the discretion of the Recovery School District Representative based on the extent of the Punch List. The Acceptance Certificate will be subsequently issued to the Contractor by the Recovery School District.

Unless otherwise required by the Recovery School District Representative and agreed to by the Contractor, all punch list items will be corrected and/or completed within thirty (30) calendar days of the acceptance date.

27. TEMPORARY UTILITIES

The Contractor may use reasonable amounts of the utility services available to the site at no charge from the Recovery School District. The Recovery School District will not provide utility service beyond that existing. Coordinate tie-in and disconnect to the existing utilities with the Recovery School District Representative.

Locate temporary facilities so as not to interfere with the Charter Operator's use of the Project site and/or surrounding areas. Relocate non-complying facilities at no expense to the Recovery School District.

28. AS BUILT DOCUMENTS

Maintain one set of Plans and Specifications on the job site for recording changes to the work and as-built conditions as they occur. Upon completion of the work (at the acceptance inspection) present the record set to the Recovery School District Representative for posting.

29. TEMPORARY SANITARY FACILITIES

Provide sanitary facilities in compliance with governing laws and regulations. Existing plumbing facilities at the site may not be used by construction personnel. Service, clean and maintain facilities and enclosures.

Existing facilities in the building may be used by construction personnel during work on this project.

30. MISCELLANEOUS

Only the General Contractor may erect a job sign: 24" by 36" maximum at a location approved by the Recovery School District Representative before installation.

END OF SECTION

SUPPLEMENTARY CONDITIONS

1.1 RELATED DOCUMENTS

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. The work to be done under this heading includes the furnishing of labor, materials, equipment, and service necessary for and reasonably incidental to the proper completion of all mechanical work as shown on the drawings and herein specified.
- B. Visit and examine the job site, and with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed thereon. No additional compensation will be allowed for failure to be so informed. Pay all costs and fees for utility connections.
- C. Materials and equipment shall be new, except where otherwise indicated, of the best quality, with same brand of manufacturer for all similar material.
- D. All work shall be performed in a neat and workmanlike manner, and in accordance with all codes, standards, and requirements of the industry.
- E. In general, provide the installation of piping, fittings, equipment, etc.
- F. Regardless of titles and subdivisions herein employed, consider these specifications as one complete document with General Section applying to all other sections. All bidders are cautioned to read entire specifications and to thoroughly familiarize themselves with all requirements thereof.
- G. Check all specifications and all drawings and bring to attention any conflicts or variations as shown as noted.
- H. Specifications and accompanying drawings apply to all contracts or sub-contracts entered into for supplying material or labor for construction of work specified herein and shown on drawings.
- I. Protect Recovery School District and Recovery School District Representatives from any and all damages and expense arising from fulfillment of contract and at completion of work repair all damages done.
- J. For any points which are not clear, or for items and/or details which the Contractor feels are in need of clarification, consult the Recovery School District Representative before submission of a proposal.
- K. The drawings and the specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for in the other.
- L. In case of discrepancies and/or ambiguities in the drawings and/or in the specifications, the Recovery School District Representative shall be consulted prior to submission of a proposal. Failure to do so on the part of the successful bidder shall be construed as explicit agreement on his part to abide by the Recovery School District Representative's decision in such matters.
- M. The word "provide" as used in these Specifications and on the Drawings shall be termed to mean "furnish and install".
- N. If the Contractor notices during the bidding any items of the contract documents which will violate any applicable code, these items shall be brought to the attention of the Recovery School District Representative before the bid date. Failure to bring these items to the attention of the Recovery School District Representative shall be construed as explicit agreement that the

Contractor has included in his bid price any and all modifications necessary to complete the project in accordance with all applicable codes.

1.4 QUALITY ASSURANCE

- A. The Contractor bidding on this portion of the work must be fully experienced in installations of equal size, complexity, and quality, and must be licensed as a mechanical contractor to perform such work as required by the Louisiana State Legislature, R.S.37:2152-2163.
- B. In bidding he acknowledges that he fully understands the scope of 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.
- C. Contractor shall recognize that a fault or error in his work remains his responsibility regardless of whether such difficulty was discovered after the work had progressed, and shall make corrections at no cost to the Owner.
- D. Adequate and competent constant supervision shall be provided by Contractor to assure that work is done in accordance with good standard practice and workmanship and with intent of drawings and specifications. Contractor shall recognize that amount of information and detail could be provided to contract documents is limitless and could extend into every minute detail and sequence of operations, to a point where only workmen would be required, without drawing on ability, experience and ingenuity of the Contractor.
- E. All work shall be installed in strict accordance, with all existing local and state codes and ordinances, with National Board of Fire Underwriters
- F. This Contractor shall secure all permits and inspections and shall pay all fees and taxes and shall provide Recovery School District with certificates of approval from agencies having jurisdiction over various phases of work.
- G. Contractor shall maintain and service all equipment until time of acceptance by Recovery School District. Contractor shall include all required service access in the installation as required by the manufacturer and governing codes.

END OF SECTION

Frederick Douglas Senior High School Gymnasium HVAC

SECTION 010100 – SUMMARY OF THE WORK

RELATED DOCUMENTS: Drawings, General Provisions of Contract.

PROJECT WORK AND IDENTIFICATION: Project name is Gymnasium HVAC at Frederick Douglas Senior High School as shown on Contract Documents prepared by Crumb Engineering, LLC dated 08/12/16.

SUMMARY BY REFERENCES: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings and/or Diagrams, Addenda and modifications to the Contract Documents issued subsequent to the initial printing of this project manual and including but not necessarily limited to printed material referenced by any of these. Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions and other forces outside the contract documents. **ALL WORK SHALL COMPLY WITH APPLICABLE FEDERAL, STATE & LOCAL LAWS & REGULATIONS.**

SUMMARY OF WORK: This Project consists of providing new rooftop air conditioning systems and electrical service upgrades as shown on the Contract Drawings and Specifications.

SITE LOCATION: The Project is located at Frederick Douglas Senior High School, 3820 St. Claude Ave, in New Orleans, Louisiana.

CONTRACTOR'S INSPECTION: Prior to commencement of work, inspect areas in which work will be performed. Include in bid price any and all costs required to remove and install equipment shown on the drawings.

PROJECT SUPERINTENDENT: Provide a full-time Superintendent who is experienced in the removal and installation of equipment required in this project. This person is the Contractor's Representative responsible for compliance with all applicable federal, state and local regulations. The Superintendent shall be equipped with a cellphone made available to the Designer for the entire contract time. Once the Designer attempts contact with the Superintendent, a response back shall be attempted immediately.

NOTIFICATIONS: Notify emergency service agencies including fire, ambulance, police or other agency that may service this work site in case of an emergency. Notification is to include methods of entering work area, emergency entry and exit locations, modifications to fire notification or firefighting equipment, and other information needed by agencies providing emergency services.

STOP WORK: All work shall be performed and completed to the satisfaction of the Designer. The Designer reserves the right to stop all operations being performed by the Contractor and require corrective actions in regard to this Project. If corrective actions are not performed or if further operations do not meet the approval of the Designer, then this Project may be cancelled, solely at the discretion of the Designer. Payment will be made to the Contractor for work performed to that date for an amount determined solely by the Designer; no additional payment will be made to the Contractor. No additional contract time will be granted for down time due to corrective actions as required by the Designer. Do not recommence work until authorized in writing by the Designer.

END OF SECTION – 010100

SECTION 010200 – DEFINITIONS, STANDARDS AND ABBREVIATIONS

INDUSTRY STANDARDS

Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.

Publication Dates: Where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.

Conflicting Requirements: Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Designer for a decision before proceeding.

Copies of Standards: Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where acronyms or abbreviations are used in the Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable to the context of the text provision. Refer to the “Encyclopedia of Associations,” published by Gale Research Co., available in most libraries.

END OF SECTION - 010200

SECTION 010250 – CODES, REGULATIONS AND SUBMITTALS

SUMMARY

This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work. Requirements include adherence to work practices and procedures set forth in applicable codes, regulations and standards. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

CODES AND REGULATIONS

General Applicability of Codes and Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor shall hold the Owner and Designer harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

SUBMITTALS

Prior to start of work, submit the following to the Designer for review:

Safety Switches	Rooftop Units
Conduit and Wiring	Insulation
Schedule of Values	Circuit Breakers
Time Schedule	Test and Balance
Temperature Controls	Ductwork Shop Drawings
Fabric Duct	Diffusers, Grilles, Registers
Panelboards	Electrical Gear

No work shall begin until these submittals are returned with Designer's action indicating that the submittal is returned for unrestricted use or final-but-restricted use.

Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work including:

- State Regulations: Submit copies of codes and regulations applicable to the work.
- Notices: Submit notices required by federal and state regulations together with proof of timely transmittal to agency requiring the notice.
- Permits: Submit copies of current valid permits required by state regulations.
- Licenses: Submit copies of all State and local licenses and permits necessary to carry out the work of this contract.

END OF SECTION – 010250

SECTION 010400 - CUTTING AND PATCHING PART 1 - GENERAL

1.1 RELATED DOCUMENTS

The General Provisions of the Contract, including General and Supplementary Conditions, and General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. Furnish all labor, materials, tools, and equipment, and perform all operations necessary for cutting and patching work indicated or specified.
- B. Definition: "Cutting-and-Patching" is hereby defined to include but is not necessarily limited to the cutting and patching of nominally completed and previously existing work, in order to accommodate the coordination of the work, or to uncover other work for access or inspection, or to obtain samples for testing, or for similar purposes; and is defined to exclude integral cutting- and-patching during the manufacturing, fabricating, erecting and installing process for individual units of work. Drilling the work to install fasteners and similar operations are excluded from the definition of cutting-and-patching.

1.3 QUALITY ASSURANCE

- A. Requirements for Structural Work
General: Do not cut-and-patch work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio. Do not cut or core existing concrete joists or beams.
- B. Visual Requirements
General: Do not cut-and-patch work which is exposed on the exterior or exposed in occupied spaces of the building, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut-and-patch work, both as judged solely by the Engineer. Remove and replace work judged by the Engineer to be cut-and-patched in a visually unsatisfactory manner. All concrete shall be saw cut and removed back to nearest expansion joint.

PART 2 - PRODUCTS

2.1 MATERIALS

General: Except as otherwise indicated or approved by the Engineer, provide materials for cutting- and-patching which will result in equal-or-better work than the work being cut-and-patched, in terms of performance characteristics and including visual effect where applicable. Comply with the original materials where feasible and where recognized that satisfactory results can be produced thereby. Provide matching ceiling tile where existing tile is damaged.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Temporary Support: Provide adequate temporary support for work to be cut, to prevent failure. Do not endanger other work.
- B. Protection: Provide adequate protection of other work during cutting-and-patching, to prevent damage; and provide protection of the work from adverse weather exposure.

3.2 CUTTING AND PATCHING

- A. Employ skilled tradesmen to perform cutting and patching. Except as otherwise indicated or approved by the Engineer, proceed with cutting-and-patching at the earliest feasible time, in each instance, and perform the work promptly.
- B. Cut work by methods least likely to damage work to be retained and work adjoining.
- C. Patch with seams that are durable and as invisible as possible. Comply with specified tolerances for the work.
- D. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.
- E. Where patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch, after patched area has received prime and base coats.

END OF SECTION - 010400

SECTION 021000 - DEMOLITION

PART 1 GENERAL

1.1 SCOPE

- A. Perform all demolition as specifically indicated and as otherwise required to achieve the results indicated on the Drawings and in the Project Manual.
- B. Demolition indicated on the Drawings is for the purpose of clarifying conditions and is not intended to portray the full scope of all demolition work.

1.2 PRECAUTIONS

Refer to Supplementary Conditions for requirements for protections, for safety, interruption of services. Particular precautions shall be exercised in the demolishing of components above and around occupied spaces to prevent injury to persons and property. Do not leave pipes, stubs, brackets and other components loose without adequate support and anchorage. Safety of persons during and after construction shall be the Contractor's primary concern. The Contractor shall be responsible to determine and assure that execution of the Work under this Contract in no way endangers occupants of the buildings, site, or any workmen.

1.3 PROTECTION

The Contractor shall be responsible for protecting all components and contents of the buildings, all improvements on the site, all building systems and all equipment, both fixed and movable which may be exposed to damage by the work of this Contract. Particular care must be taken with sensitive equipment which cannot be readily relocated for execution of the work in the areas in which such equipment is located.

1.4 COORDINATION

All demolition work shall be carefully coordinated with the construction schedule and the Owner's activities.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 REMOVAL

- A. Limit demolition and removal to the areas and extent necessary to accomplish the finished results intended. Any demolition beyond what is required shall be replaced to match existing. All demolished materials not indicated to be reused or turned over to the Owner shall be removed promptly from the site by the Contractor.
- B. It is impossible to show every detail of demolition on the drawings. However, when removing existing equipment, piping, conduit and structural elements, remove items back to a point where they are structurally secure and back to a point where they are no longer visible or exposed in occupied spaces or in the way of activity or passage or where these elements will no longer pose a safety hazard. All components shall be terminated in a safe and proper manner.

3.2 SALVAGE

Unless specifically noted on the Drawings or in the Project Manual or indicated at the Pre-Bid Meeting to be saved, all components being removed shall be removed from the site under this Contract. All items indicated to be reused shall be carefully stored for incorporation into the finished project. These items shall be the Contractor's responsibility during the duration of this Contract. All items indicated to be salvaged for the Owner shall be removed in a workmanlike manner and shall be turned over to the Owner at the place of removal or space(s) within the building(s) agreed to in advance by the Owner and Contractor. Owner shall have the option to tag items for his salvage at any time up to the start of demolition.

END OF SECTION 021000

SECTION 220700 - INSULATION

PART 1 GENERAL

1.1 SUMMARY

- A. Provide a complete system of insulation, as herein specified, for both inside and outside of building.
- B. The General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.
- C. Refer to Section BASIC MATERIALS AND METHODS, which is applicable to this Section.
- D. Insulation shall include insulating materials, their applications, finish, bands, tie wire and weather protection for all piping, fittings, valves, and equipment as indicated and specified herein.

1.2 GENERAL

- A. All insulation shall be applied in a workmanlike manner by skilled workmen regularly engaged in this type of work.
- B. All pipe insulation shall have COMPOSITE flame and smoke hazard ratings as tested in accordance with standard testing methods (NFPA) 255 and UL 723).
- C. Composite ratings shall not exceed: flame spread 25, smoke developed 50.
- D. Accessories such as adhesive, mastic, cement, tapes and cloth shall have the same component ratings as listed above.
- E. THE INSULATION CONTRACTOR SHALL CERTIFY IN WRITING, PRIOR TO INSTALLATION, THAT ALL PRODUCTS TO BE USED WILL MEET THE ABOVE CRITERIA.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Certain items in this specification are listed by manufacturer and/or manufacturer's model number to establish general style, type, character, and quality of the product desired.
- B. Where no manufacturer or model number is given, any product meeting performance or design criteria, or referenced trade association standard may be used and Pre-Bid Approval is not required.

2.2 AIR CONDITIONING DRAINS AND REFRIGERANT PIPING

- A. Insulate all air conditioning condensate drains and refrigerant pipe, fittings, flanges and valves with flexible foamed plastic tubing insulation, J-M Aerotube 11, Rubatex, or approved equal. Thickness to be 3/4 inch.
- B. Insulate all horizontal waste piping (new or existing) above ground that receives A/C condensate from drain to vertical stack. Also insulate the "P" trap of those drains. Insulation shall be same as specified for above ground domestic cold water piping, fitting flanges and valves except thickness shall be 1/2 inch for all pipe sizes.

2.3 DUCT INSULATION

- A. DUCT SIZES SHOWN ON DRAWINGS ARE FREE AREA SIZES. See Section 233000 for insulation and duct material and type required for each application. Insulation shall be as per the following:
- B. Lined Duct system - All lined ducts shall be lined with Knauf Duct Liner E-M, Manville Lina-Coustic ductliner, or approved equal. Duct Lining shall be applied in strict accordance with the latest edition of SMACNA's "HVAC Duct Construction Standard Metal & Flexible." Mechanical fasteners shall meet "Standards for Mechanical Fasteners MF-1-1975." Length of mechanical fasteners shall not compress the insulation more than 1/8" and shall be installed perpendicular to the duct surface. Adhesive shall conform to ASTM C 916 and be applied to the sheet metal with a 90% minimum coverage. All exposed edges of the duct liner material shall be coated with the same adhesive. All rips and tears shall also be repaired using adhesive. All internal duct areas shall be covered with duct liner. Transverse joints shall

be firmly butted with no gaps, and coated with adhesive. Longitudinal corner joints shall be overlapped and compressed. For velocities from 4001 to 6000 FPM, metal nosing shall be applied to all upstream transverse edges to additionally secure the insulation." Liner shall be 1" thick, 1.5 PCF.

- C. Exterior Duct Wrap - Exterior insulation duct wrap shall be 2" thick .75 PCF fiberglass wrap with F.S.K. jacket.
- D. Exposed ductwork shall be internally lined as specified above and outdoor exposed ductwork shall be provided with external outdoor duct insulation. Outdoor duct insulation shall be two layer aluminum foil bonded to polyethylene with two inner layers of insulating bubbles. The nominal thickness shall be 5/16" and the insulation shall have a 97% reflectance. Insulation shall be Reflectix Outdoor Duct Insulation or equal.

PART 3 EXECUTION

3.1 WORKMANSHIP AND INSTALLATION

- A. All insulation shall be applied per manufacturer's specifications and installation requirements.
- B. Insulation shall be applied over clean dry surfaces after all test have been performed and approved.
- C. Methods of application and other details not specified herein shall be in accordance with manufacturer's recommendations, which shall constitute minimum standards.
- D. Sheet Metal Saddles - 10" long shall be provided on all hangers supporting insulated lines. They shall be fabricated to conform with the outside diameter of the pipe covering and shall be fabricated from 22 gauge sheet iron for pipe through 2-1/2" 20 gauge sheet iron for pipes through 8" and 16 gauge for all pipes over 8".
- E. A rigid insulation material shall be used at each pipe hanger as an insert and the pipe covering shall pass full thickness through the hangers.

END OF SECTION 220700

SECTION 230500 – GENERAL MECHANICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.

1.2 DESCRIPTION OF WORK

- A. The work to be done under this heading includes the furnishing of labor, materials, equipment, and service necessary for and reasonably incidental to the proper completion of all mechanical work as shown on the drawings and herein specified.
- B. Visit and examine the job site, and with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed thereon. No additional compensation will be allowed for failure to be so informed. Pay all costs and fees for utility connections.
- C. Materials and equipment shall be new, except where otherwise indicated, of the best quality, with same brand of manufacturer for all similar material.
- D. All work shall be performed in a neat and workmanlike manner, and in accordance with all codes, standards, and requirements of the industry.
- E. In general, provide the installation of piping, fittings, equipment, etc.
- F. Regardless of titles and subdivisions herein employed, consider these specifications as one complete document with General Section applying to all other sections. All bidders are cautioned to read entire specifications and to thoroughly familiarize themselves with all requirements thereof.
- G. Check all specifications and all drawings and bring to attention any conflicts or variations as shown as noted.
- H. Specifications and accompanying drawings apply to all contracts or sub-contracts entered into for supplying material or labor for construction of work specified herein and shown on drawings.
- I. Protect Owner and his agents including Construction Manager, Architect and/or Engineer from any and all damages and expense arising from fulfillment of contract and at completion of work repair all damages done.
- J. For any points which are not clear, or for items and/or details which the Contractor feels are in need of clarification, consult the Designer before submission of a proposal.
- K. The drawings and the specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for in the other.
- L. In case of discrepancies and/or ambiguities in the drawings and/or in the specifications, the Designer shall be consulted prior to submission of a proposal. Failure to do so on the part of the successful bidder shall be construed as explicit agreement on his part to abide by the Designer's decision in such matters.
- M. The word "provide" as used in these Specifications and on the Drawings shall be termed to mean "furnish and install".
- N. Contractor shall include in base bid the connection of all sewer, and water piping to mains as shown on the drawings. Contractor shall include all material and all costs for complete installation, including meter fees and connection fees.
- O. If the Contractor notices during the bidding any items of the contract documents which will violate any applicable code, these items shall be brought to the attention of the Architect before the bid date. Failure to bring these items to the attention of the Designer shall be construed as explicit agreement that the Contractor has included in his bid price any and all modifications necessary to complete the project in accordance with all applicable codes.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. All exposed piping and other equipment requiring painting will be painted under PAINTING SECTION. Leave all these surfaces clean of oil, dirt, plaster, etc., ready for painting section's work.
- B. Power wiring for all equipment shall be done under ELECTRICAL SECTION.
- C. Piping penetrations through fire rated partitions/floors shall be fire sealed in accordance with the UL fire resistance directory. See Sealant Specification for materials. The integrity of the fire rating, as indicated on the architectural drawings, shall be maintained.

1.4 QUALITY ASSURANCE

- A. The Contractor bidding on this portion of the work must be fully experienced in installations of equal size, complexity, and quality, and must be licensed to perform such work as required by the Louisiana State Legislature, R.S.37:2152-2163.
- B. In bidding he acknowledges that he fully understands the scope of 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.
- C. Contractor shall recognize that a fault or error in his work remains his responsibility regardless of whether such difficulty was discovered after the work had progressed, and shall make corrections at no cost to the Owner.
- D. Adequate and competent constant supervision shall be provided by Contractor to assure that work is done in accordance with good standard practice and workmanship and with intent of drawings and specifications. Contractor shall recognize that amount of information and detail could be provided to contract documents is limitless and could extend into every minute detail and sequence of operations, to a point where only workmen would be required, without drawing on ability, experience and ingenuity of the Contractor.
- E. All work shall be installed in strict accordance, with all existing local and state codes and ordinances, with National Board of Fire Underwriters
- F. This Contractor shall secure all permits and inspections and shall pay all fees and taxes and shall provide Owner with certificates of approval from agencies having jurisdiction over various phases of work.
- G. Contractor shall maintain and service all equipment until time of acceptance by Owner. Contractor shall include all required service access in the installation as required by the manufacturer and governing codes.
- H. Prior to starting any work, the Contractor shall submit a quality assurance plan for approval by the Architect. In the quality assurance plan, the Contractor shall provide the following information:
 - 1. List of all sub-contractors and equipment suppliers.
 - 2. List of all foreman and job superintendents including job experience for all trades.
 - 3. Construction time schedule demonstrating coordination with other trades and showing detailed time lines for test and balance and commissioning being completed prior to final punch list inspection.

1.5 SUBMITTALS

- A. Shop Drawings and Submittal Data required:
 - 1. Submit to the Designer for review, complete descriptive information and dimensional data on all items of equipment, materials and accessories, including duct, equipment and sprinkler layouts. Piecemeal submissions shall not be approved. Written approval thereof must be obtained before ordering or installation. The following shall be submitted:
 - Packaged Rooftop Units
 - Insulation
 - Diffusers, grilles and louvers
 - Temperature controls

Ductwork shop drawings
Fabric Duct

2. Shop drawings and submittal data shall be considered to be instruments of service only and submitted for the sole purpose of convenience to the Contractor to assist him in the performance of the contract. The Designer's review of the shop drawings and submittal data shall not supersede these specifications, the accompanying drawings, or the contract terms, unless specifically covered by a properly executed change order, and then only to the extent specifically and explicitly stipulated therein.
 3. Submit in accordance with requirements of Architectural Sections, Division 1.
- B. After completion of project Contractor shall turn over to the Designer complete operating and maintenance instructions including listing of supply and repair items and locations of places to purchase same. Comply with requirements of Division 1 Sections.
- C. Substitutions:
1. All material, equipment, methods, and accessories entering into the work under this section of contract are subject to approval or disapproval of the Owner. Approval of any manufacturer, material, or product shall not constitute a waiver of Owner's right to demand full compliance with contract requirements, including shape, size, quality and performance.
 2. Equality of materials is that established by opinion of Owner. Decision of Owner is final.
 3. Whenever a material or article of equipment is specified by use of a proprietary name, or by naming the manufacturer or vendor, any material or article which will perform adequately the duties imposed by the design will be considered for substitution, providing it is of equal substance, and function, meets specifications, and is aesthetically acceptable to the Owner. Refer to Division 1 Sections for approval procedures.
 4. Literature, technical data, etc., includes complete data and samples if necessary, with submissions for substitutions. Burden of proof that material offered for substitution is equal, or superior, in construction and efficiency to that named, rests on Contractor, and unless proof is satisfactory to Designer, substitution will not be approved.
- D. See Specifications for "As-Built" requirements.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

Take necessary precautions to protect all material, equipment, apparatus and work from damage. Failure to do so to the satisfaction of the Designer will be sufficient cause for the rejection of the material, equipment or work in question. Contractor is responsible for the safety and good condition of the materials installed until final acceptance by the Owner.

1.7 JOB CONDITIONS

- A. Accompanying drawings, including plans, details, diagrams, notes, etc., are shown to limit and explain structural conditions, construction requirements, sizes, capacities and method of installation and erection. Structural and other conditions may require certain modifications and adjustments from conditions shown. Such deviations are permissible; however, specific sizes capacities and requirements affecting the satisfactory performance and operation of the installation shall remain unchanged. Make allowance for normal job conditions and interferences.
- B. Whenever it becomes necessary to shift ducts or pipes or to change shape of ducts, such changes shall be referred to Designer for approval.
- C. Ask for details whenever uncertain about method of installation. Lack of details not requested shall not excuse improper installation and correction shall be responsibility of Contractor.
- D. Schedule and perform all mechanical work to avoid delays to the Contractor and other trades.
- E. In addition to the basic work covered under this contract, the Contractor shall plan and schedule the work to permit continuous operation of essential services of existing facilities. Planning shall also include

scheduling necessary interruptions of service on water lines, drain lines, etc., to existing building at times when such interruptions will cause minimum interference with existing routine and services. All such interruptions shall be made only after consultation with the Owner. This is extremely important since included in the work is a relocation and rerouting of and connecting to existing facilities, piping, etc. No additional compensation will be allowed for failure to be so informed.

- F. It is essential that all adjacent areas of the school be kept in operation at all times, except when specific permission is given to contrary. Before any lines or equipment are shut down for disconnecting, tie-ins, or rearranging of services, make arrangements with Designer to do this work at night, or Sunday, or at special time of day or year with length of shutdown agreed upon before work is begun. Contractor to bear any overtime or work costs in the connection.
- G. All piping, cleanouts and covers, and other mechanical items in way of construction or remodeling, shall be rerouted, relocated or otherwise adjusted to work out with such construction or changes shown or specified in any or all of various sections of specifications. Unknown piping that is encountered will be referred immediately to Designer for method of disposition before continuation of work.

1.8 GUARANTEE AND SERVICE

- A. Guarantee all equipment, materials, and workmanship for a period of one (1) year following date of acceptance.
- B. During the period of guarantee any defects in equipment, materials, or workmanship shall be promptly corrected without cost to the Owner.
- C. Guarantee includes equipment capacity and performance ratings specified without excessive noise levels. Any deficiencies in equipment capacity specified shall be promptly corrected.
- D. Guarantee does not include maintenance items.

PART 2 - PRODUCTS

2.1 TOOLS AND SCAFFOLDING

Furnish all tools, equipment, scaffolding and other facilities required to properly and expeditiously perform the work.

2.2 SIPHON PREVENTORS

Furnish and install on all equipment and fixtures requiring same, backflow preventors or vacuum breakers of a type approved by the Louisiana Health and Human Resources. Water connections to fixtures and equipment shall be made in such a way as to prevent back siphonage when the water supply is out or the pressure drops. Provide reduced pressure type back flow preventors where indicated on drawings or required by Code. They shall be Watts series 900 or Febco Series 825, size as indicated on drawings.

2.3 SLEEVES AND THIMBLES

- A. Pipe sleeves - wrought iron or cast iron of sufficient size for piping and installation to be installed in floors, walls below grade, and grade beams where piping passes through.
- B. Thimbles above grade - heavy galvanized steel of proper size to allow freedom of piping and insulation, set in floor or roof slab as work progresses, also to be installed in wall and partitions where piping passes through.
- C. Thimbles below grade - same as pipe sleeves above.
- D. Sleeves through floors extend 1/4" above finished floor. Caulk around and seal all piping in chases and piping passing through floor slab.
- E. Provide sleeve seals and shields for all pipe penetrations of ground floor slab. F. Provide fire-stopping in all pipe penetrations of rated floors and walls.

2.4 BUCKS, GROUNDS AND CHASES

- A. Be responsible for proper location and sizes or for any errors or omission in placing same.
- B. Failure to inform the General Contractor promptly of such requirements shall not relieve the Mechanical installer of the responsibility for providing a complete mechanical system.

2.5 HANGERS

- A. Horizontal piping above grade without hubs shall be rigidly supported. Distance between pipe supports:
 - 1. 1/2" pipe 6'-0" maximum
 - 2. 3/4" pipe 7'-0" maximum
 - 3. 1" pipe 8'-0" maximum
 - 4. 1 1/4" pipe 9'-0" maximum
 - 5. 1 1/2" pipe and over 10'-0" maximum
- B. Hangers shall be similar to "Split Ring" type.
- C. Metal strap or wire will not be acceptable.
- D. For two or more systems of piping run parallel and with same grade trapeze hangers may be used.
- E. Use #22 gauge galvanized sheet steel saddles between the pipe covering and each pipe hanger on all insulated lines. Saddles shall extend along pipe runs and at least half way up piping on each side.
- F. Rods supporting pipe hangers shall have the following dimensions:

1/2" to 2" pipe	3/8" rod	14" to 16" pipe	1" rod
2-1/2" to 3" pipe	1/2" rod	18" to 20" pipe	1 1/4" rod
4" to 5" pipe	5/8" rod	24" pipe	1 1/2" rod
6" pipe	3/4" rod		
8" through 12"	7/8" rod		

Rods for trapeze hangers shall be a minimum of 3/8" and shall have the equivalent cross section, listed above, per pipe supported.

2.6 PAINTING AND IDENTIFICATION

- A. Equipment, including pumps, motors, and similar factory fabricated and assembled units shall be furnished with factory applied protective prime coat paint of finished baked enamel. Equipment surfaces damaged during course of construction or shipment shall be refinished by the Mechanical Contractor.
- B. Uncoated black ferrous piping and fittings shall be cleaned under this section and painted with one coat of enamel paint under PAINTING SECTION. Color of piping shall be selected by Designer. Hangers and supports shall be coated by dipping or brush painting with one coat of asphalt varnish. Steel frame equipment supports shall be cleaned and painted with one coat of aluminum paint.
- C. Detached motor controllers, disconnects, etc., shall be identified with metal or plastic plates with etched letters to completely identify service of electrical equipment.
- D. Major control and sectionalizing valves shall be identified by means of etched brass plates bracketed to valve handle. Contractor shall prepare schedule of such identifying plates for Designer's approval.

PART 3 - EXECUTION

3.1 FLASHING AND COUNTERFLASHING

All pipes and ducts that pass through roof and walls shall run so as not to interfere with the structural system and to permit proper application of base and counterflashing.

3.2 CLEANING, STERILIZING AND PIPING

- A. When all work has been finally tested, Contractor shall clean all pipes and exposed work.
- B. All pipes shall be free from all obstructions.
- C. All plated and other finished products shall be thoroughly cleaned and polished.
- D. All piping shall be installed so that it may expand and contract freely without damages to equipment, other work, or injury to piping system. All necessary swing joints, expansion joints, or offsets to protect piping, etc., shall be installed whether indicated or not. Piping shall be graded to allow for system drainage.
- E. All piping shall be installed and sized as indicated on plans and be of equivalent materials to piping as hereinafter specified.
- F. All piping shall be installed with runs arranged parallels or perpendicular to walls and ceilings with symmetrical and equal spacings between parallel pipes. Offsets shall be made using factory fittings, bending of piping shall not be accepted.
- G. Notify Engineer a minimum 72 hours prior to enclosing piping in concealed spaces so that piping may be inspected.

3.3 TESTING AND INSTRUCTION

- A. Piping shall be tested to pressure hereinafter specified. Where pressures are not mentioned, it shall be understood that testing to 1-1/2 times service conditions, before insulation is applied, will be acceptable. All tests shall be held for a minimum of 24 hours before inspection.
- B. Furnish all necessary gauges, pumps, test plugs, and temporary connections and shall test sections of the building as work progresses.
- C. All new chilled and condensed water piping shall be tested to 150 PSI for a period of four hours. Domestic water makeup piping shall be tested to 100 PSI for a period of four hours.
- D. All tests shall be made in the presence of the Designer or his representative. Where pipes or connections in new piping are found to leak, they shall be made tight and the tests repeated.
- E. Thoroughly check the operation of each item of equipment and controls while testing, without waiting first for the Owner or Designer to complain about their operation. Verify that same are wired correctly and completely, notifying the proper parties for necessary corrections. Thoroughly instruct the Owner's representative in the operation and care of controls, individual equipment, and entire system. Provide training for each equipment item to include recommended maintenance procedures, control adjustments and system installation specifics. The following is the minimum training period for each item of equipment:
 - BAS System – 4 hours
 - Overall HVAC System – 8 hours

3.4 CUTTING AND PATCHING

Cooperate to the fullest extent with all other trades to reduce to a minimum the amount of cutting and patching of other work necessary for this installation. Do not cut or patch the work of other trades but arrange to provide cutting templates in time, or otherwise pay the respective other contractors for changing theirs, to accommodate this work. No cutting into any structural units likely to impair the strength shall be done without the approval of the Designer.

3.5 CLEAN UP

Remove debris, surplus and waste materials, oil, grease or stains resulting from the work performed and leave the premises in a broom clean condition AT THE END OF EACH WORKING DAY. All debris, surplus and waste material shall be removed completely from the job site.

3.6 WELDING

- A. Codes and Standards
 - 1. American Society of Mechanical Engineers (ASME) B31.1
 - 2. ASME Boiler and Pressure Vessel Code – Section V and IX
 - 3. American Welding Society (AWS) D10
- B. Qualifications for Welding Work: The fabricator and/or installer shall qualify each welder or welding operator for the welding processes to be used during production and field welding. The performance qualification shall be in accordance with a qualified Welding Procedure Specification (WPS). The WPS shall be governed by the essential variables listed in ASME Section IX and AWS D10.9 as may be applicable for the welding processes for which the welder is being qualified. Provide certification that the welders performing work on this project are qualified in accordance with the WPS, as well as the parameters used in the qualification.
- C. Welds shall be in accordance with ASME and AWS standards as qualified under ASME Section IX. Owner shall employ a testing agency to perform a visual inspection of 5% of the welds in accordance with ASME Section V. The following visual examination indications shall be deemed unacceptable and shall be corrected at Contractor's expense:
 - 1. Cracks on external surfaces
 - 2. Surface undercut greater than 1/32 inch deep
 - 3. Weld reinforcement greater than specified in ASME Table 127.4.2
 - 4. Lack of fusion on surface
 - 5. Incomplete penetration

Future inspections for failed welds shall be tested at Contractor's expense.

3.7 COMMISSIONING

- A. Contractor shall install all items of equipment as identified in this specification in strict accordance with manufacturer's requirements (whether identified in this specification or not), shop drawings and contract documents. Contractor shall coordinate with Electrical and Temperature Control Contractors to insure a complete installation. Start-up of all equipment shall be by manufacturer authorized representative, unless specific equipment is allowed in writing, by the Engineer, to be started up by the installing Contractor. Start-up services shall be provided for as long a period of time as is necessary to insure proper operation of the equipment items. The start-up technician shall conduct all operating tests as required to insure the equipment is operating in accordance with design parameters. Complete testing of all safety and emergency control devices shall be made. The start-up technician shall submit a written report to the engineer (prior to final punch list inspection) containing all test data recorded as required above and a letter certifying that the equipment is operating properly.
- B. Other specific items of commissioning shall be as follows:
 - 1. Visually inspect insulation system to verify that insulation is continuous and vapor barrier is complete. Verify there is no condensation or hot spots, correct as required.
 - 2. Thoroughly test all piping systems to insure no leaks are present. Adjust valves, pressure reducing valves, etc., as required by operating characteristics of the system. Set pressures of domestic water systems.
 - 3. Vibration isolation shall be tested by running equipment and checking deflection of spring isolators. Make adjustments as required. No isolator shall be fully compressed.
 - 4. Piping shall be checked to insure direction of flow.
 - 5. Coordinate with section BAS Contractor to insure mechanical systems operate in accordance with plans and specifications.
 - 6. Provide written reports for all startup and commissioning tests for Engineer review prior to final punch list inspection.

7. Functional test all equipment.
8. Coordinate with test and balance contractor to determine proper setpoints for all adjustable equipment. BAS contractor shall utilize this information for control setpoints.

END OF SECTION 230500

SECTION 230593 – TESTING AND BALANCING OF AIR SYSTEMS

1.1 DESCRIPTION

- A. The Contractor shall furnish all labor, equipment and services necessary for and incidental to Air Systems Testing and Balancing.
- B. The Contractor shall procure the services of an independent testing and balancing agency. The Testing and Balancing Agency (TBA) specializes in testing and balancing of heating, ventilating, air-moving equipment, air-conditioning system and Hydronic systems. The Contractor shall award the test and balance contract to the above agency as soon as possible after receipt of contract.
- C. Testing and Balancing shall not begin until the systems have been completed and are in full working order.
- D. Shop drawings must be provided to the TAB firm no later than 30 days after the final, approved shop drawings have been returned by the Owner's Representative.
- E. Duct leakage testing shall be the responsibility of the TBA subcontractor.
- F. Fire and smoke damper testing shall be done by the contractor and witnessed by the TAB firm.
- G. The final and complete Test and Balance Report shall be submitted, for approval, not less than two weeks before a final inspection of the Project is requested by the General Contractor. Failure to provide the Report shall be cause to delay the final inspection until the Report is Approved .
- H. Contractor is cautioned that test and Balance Report shall include both Grille counts, and Supply, Return, Outside Air and Exhaust Duct Traverses so that duct leakage can be calculated.

1.2 REFERENCES

- A. AABC – National Standards for Total System Balance.
- B. NEBB – Procedural Standards for Testing, Adjusting, and Balancing.

1.3 SUBMITTALS

- A. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- B. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for University Representative and for inclusion in operating and maintenance manuals.
- C. Provide reports in soft cover, letter size, binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating, thermostat locations.

1.4 QUALITY ASSURANCE

Perform total system balance in accordance with AABC National Standards for Field Measurement and Instrumentation, Total System Balance or NEBB Standards – Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems or Testing Adjusting and Balancing Bureau (TABB)-National Standards for Environmental Systems Balance.

1.5 QUALIFICATIONS

TBA shall be a Company specializing in the testing, adjusting, and balancing of systems specified in this Section with minimum three years experience.

PART 2 - PRODUCTS

2.1 ADJUSTMENT DEVICES

Replacement of adjustable pulleys, additional balancing dampers, additional fan belts, pressure taps and fitting, hydronic balancing valves and any other devices or equipment required to effect proper testing, adjusting and balancing shall be provided shall be provided by the Contractor at no additional cost to the Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
1. Systems are started and operating in a safe and normal condition.
 2. Temperature control systems are installed complete and operable.
 3. Proper thermal overload protection is in place for electrical equipment.
 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 5. Duct systems are clean of debris.
 6. Fans are rotating correctly.
 7. Fire and volume dampers are in place and open.
 8. Air coil fins are cleaned and combed.
 9. Access doors are closed and duct end caps are in place.
 10. Air outlets are installed and connected.
 11. Duct system leakage is minimized.
- B. Beginning of work means acceptance of existing HVAC conditions.

3.2 INSTALLATION TOLERANCES

- A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 5 percent of design for return and exhaust systems.
- B. Air Outlets and Inlets; Adjust total to within plus 5 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 5 percent of design.

3.3 ADJUSTING – GENERAL

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark setting of valves, dampers, and other adjustment devices allowing setting to be restored. Set and lock memory stops.
- C. After adjustment, take measurement to verify balance has not been disrupted or that such disruption has been rectified.
- D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.
- E. 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, shall not exceed 10% of the total number tabulated in the report.

3.4 AIR SYSTEMS PROCEDURE (MINIMUM REQUIREMENTS)

- A. Test and adjust fan RPM to design requirements.
- B. Test and record motor full load nameplate rating and actual ampere dra
- C. Test and record system static pressures, fan suction and discharge.
- D. Adjust all main supply and return air duct to proper design CFM.

- E. Test and adjust each diffuser, grille and register (new and existing as indicated on drawings). Reading and tests of diffusers, grilles and registers shall include design velocity (FPM) and as adjusted velocity, design CFM and adjusted CFM.
- F. Test and record outside, mixed air and discharge temperatures (D.B. for heating cycle, D.B. and W.B. for cooling cycle).
- G. In coordination with the ATC contractor, set adjustments of automatically operated dampers to operate as specified, indicated and/or noted.
- H. Test and adjust air handling and distribution systems to provide required or design supply, return, outside and exhaust air quantities.
- I. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
- J. Measure air quantities at air inlets and outlets.
- K. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- L. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.
- M. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- N. Provide system schematic with required and actual air quantities recorded at each outlet or inlet
- O. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.
- P. Adjust outside air automatic dampers, outside air, return air and exhaust dampers for design conditions.
- Q. Measure temperature conditions across air, return air, and exhaust dampers to check leakage.
- R. Where modulating dampers are provided, take measurement and balance at extreme conditions.
- S. Measure and record pressure differentials between designated spaces.

3.5 REQUIRED REPORTS TO BE SUBMITTED

The following reports shall be submitted, as a minimum, with a complete Title Page, Summary , and Instrument List. All data and nomenclature shall be provided, as required by AABC and/or NEBB Procedure manuals, for each device tested and balanced.

- 1. Air Moving Equipment.
- 2. Air Distribution Test Sheets.
- 3. Duct Traverses

3.6 COMMISSIONING

- A. Balancing Agency shall coordinate with the Contractor the Commissioning requirements as here-in-before specified.
- B. Contractor is cautioned that the Owner, thru the Owner's Representative, reserves the right to check and verify any and all points and readings of the Test and Balance report. If 15% or more of the points do not agree with the report, then the Contractor shall re-test and re- balance the entire project and submit a complete new Report. If 15% or more of this new Data is independently verified and still does not agree with the Contractor's new Report, then the Owner has the right to hire an Independent Test and Balance Contractor and the Original Contractor shall be held responsible to pay these costs.
- C. All TAB deficiencies shall be corrected when found. Any deficiencies that are (for whatever reason) not corrected immediately shall be shown in the TAB report and listed on a summary sheet in the front of the TAB report. The TAB report must be completed and accepted by the Owner's Representative before the project is accepted and all items on the summary sheet shall become punch list items with dollar values assigned to them.

END OF SECTION 230593

SECTION 23 30 00 - HEATING, VENTILATION AND AIR CONDITIONING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The General Provisions of the Contract, including General and Supplementary Conditions and General Requirements apply to the work specified in this Section.
- B. Refer to Basic Materials and Methods Section 233000 which shall apply to work in this Section.

1.2 DESCRIPTION OF WORK

- A. The work to be done under this Section includes the furnishing of all labor, tools, materials, equipment and services necessary for and reasonable incidental to the installation of complete air conditioning and heating and ventilation equipment as shown on plans and herein specified, excepting only work and/or materials indicated as being done and/or furnished under other sections.
- B. Contractor shall refer to other Sections of the Specifications which may be applicable to or associated with this Section.

1.3 RELATED WORK SPECIFIED IN OTHER SECTION

- A. Electrical Section will provide all power wiring including furnishing and installing of disconnect switches where specified. Control wiring for air conditioning equipment shall be provided by Building Automation and Temperature Control Contractor.
- B. Other Sections will provide and install structural supports for equipment. These supports must be checked and coordinated by this Section so that they suit the equipment which is to be supported.
- C. Other Sections will provide all platforms slabs, lintels and curbs, as directed by this Section, to accommodate the mechanical equipment.
- D. Mechanical Contractor shall provide starters for motors furnished under this Section.

1.4 QUALITY ASSURANCE

- A. These specifications with accompanying drawings, require complete apparatus, fully erected and in successful operating condition. Perform all work in best, most substantial manner.
- B. All equipment furnished and installed under this Section shall be U.L. or E.T.L. approved and labeled where applicable.
- C. All unfired pressure vessels furnished under this Section shall be ASME and National Board stamped.
- D. All manufacturers products shall comply with the requirements of this Section.
- E. Employ qualified sheet metal workers in accordance with SMACNA Duct Construction Standards.
- F. Qualify welding/brazing process and welder/brazer performance in accordance with AWS B2.2, Standard for Brazing Procedure and Performance Qualification, or ASME Boiler and Pressure Vessel Code, Section IX (See 15050). Provide copy of certification for welding and brazing processes.
- G. Soldering processes shall conform to ASME B 31.3, Process Piping and Copper Development Association recommended practices.

1.5 SUBMITTALS

- A. Contractor, before beginning work, shall submit dimensional shop drawings (in accordance with requirements of Division 1), for approval, for all duct systems. Contractor is responsible to coordinate all plumbing, piping, sprinkler, ductwork and electrical to avoid all conflicts. Conflicts encountered after work has started will be corrected at Contractor's expense.
- B. Where the equipment installed is of a different configuration and/or size than that shown on the drawings, Contractor shall assume all responsibility to conform with the intent of the contract

documents. The Designer shall be advised of any changes and deviations for his approval. The same shall be true for any field modification required because of "on job" construction conditions.

PART 2 - PRODUCTS

2.1 HVAC DUCTWORK

- A. Provide and install a complete system of ductwork as herein specified to include, but not limit to supply, return, exhaust and fresh air with grilles, registers, diffusers and appurtenance to provide a complete functional and operational system. Duct sizes shown on drawings are free area dimensions. Design shall be as described in the latest edition of SMACNA manuals and as per the following:
1. Galvanized sheet metal shall be lock form quality per ASTM A653 with a G90 zinc coating.
 2. Outside air and exhaust air ducts shall be galvanized sheetmetal with air-tight seams and as per applicable sections of SMACNA manuals for low velocity ducts. Insulate outside air and exhaust air ducts with external wrap as per SECTION 220700.
 3. Supply and return ducts for low pressure system and, low velocity systems shall be galvanized sheetmetal with airtight seams and as per applicable section of SMACNA manuals for low velocity ducts. All ducts shall be insulated with 2" exterior wrap as per Section 220700. Internally line the first 10' of supply and return for sound attenuation.
 4. Rectangular ductwork for medium pressure, high velocity systems shall be galvanized sheetmetal with airtight seams and as per applicable section of SMACNA manuals for high velocity ductwork. Insulate with 2" exterior duct wrap as per Section 220700. Internally line the first 10' of supply and return for sound attenuation.
 5. Round rigid ductwork shall be all round single wall spiral pipe and fittings, galvanized steel, as per applicable sections of SMACNA manuals for high velocity duct. Insulate with 2" exterior duct wrap as per Section 220700. Seal all seams, joints and wall penetrations with hardcast as herein specified.
 6. All ducts shall be sealed per SMACNA Seal Class A. All joints, longitudinal seams and wall penetrations of all supply, return outside air and exhaust ducts shall be sealed with an elastomeric tape which shall consist of a pressure sensitive layer of modified butyl rubber sealer laminated to a foil backing material which shall conform to surface variations and irregular areas and shall not harden crack or peel. The sealant shall be waterproof and shall be a minimum of 15 mils thick. All ductwork shall be cleaned and prepared and sealant shall be applied strictly in accordance with manufacturer's instructions and recommendations. Sealant shall be Hardcast FG-1402, Suretape #653 or approved equal, at Contractor's option flanged gasketed duct system may be used for POSITIVE PRESSURE SYSTEM ONLY.
 7. Flexible round duct where indicated on plans shall be listed by Underwriters' Laboratories, Inc., under UL-181 standards as Class I flexible Air Duct Material complying with NFPA Standards 90A. Ducts shall be rated on maximum pressure of 6 inches WG positive and 2 inches WG negative. The duct shall be factory fabricated assembly composed of: an inner duct of woven and coated fiberglass providing an air seal and bonded permanently to corrosion resistant coated steel wire helix: a 2" thick fiberglass insulating blanket and low permeably outer vapor barrier of fiberglass reinforced metalized film laminate. Pressure drop not to exceed .15" SP at 500 Fpm through 6" or larger duct. Maximum length of flexible duct shall not exceed 8'-0". Connect flexible round duct with ½" wide nylon positive locking nylon straps on inner duct and outer duct.
 8. Splitter dampers shall be installed where branches take off of main trunk ductwork, where ducts divide or where shown on the drawings. Splitters shall be fitted with nickel plated damper regulators in finished areas. Splitters shall be factory fabricated in accordance with SMACNA Duct Construction Standards.

- B. Flexible connections shall be provided between each fan unit and ductwork on supply side and also on return side. Material shall be flexible fire-resistive material, minimum 4" wide, UL listed, with no metal to metal contact. Flexible connection shall not be used on kitchen exhaust.
- C. Duct supports for rectangular ducts shall be a minimum 1" X 18 gauge galvanized steel bands. Hanger bands shall be bent under lower corners and secured with self-tapping screws at corners and six (6") inch intervals up the sides. Distance between hangers shall be as recommended by SMACNA manual for low and medium ductwork. Ductwork shall be rigidly supported to prevent vibration. Duct attachments to structure, lower hanger attachments, ducts traps and rods and trapeze angles shall be in accordance with SMACNA Low Pressure and High Pressure Duct Standards.
- D. Where the ducts pass through walls, draft stops or partitions, the space shall be packed with non-combustible materials, filling all voids around duct.
- E. Fire dampers with fusible links shall be installed at all points in ductwork where indicated on drawings, and/or as required by NFPA, 90-A, AND MECHANICAL CODE OF THE IBC.
- F. Provide radius elbows unless space prohibitive. Rectangular radius elbows shall be factory fabricated with a centerline radius of not less than the width of the duct. Round duct elbows shall have a minimum center line radius of 1-1/2 times the diameter of the duct and shall be smooth where possible. Provide square elbows where space prohibits the use of radius elbows. Square elbows shall be factory fabricated with double thickness airfoil turning vanes pre-assembled and securely attached to runners.
- G. In general, vertical risers and other duct runs, where the method of support specified above is not applicable, or not specifically detailed on drawings, shall be supported by substantial angle brackets designed to meet field conditions, installed to allow for duct expansion and approved by Designer.
- H. Provide exposed operators for operation of dampers and splitters in inaccessible ceilings, operators shall be chrome plated.
- I. Maximum duct leakage shall be +/- 5%, SMACNA Seal Class A. Ductwork between VAV box and air-handling unit shall be designed for 4.0" static pressure. Ductwork between VAV box and diffuser or in constant volume systems shall be designed for 1.0" static pressure. Outside air, return air and exhaust air systems shall be designed for 1.0" static pressure. Construct ductwork in accordance with SMACNA Duct Construction Standards for the specified pressure class.
- J. Install Automatic dampers, airflow stations and other duct mounted devices required by Section 15950.
- K. Flanged gasketed exhaust and return ductwork will not be accepted.
- L. Dimensions of ductwork, shown on plans, are free area dimensions.
- M. Volume dampers shall be opposed blade type with 2" handle standoff for duct insulation.
- N. Dimensions of ductwork, shown on plans, are free area dimensions.

2.3 DIFFUSERS, GRILLES, REGISTERS

- A. All sizes shall be as indicated on drawings.
- B. All outlets shall be balanced to obtain specific air quantities free of all objectionable draft and Noises.
- C. Diffusers, grilles and registers shall be of normal commercial grade as indicated on Schedule on drawings. Refer to Architectural reflected ceiling plan for exact location.
- D. Insulate the back of all diffusers, grates and registers with ¾ Armaflex or Rubatex.

2.4 FIRE DAMPERS

Fire dampers shall be solid sheet curtain type, dynamic closure type corrosion resistant galvanized steel construction. Dampers mounted in the horizontal position shall be closed by a stainless steel negate spring. Damper to be easily reset through standard access panel for required periodic maintenance. Access panels are required for access to all fire dampers, minimum size 12X 12 inches. Dampers shall be 100% out of air stream. Provide fusible links rated at 160 degrees F.

2.5 ACCESS DOORS

Access doors shall be installed in ductwork wherever required for ready access to any operating part. Doors shall not be smaller than 12 X 12 inches, with brass hinge and sash type fasteners. Ducts 30" or larger shall be supplied with minimum 18 X 18 inch access doors. Doors shall be double wall insulated type, hinged with sash locks and gaskets.

2.6 PIPING AND FITTINGS

- A. Furnish and install all piping related to air conditioning systems including chilled water, heating water, condenser water, make-up water piping, air conditioning condensation drains, and other miscellaneous piping.
- B. All piping shall be installed parallel and square with building lines and shall be sloped to permit drainage, with suitable provision for drainage at all low points.
- C. Piping shall be arranged to maintain headroom and keep passageways clear and where necessary shall be offset to maintain the required clearance and conform with the structural features of the building. Contractor shall determine in advance of construction locations for all piping sleeves, hangers, etc. No allowance will be made for extra due to inaccurate location of sleeves, piping or equipment.
- D. All piping shall have provisions for expansion and contraction with anchorage at each point shown on the plans and/or as required.
- E. Full length pipe shall be used where possible, short lengths and couplings will not be permitted. After cutting, all pipes shall be reamed out to full bore and before erection, all cutting and foreign matter shall be removed from the inside of pipes. Screwed joints shall be made tight without caulking or the use of lead or paint and no lubricant shall be used except flake granite and cylinder oil paste, or approved pipe compound applied to make threaded pipe.
- F. Pipe sleeves shall be provided for the passage of all pipe through walls, floors and partitions. G. All condensate drain piping shall be installed using ASTM B88 type "L" hard drawn copper with wrought copper sweat fittings. Changes in direction of piping shall be made with short turn tee pattern or 45 degree wye fittings with brass cleanout plug. Insulate drain piping per Section 220700, minimum drain on fan coil units – 3/4", air handling units – 1-1/4".

2.7 PIPING AND PIPING IDENTIFICATION

All piping at each piece of equipment shall be stencil to show the service and direction of flow. Stencils shall be black on a white background with letters one (1") inch high spaced at approximately forty-eight (48") inches apart by equipment or 10 foot intervals along piping runs.. Pressure-sensitive pipe markers ANSI Standard A 13.1 may be used in lieu of stenciling.

2.8 EXHAUST FANS AND OUTSIDE AIR INTAKES

- A. Size and quantity shall be provided as indicated on drawings.
- B. All roof exhaust fans and roof outside air intakes shall be provided with factory prefabricated curbs.

2.9 VIBRATION ISOLATION SYSTEMS

- A. Work shall include furnishing, installing and testing all material required and hereinafter called for complete execution of the vibration isolation system. Isolation materials shall not be limited to compressors, convertors, air units, pumps, piping, duct work, fans, etc. All motor-connected equipment shall be considered a source of vibration and shall be isolated to prevent vibration and sound transmission. Isolation equipment, as manufactured by Kinetics, Mason Industries or prior approval equal, shall be used. Specific reference to isolation under equipment headings is to provide additional information by which proper selection of the required isolation may be made. Equipment specification data showing physical size, bearing points, weights per point, rotating speeds and sound power levels generated shall be furnished by the respective equipment supplier to the vibration isolation supplier after equipment submittals have been approved.

- B. All mechanical and sound isolation materials specified herein or shown on drawings shall be provided by a single manufacturer to assure singular responsibility for proper selection, application, installation and performance. Substitution for isolation material specified incorporating non-permanent materials, such as cork, rubber, wood pulp, or thermal fiberglass will not be acceptable. Should no specific material be called out for particular use, all mechanical vibration isolation shall be based upon Chapter 46, 1999 A.S.H.R.A.E. Guide-Table 45, "Guide for Selection of Vibration Isolators". Bases, mounts and hangers furnished shall have a nominal deflection equal to the minimum deflection as shown in this guide and shall be furnished on all motor driven equipment requiring isolation as well as piping and duct connected to same.
- C. To assure stability, the spring element to be a large diameter laterally stable spring with load plate and have a lateral stiffness greater than 0.8 times the rated vertical stiffness and be designed to provide up to 50% overload capacity. Each base mount spring shall have a 1" isolation sound pad of elasomeric material.
- D. Isolation shall be stable during starting and stopping of equipment without any transverse or eccentric movement that could damage or adversely affect the equipment or attachments. Isolation systems for floor or ceiling-mounted equipment shall have a maximum lateral motion under start up and shut down of 3/8". Motion in excess shall be corrected by restrained spring- type mounts. Isolators shall be selected for the lowest operating speed of the equipment isolated and shall be located to produce uniform loading and deflection even when equipment weight is not evenly distributed. Static deflection on grade up to 3/8" shall use nominal 1" deflection springs on isolation pads. Static deflection above grade shall use spring isolators with spring deflection based upon 1999 Guide Deflection data. The static deflection of the isolation system shall be selected to avoid being in resonance with the disturbing frequency. All spring isolators shall have neoprene sound damping pads separating isolator from structure.
- E. Submittals shall contain a complete schedule of all equipment to be isolated along with the type of isolator, loading per isolator, static deflection, spring diameters and maximum deflection. Should isolation installed fail to perform satisfactorily in preventing the transmission of vibration, the isolation shall be replaced without cost to owner and properly selected isolators shall be installed.
- F. Water pump bases shall consist of a concrete slab cast into a prefabricated inertia base frame assembly designed and supplied by the isolation materials supplier such as CPF inertia base. Frames shall be welded steel channels with a depth greater than 8% of the longest span between isolators, a minimum of 6" thick or as indicated on the drawings, and shall include 1/2" steel re- enforcing rods on maximum 8" centers each way. Prelocated equipment anchor bolts shall be included. Spring isolator support brackets shall be welded at the corners of the perimeter channel frame with 1/2" reinforcing rods welded 1-1/2" above bottom of bracket running continuously in two directions between all isolator brackets. Inertia bases used to support horizontally split case pumps shall be wide enough to support pipe elbows and may be rectangular or "T" shaped at manufacturers option.
- G. All piping over 1" in diameter and connected to motor-driven equipment shall be spring hung for a minimum of 3 hangers in each direction. The spring deflection for the hanger shall be the same as the spring deflection for the equipment isolated. Mason Model 30N or Kinetics Model SFH.

2.10 PACKAGED DX ROOFTOP UNIT

- A. Acceptable manufacturers include AAON, Addison or approved equal.
- B. Cabinet: Cabinet shall be construction of G-90 galvanized steel with minimum gauge thickness of : Bases – 16 gauge; Corner posts and Tops – 18 gauge; Access panels –20 gauge. The interior of the evaporator air side is to be thermally insulated with 1" thick fiberglass with an R value of 4.2. A closed cell neoprene liner is to be installed on the underside of the base pan for noise reduction and weather seal to the roof curb. The unit will have galvanized, sheet metal liners covering all unit interior surfaces, providing a complete **double wall construction** unit. The cabinet is to be mounted on two steel rails to

facilitate installation. Units shall also have hinged double walled access doors with quarter turn latches for all normal service areas, including fan section, compressor compartment and filter section. Screwed on panels are unacceptable.

- C. Non-Rust Base: Base pan shall be galvanized poured with minimum ¼” hot asphalt to prevent rain water or condensate from contacting base bottom. Any penetrations through the single piece base pan shall have ½” turned lip to prevent moisture from entering the building through unit penetrations.
- D. Electro-Deposition Acrylic Paint Finish: All exterior parts shall be thoroughly cleaned chemically, zinc-phosphate coated and sealed with chromic rinse. Paint shall be electrically deposited by immersion dipping in a cationic electro-deposition paint system. It shall then be baked for minimum twenty minutes at 400 degrees F and shall have a minimum paint film thickness of 1 mil. Paint shall be tested and rated for a minimum of 2500 hours in a 5% salt spray fog test by an independent, certified testing authority. Provide documentation and verification of test with proposal.
- E. Stainless Steel Hardware: All exterior hardware including nuts, bolts, screws, and washers shall be stainless steel (Type 304). Hinges shall be stainless steel piano type. -
- F. Assembly and Test: The unit shall be completely factory assembled and wired thoroughly leak and safety control tested. After assembly, each unit is to be charged and **run tested at design conditions prior to shipment.**
- G. Refrigerant System: The refrigerant system shall include the compressor with crank-case heater, air-cooled condenser coil, high latent heat evaporator coil, thermal expansion valve, filter drier, sight glass-moisture indicator, suction line accumulator and refrigerant pressure service valves. The evaporator and condenser coils are to be copper tube aluminum plate fin. The hermetic compressor shall be warranted by the manufacturer for 5 years from date of installation.

All compressors (both circuits) shall be **digital scroll type** with capability of providing between 10 – 100% infinity capacity control. with internal thermal overload protection and mounted on the compressor manufacturer’s recommended rubber vibration isolators. Compressors shall be mounted in an isolated compartment to permit operation of the unit without affecting air flow when the door to the compartment is open. Compressors shall be isolated from the base pan and supply air to avoid any transmission of noise from the compressor into the building area.

System shall be equipped with thermostatic expansion valve type refrigerant flow control and shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant controls. Unit shall be equipped with Schrader type service fittings on both the high side and low pressure sides of the system. Unit shall be equipped with refrigerant liquid line driers and shall be fully factory charged with refrigerant.

- H. Air Side: The direct drive condenser fans designed for vertical air discharge are to be driven by inherently protected sealed ball bearing fan motors. The evaporator supply blower shall be a Backward inclined airfoil type forward curved type DIDW plug fan (single or multiple array) mounted on a solid steel shaft supported in sealed ball bearings. Both the blower and housing are to be galvanized steel. Blower drive shall be belt type with adjustable pulley. One inch metal mesh cleanable type filters are to be mounted behind the outside air intake panel. **Provide slide out blower assembly with extended wiring harness for ease of service.**
- I. Drain Pan: The condensate drain pan shall be fabricated from type 304 stainless steel G-90 steel, painted in an electro-deposition paint system, and overcoated with an asphalt based mastic. The bottom shall be insulated with 1” fiberglass insulation. The drain pan shall be furnished with single or dual ¾” or 7/8” (threaded) drain fittings exposed to the exterior of the cabinet. Drain pan shall be IAQ pitched type.

- J. Electric Heat: All rooftop units shall be provided with electric heat as scheduled with SCR controls, unit mounted and wired.
- K. Controls: Internally wired controls are to include the compressor, fan and blower motor contractors or starters with auto-reset thermal protection on all inductive loads. The 24- volt control circuit is to include a 75 VA rated transformer. Refrigerant controls are to include a manually reset high pressure control, auto-reset low pressure control, head pressure control, field adjustable refrigerant system lock-out and compressor anti-short cycle timer. Provide 5 minute time delay. Provide phase, undervoltage and overvoltage protection.

Temperature controls are to be Wattmaster/Orion controllers or equal with a electronic sequencing of modulating scroll compressors and sequencing of SCR controlled electric heat.

Unit controller shall be factory furnished, installed, wired and tested. The controller's input and output capabilities can be expanded by use of either 2 slot or 4 slot expansion boards that plug into the controller by means of a modular cable.

The controller shall have the capability to do the following:

- Control Digital Scroll Compressor
- Modulating Electric Heat
- Selectable Control Sensor
- Dew Point Control
- Accepts remote occupied signal
- Dehumidification Control
- 7 Day, 2 Event per Day scheduler built in
- 14 Day, 2 Event per Day scheduler built in
- Optimal start scheduling built in
- Internal Trend Logging
- Supply Air Reset Capability
- Accepts remote HVAC mode selection via contact closure

Field mounted devices shall include a wall mounted room sensor with over-ride and slide adjust and wall mounted humidistat. Field mounted devices shall be installed by the equipment manufacturer.

On constant volume units, the controls shall modulate the digital scroll compressors and SCR controller on the electric heat in response to space temperature. Compressors and hot gas reheat shall stage on humidity control cycle. RTU-1 and RTU-2 shall modulate fan speed based on space temperature. The outside air damper shall close when unit is off and modulate based on CO2 when unit is operating.

Controller shall have built-in temperature sensors and can be operated as stand-alone or integrated with a BACNet energy management system. Controller shall have a high- contrast LCD display with 5- buttons for configuration and operation, and shall indicate space temperature, supply air temperature, and outside air temperature.

- L. Full Perimeter Insulated Plenum Curb: The unit manufacturer's factory built curb shall meet the National Roofing Contractors Association August 1985 guidelines for roof mounted installations. Shipped completely assembled, the curb shall be 14" inches high and of all welded, 16-gauge galvanized steel construction with a 2 X 4 pressure treated wood nailer strip furnished on the outside. The curb shall be fully insulated on all sides and bottom with no factory cut openings. Discharge opening is to be cut by the sheet metal contractor in the field.

M. Accessories: Other accessories to be provided include:

1. Unit mounted power switch for service disconnect.
2. Electric Heating Coil
3. Fully Modulating SCR Controls for Electric Heat
4. MERV 13 Throwaway filters
5. Thermostatic Expansion Valves
6. Single Point Power Connection
7. Factory Start-Up
8. 115 volt convenience outlet for serviceability
9. Stainless Steel Drain Pans
10. Double Wall Construction
11. Factory Roof Curb –Plenum Type and side discharge. See drawings.
12. 5-Year Compressor Warranty
13. Digital Scroll Compressors on all circuits for Infinite Capacity Control
14. Modulating Unit Control System
15. Hot gas reheat with factory humidity control cycle
16. Supply fan VFD's
17. Modulating outside air damper with CO2 sensor
18. UV lights
19. BACnet interface with all points available to BAS system

2.11 FABRIC DUCT SYSTEM

A. DUCTSOX Sedona-Xm Fabric: Air diffusers shall be constructed of a woven fire retardant fabric complying with the following physical characteristics:

1. Fabric Construction: 100% Flame Retardant and treated with a machine wash-able anti- microbial agent from the manufacturer.
2. Weight: 6.75 oz. /yd² per ASTM D3776
3. Color: (Standard: Custom by Designer)
4. Fabric Porosity: 1.5 (+2/-1) cfm/ft² per ASTM D737, Frazier
5. Temperature Range: 0 degrees F to 180 degrees F
6. Fire Retardancy: Classified by Underwriters Laboratories in accordance with the flame spread/smoke developed requirements of NFPA 90-A and ICC AC167.
7. Antimicrobial agent shall be proven 99% effective after 10 laundry cycles per AATCC Test Method 100.

B. SYSTEMS FABRICATION REQUIREMENTS:

1. Air dispersion and extended throws are accomplished by reinforced orifices and permeable fabric. Reinforced orifices are to be installed to keep the integrity of opening and withstand laundry processes.
2. Diameter, quantity, and location of reinforced orifices to be specified and approved by manufacturer.
3. Inlet connection to metal duct via fabric draw band with anchor patches as supplied by manufacturer. Anchor patches to be secured to metal duct via zip screw fastener – supplied by contractor.
4. Inlet connection includes zipper for easy removal / maintenance.
5. Lengths to include required zippers as specified by manufacturer.
6. System to include Adjustable Flow Devices to balance turbulence, airflow and distribution as needed. Flow restriction device shall include ability to adjust the airflow resistance from 0.06 – 0.60 in w.g. static pressure.

7. End cap includes zipper for easy maintenance.
8. Fabric system shall include connectors to accommodate suspension system listed below.
9. Any deviation from a straight run shall be made using a gored elbow or an efficiency tee. Normal 90 degree elbows are 5 gores and the radius of the elbow is 1.5 times the diameter of the DuctSox.

C. DESIGN PARAMETERS:

1. Use fabric diffusers only for positive pressure air distribution components of the mechanical ventilation system.
2. Do not use fabric diffusers in concealed locations.
3. Fabric diffusers shall be designed from 0.25" water gage minimum to 3.0" maximum, with 0.5" as the standard.
4. Fabric air diffusers shall be limited to design temperatures between 0 degrees F and 180 degrees F (-17.8 degrees C and 82 degrees C).
5. Design CFM, static pressure and diffuser length shall be designed or approved by the manufacturer.
6. Each fabric duct system shall be capable of handling 7650 CFM with the configuration as shown on the drawings using a 36" diameter round duct system with 2" openings and a high throw pattern dispersion. The manufacturer shall calculate the number of openings, internal baffles/plates, location of openings, etc required for the design characteristics.

D. SUSPENSION HARDWARE: (include applicable components only)

1. Tension Cable: System shall be installed using a tension cable system including double strands (2 Row) of cable located 3" above the 10 and 2 o'clock locations of the DuctSox system. 2 Row supports are required for systems of 32" diameter and larger. Hardware to include cable, eye bolts, thimbles, cable clamps and turnbuckle(s) as required. System attachment shall be made using nylon cable clips spaced 24 inches.

Component options include:

- a. Plastic Coated Stainless Steel Cable
- b. Adjustable Gripple Mid-Supports

2.12 TEMPERATURE CONTROLS

The rooftop air units shall operate around their factory controls. Unit manufacturer shall program rooftop units. Wire and mount all temperature and humidity sensors and unit controllers.

The system shall have a BACnet interface and shall output each unit to the BAS system. The BAS system shall have remote monitoring and control of all available points. This contractor shall provide necessary wiring and connect to existing control system in the main building across the street. The communication cable shall be run overhead across the street to the mechanical room thru the main building. Verify exact routing with owner.

Provide all required wiring and programming for new rooftop units and graphic interface at existing BAS system. Coordinate with existing BAS system vendor.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All equipment and controls shall be installed in accordance with manufacturer's recommendations.

Installation, adjustments and starting shall be done under supervision of manufacturer's representative.

- B. All ductwork and equipment shall be installed in a neat and workmanlike manner in accordance with the guidelines of NFPA 90-A, SMACNA and the best practice of the trade.
- C. Provide manual firestats, set at 125 degrees F, in return inlets of all fans and blowers and all exhaust fans of 600 cfm and over.
- D. All piping as specified under this section shall be tested to the following pressures: Condensate drain-10 psi
The method of application of tests and duration shall be as described in SECTION 230500. Maximum of 5% pressure loss during the duration will be acceptable.
- E. Upon completion of the installation of all work and equipment the Contractor shall start all equipment and make all necessary tests and adjustments to place entire heating, ventilating and air conditioning systems in a satisfactory condition for continuous safe operation of facilities.
- F. All filters shall be replaced with specified type after period of test and adjustment.

END OF SECTION 233000

SECTION 260010- BASIC ELECTRICAL REQUIREMENTS

PART 1- GENERAL

RELATED DOCUMENTS

All drawings and general provisions of the contract, including General Conditions, Supplementary Conditions, and other Division 1 Specifications, apply to this section.

Separation of Specifications into Sections is for convenience only and is not intended to establish limits of work or liability. The following sections apply to this project:.

260010 - Basic Electrical Requirements
260100 – Basic Electrical Materials and Methods
260400 - Panelboards

DESCRIPTION OF WORK

Furnish all labor, tools, materials, fixtures, equipment, accessories, transportation, etc., required for a complete electrical lighting and power systems, complete with necessary auxiliaries as indicated on the drawings and specifications.

Also included in the work is the power wiring for connection of items indicated on the architectural plans, as well as power wiring for the equipment specified in DIVISION 15- MECHANICAL.

Removal of existing electrical equipment not being reused.

DRAWINGS AND SPECIFICATIONS

All references to division 16 shall reference division 26.

The drawings showing the layout of electrical work indicate the approximate location of transformers, switchboards, panelboards, disconnects, outlets, and conduit routing. The contractor shall refer to architectural, structural, and mechanical drawings as well as equipment manufacturer's shop drawings and rough-in drawings, and adjust work accordingly to provide a coordinated installation. All adjustments and minor deviations necessary shall be made without additional cost to the owner. It shall be the electrical contractor's responsibility to see that all equipment such as pull boxes, junction boxes, panelboards, and other apparatus, that may require maintenance from time to time, is made accessible. Any condition that may occur during construction which conflicts with accessibility to the proposed installation of the electrical equipment, shall be brought to the Designer's attention prior to the point at which a change in location would require additional cost and delays to construction

All electrical gear shall be mounted at or above the first floor slab or base flood elevation, whichever is higher, unless noted otherwise.

The drawings and specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for on the other.

Where the Contractor is not certain about the method of installation, he shall ask the Designer for further installation details. Lack of details, not requested, will not be an excuse for improper installation.

When a color or other condition for a product is specified to be determined by the Designer, the submittal

for that item shall be clearly marked with the available options. (Do not select a color or other condition in the submittal) The Designer shall be specifically asked by the contractor to provide the required information, and that product shall not be manufactured prior to obtaining such information.

LAWS, CODES, AND PERMITS

The latest accepted edition of the National Electrical Code (NFPA 70), National Fire Alarm Code (NFPA 72), and all State, Parish, City, and local building codes shall be considered a part of these specifications, and pertinent articles will not be repeated herein. These codes establish the minimum acceptable criteria where more stringent requirements have not been defined in these specifications and/or drawings.

The Contractor shall apply for all permits and pay all fees incidental to completing the electrical work. This Contractor shall give notice to the proper authorities in ample time for the work to be inspected and approved as it progresses, and no work shall be concealed until inspected and approved by authorized inspectors. If the plans or these specifications in any way conflict with the Code, State or Local Rules, these latter are to be followed, without expense to the Owner, but the Designer shall be notified of this condition and approval secured before changes are made.

Comply with utility company standards. Coordinate all work for installation of metering and all aspects of the service with the utility company prior to roughin.

Upon completion and before acceptance of work, a certificate of approval from the appropriate regulatory agency shall be furnished to the Designer.

No work shall be concealed until approved by the local inspector. Local regulations shall be adhered to.

The contractor shall assure that he does not install electrical equipment including raceways in or through areas restricted by the international building code and local building codes including elevator shafts and stairs.

JOB SITE

Prior to submitting quotation for electrical work, Contractor shall visit and examine the job site with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed thereon. No additional compensation will be allowed for failure to be so informed.

Where existing equipment including raceways and wiring is in conflict with work of this project, the contractor shall rework/reroute/relocate this equipment as necessary.

TEMPORARY POWER

The Contractor shall be responsible for providing temporary light and power to the construction site as necessary to meet all of the OSHA requirements for construction, and as required by the general contractor and various sub-contractors.

SERVICE INTERRUPTIONS

Services to the buildings shall be kept in operation at all times during construction. If a situation occurs that the service needs to be interrupted, the Contractor shall be responsible for contacting the proper authorities to schedule the outage at a time that is convenient to the occupants. It shall be understood that this outage may have to be scheduled after regular working hours or on the weekends. Allowances shall be added to the Contractors bid to cover the cost of any overtime work. This shall come at no additional cost to the Owner after the bid date.

WARRANTY

The contractor shall guarantee all labor and materials for a period of twelve (12) months from the date of final acceptance. All defective materials and work shall be replaced with new materials or equipment. This shall come at no additional cost to the Owner.

PART 2 – PRODUCTS

MATERIALS

Equipment and materials shall be new and shall be listed by Underwriters Laboratories for the purpose for which they are being used. All material of similar use shall be of the same manufacturer.

Substitutions to materials listed on the drawings and specifications can be made as long as they are approved as acceptable by the Designer. Requests for prior approval shall be submitted no later than seven working days prior to bidding. All requests for prior approval shall be in writing by providing a hard copy of the submittal data to the engineer's office.

All termination lugs shall be rated 75 degree C minimum and shall be compatible with the number and size of wires to be terminated.

SUBSTITUTIONS

Names of manufacturers or catalog numbers are mentioned herein in order to establish a standard as to design quality. Other products similar in design and of equal quality may be used if submitted to the Designer and found acceptable by him. Refer to the general conditions for additional information.

Any substitution to items specified, that are not approved prior to bidding, shall be brought to the attention of the Designer and engineer as an alternative product prior to the official submittal of electrical products along with the specific reason for the proposed substitution. Refer to the general conditions for additional information.

When the contractor elects to use an acceptable alternate manufacturer's equipment, the contractor shall be responsible to coordinate the change with all trades affected and pay for any additional work required under this or any other division affected by the substitution.

SUBMITTALS

Within thirty days of the award of the contract, the Contractor shall be responsible for submitting six (6) copies of submittals containing catalog cuts and performance data for all material and equipment proposed for use. These submittals shall be reviewed by the Designer for general compliance to the contract documents. The Designer's review of these submittals in no way modifies the contract or relieves the Contractor from compliance with the contract unless a difference is clearly stated in the submission and specific acceptance is given by the Designer as a change to the contract.

Submittals shall be identified with the project name and the contractor's name and have the contractor's stamp showing that he has reviewed the submittal and found it to be in accordance with the plans and specifications. Submittals shall be bound.

Items of division 16 shall be submitted in one package.

Submittals that do not comply with the above may be returned, without review, for resubmission.

All shop drawings must be reviewed before the various factories start fabrication. The contractor shall allow a minimum of 30 days for this review.

Developing electronic or CAD files shall be the responsibility of the contractor. Electronic CAD drawings will not be provided to the contractor.

PART 3 – EXECUTION

INSTALLATION

Ask for details whenever uncertain about installation methods. Lack of details requested shall not excuse proper installation and corrections shall be the responsibility of the contractor.

AS-BUILT DRAWINGS & OPERATING INSTRUCTIONS

The Contractor shall be responsible for providing As-Built drawings to the Designer at the completion of the project. The Contractor shall make a reproducible set of the original contract drawings, and in a neat and understandable manner, show any significant changes made during construction. Unless noted otherwise in the contract documents, the Contractor shall provide one additional copy of these drawings to the Designer. The Contractor shall pay for all reproduction costs. Final payment shall be withheld until these drawings are accepted by the Designer.

The Contractor shall furnish two bound sets of any operating instructions and maintenance manuals to the Designer upon completion of the project.

CUTTING AND PATCHING

The Contractor shall be responsible for all cutting and patching that is required to complete the installation of the electrical systems. All work shall be coordinated between trades with strict accordance with the requirements of the General Conditions. Structural members shall not be cut or modified without the approval of the Designer.

The Contractor shall be responsible for covering, caulking, or otherwise to make weatherproof all openings left in the structure for electrical work. This includes openings around conduit penetrations.

EXCAVATING AND BACKFILLING

The Contractor shall be responsible for all excavating and backfilling required to complete the installation of the electrical systems. All excess material and debris shall be removed. All backfilling shall be with sand. Backfilling shall be thoroughly tamped and compacted.

It shall be the Contractor's responsibility to locate all underground utilities before trenching and excavating. Care shall be taken to avoid damage to the existing utilities. Any damage shall be repaired or replaced by the Contractor at no expense to the Owner.

PAINTING

No painting shall be required under DIVISION 16, except for factory-finished items. Any damaged surfaces of factory items shall be repaired by the Contractor to an acceptable level determined by the Designer.

EXISTING EQUIPMENT

The Contractor shall be responsible for the removal and reinstallation of any electrical equipment, such as light fixtures, that shall be reused. Any existing electrical equipment that is removed and not reused shall be returned to the Owner. Any material that the Owner does not wish to keep shall be removed from the site by the Contractor.

When existing electrical items such as outlets are removed from service, care shall be taken to keep the integrity of the remaining electrical systems.

SERVICE EQUIPMENT MARKING

In addition to other marking requirements, all service equipment shall be marked with the available fault current and the date of calculation of the fault current. See other areas of these specifications for additional labeling requirements. Labels shall be engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

TESTING AND ADJUSTMENTS

Provide a complete fault current coordination study and an arc flash hazard study and tag all gear accordingly. Provide labeling on all switchgear and switch boards. Adjust all trip and parameter settings in accordance with the calculations.

END OF SECTION 260010

SECTION 260100 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

SUMMARY

This Section includes the following:

1. Raceways
2. Wires, cables, and connections
3. Wiring devices
4. Grounding
5. Safety Switches and fuses
6. Supporting devices for electrical components
7. Equipment for utility company's electricity metering

QUALITY ASSURANCE

Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

Devices for Utility Company Electricity Metering shall comply with utility company published standards.

Comply with NFPA 70.

COORDINATION

Coordinate chases, slots, inserts, sleeves, and openings for electrical supports, raceways, and cable with general construction work.

Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment that requires positioning before closing in the building.

Coordinate electrical service connections to components furnished by utility companies.

Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for service entrances and electricity-metering components.

Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.

Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

PART 2 - PRODUCTS

RACEWAYS

EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel.

FMC: Flexible metal conduit; zinc-coated steel.

IMC: Intermediate metal conduit; ANSI C80.6, zinc-coated steel, with threaded fittings.

LFMC: Liquidtight flexible metal conduit; zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket.

RMC: Rigid metal conduit; galvanized rigid steel; ANSI C80.1.

RNC: Rigid nonmetallic conduit; NEMA TC 2, Schedule 40 or 80 PVC, with NEMA TC3 fittings.

Raceway Fittings: Specifically designed for raceway type with which used.

WIRES, CABLES, AND CONNECTIONS

All conductors shall have 600V insulation type THHN/THWN

Conductors in outdoor underground raceways shall be type THWN

Conductors, No. 10 AWG and Smaller: Solid or stranded copper.

Conductors, Larger Than No. 10 AWG: Stranded copper.

No wire shall be smaller than #12 awg unless noted otherwise.

All conductors shall be copper.

Insulation: Thermoplastic, rated 600 V, 90 deg C minimum, Type THHN-THWN, or USE depending on application.

Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.

WIRING DEVICES

Wall Switches shall be 20A, 277V, AC type designed for quiet operation.

Duplex receptacles shall be 20A/2 pole, 3-wire, 125V, grounding type.

All devices shall be specification grade Hubbell, Leviton, or equal.

All device plates shall be brushed stainless steel with matching counter sunk screws unless noted otherwise. All boxes shall have a cover plate.

Consult with the Designer for color selections before ordering devices. Use multigang plates where devices are grouped together.

Boxes and fittings shall comply with article 314 of the NEC. Particular attention shall be paid to the number of conductors allowed in an outlet box or junction box. Contractor shall make provisions to prevent overcrowding outlet and junction boxes regardless of the number of conductors shown on the plans at the outlets.

In locations where power, combination, and tele/data outlets are mounted together, care shall be taken to minimize the overall spacing along the wall. Consult with the Designer for specific details.

GROUNDING

The grounding system shall be in accordance with N.E.C. Article 250. A grounding conductor shall be provided in all conduit.

SAFETY SWITCHES AND FUSES

Safety switches shall be of the quick-make, quick-break, heavy-duty, fusible or non-fusible type with cover interlock to prevent opening of the door when the switch is in the "ON" position. Use NEMA 3R enclosures outdoors and NEMA 1 enclosures indoors, unless otherwise noted.

Provide a complete set of dual-element, class RK-1 or class J fuses of ampere rating shown on the drawings. Furnish the owner with 20% spare fuses with at least one set for every rating.

All fuses shall have a minimum interrupting rating of 200,000 A.

SUPPORTING DEVICES

Material: Cold-formed steel, with corrosion-resistant coating.

Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch-diameter slotted holes at a maximum of 2 inches o.c., in webs. Strength rating to suit structural loading.

Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.

Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

Expansion Anchors: Carbon-steel wedge or sleeve type.

Toggle Bolts: All-steel springhead type.

EQUIPMENT FOR UTILITY COMPANY'S ELECTRICITY METERING

Comply with requirements of electrical power utility company for current transformer cabinets, meter sockets, and modular meter centers.

PART 3 - EXECUTION

ELECTRICAL EQUIPMENT INSTALLATION

Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.

Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

Right of Way: Give to raceways and piping systems installed at a required slope.

RACEWAY APPLICATION

Outdoor Installations:

1. Exposed: RMC.
2. Concealed: RNC.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4, unless otherwise indicated.

Indoor Installations:

1. Exposed: EMT except in wet or damp locations, use IMC.
2. Concealed in Walls or Ceilings: EMT.
3. In Concrete Slab: RNC.
4. Below Slab on Grade or in Crawlspace: RNC.
5. Connection to Vibrating Equipment: FMC; except in wet or damp locations: LFMC.
6. Boxes and Enclosures: NEMA 250, Type 1, unless otherwise indicated.

RACEWAY AND CABLE INSTALLATION

Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.

Exposed conduits shall be installed with runs arranged perpendicular to walls and ceilings.

Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel. Install pull wires in empty raceways. Leave at least 12 inches of slack at each end of pull wires.

Connect motors and equipment subject to vibration, noise transmission, or movement with a maximum of 72-inches flexible metallic conduit. Install LFMC in wet or damp locations. Install separate ground conductor across flexible connections.

Set floor boxes level and trim after installation to fit flush to finished floor surface.

Unless a larger size is indicated, raceways, troughs, and junction boxes shall be sized in accordance with the fill requirements of the NEC.

Provide color-coding of wires and mark panels in accordance with NEC article 210.5 (C) and NEC article 215.12 (C) when more than one voltage is present for branch circuits.

WIRING METHODS FOR POWER, LIGHTING, AND CONTROL CIRCUITS

Application: Use wiring methods specified below to the extent permitted by applicable codes as interpreted by authorities having jurisdiction.

Exposed Feeders: Insulated single conductors in raceway

Concealed Feeders in Ceilings, Walls, and Gypsum Board Partitions: Insulated single conductors in raceway.

Concealed Feeders in Concrete: Insulated single conductors in raceway. Exposed Branch Circuits: Insulated single conductors in raceway.

Concealed Branch Circuits in Ceilings, Walls, and Gypsum Board Partitions: Insulated single conductors in raceway.

Concealed Branch Circuits: Insulated single conductors in raceway.

Underground Feeders and Branch Circuits: Insulated single conductors in raceway.

Remote-Control Signaling and Power-Limited Circuits, Classes 1, 2, and 3: Insulated conductors in raceway unless otherwise indicated.

Not Allowed: NM for branch circuits.

WIRING INSTALLATION

Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

No wires shall be pulled in until the conduit system is complete. Ideal “Yellow 77” or other approved pulling lubricant shall be used.

Each circuit/homerun shown shall have a separate neutral for each phase conductor. 3 or 4 wire homeruns for multiple circuits are not acceptable. This does not apply to multi-phase circuits. Do not route more than 1 multi-phase circuit in a raceway.

ELECTRICAL SUPPORTING DEVICE APPLICATION

Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, slotted channel system components.

Dry Locations: Steel materials.

Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb minimum design load for each support element.

SUPPORT INSTALLATION

Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

Size supports for multiple raceways or cable runs so capacity can be increased by a 25 percent

minimum in the future.

Support individual horizontal single raceways with separate, malleable-iron pipe hangers or clamps except use spring-steel fasteners for 1-1/2-inch and smaller single raceways above suspended ceilings and for fastening raceways to slotted channel and angle supports.

Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core- drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:

1. Wood: Wood screws or screw-type nails.
2. Gypsum Board: Toggle bolts. Seal around sleeves with joint compound, both sides of wall.
3. Masonry: Toggle bolts on hollow block and expansion bolts on solid block. Seal around sleeves with mortar, both sides of wall.
4. New Concrete: Concrete inserts with machine screws and bolts.
5. Existing Concrete: Expansion bolts.
6. Structural Steel: Spring-tension clamps.
7. Light Steel Framing: Sheet metal screws.
8. Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
9. Light Steel: Sheet-metal screws.
10. Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.

IDENTIFICATION MATERIALS AND DEVICES

Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.

Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines.

ELECTRICITY-METERING EQUIPMENT

Install utility company metering equipment according to utility company's written requirements. Provide grounding and empty conduits as required by utility company.

FIRESTOPPING

Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM- EB14.

- a. Notify the Designer for inspection of all completed fire and/or smoke barrier walls before any construction is installed that would conceal construction and prevent a proper inspection. Access to random selected areas may be required by the Designer at the time of final inspection if this notification is not given.

- b. Provide detailed instructive cut sheets of the fire penetration sealing system used to the Designer at the time of inspection. Random selective sampling by the Contractor will be observed by the Designer and the Fire Marshall's inspector.

MOUNTING HEIGHTS

Unless otherwise noted on the drawings or required by the Designer, the following mounting heights shall apply. Unless noted otherwise, mounting heights are to the centerline of the device:

1. Receptacles 18" above floor
2. Toggle Switches 48" above floor
3. Panelboards 72" to top
4. Meter Can 60"-72" to centerline

Mounting heights may be adjusted in masonry applications to simplify installation where approved by the Designer.

END OF SECTION 260100

SECTION 260400 - PANELBOARDS

PART 1 - GENERAL

SUMMARY

This Section includes distribution and branch-circuit panelboards.

SUBMITTALS

Product Data: For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

Shop Drawings: For each panelboard, including the following:

1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following data:
 - a. Enclosure types and details for types other than NEMA 250, Type 1.
 - b. Bus configuration, and current, and voltage ratings.
 - c. Short-circuit current rating of panelboards and overcurrent protective devices.
 - d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices.
2. Wiring Diagrams: Power, signal, and control wiring.

Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

Operation and maintenance data.

QUALITY ASSURANCE

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.

Comply with NEMA PB 1. Comply with NFPA 70.

PART 2 - PRODUCTS

MANUFACTURERS

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. Siemens Energy & Automation, Inc.
2. Square D Co.
3. General Electric

FABRICATION AND FEATURES

Enclosures: Flush- and surface-mounted cabinets. NEMA PB 1, Type 1, suitable for environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
3. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.

Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.

Directory Card: A clear plastic directory holder shall be mounted inside panelboard door.

Provide arc flash hazard warning labels on all sections.

Bus: Hard-drawn copper, 98 percent conductivity.

Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.

Panelboard Short-Circuit Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

Panelboards with Main Service Disconnect: Listed for use as service equipment.

Spaces for Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

Feed-through Lugs: Locate at opposite end of bus from incoming lugs or main device.

DISTRIBUTION PANELBOARDS

Doors: Front mounted, and secured with vault-type latch with tumbler lock; keyed alike.

Branch overcurrent protective devices shall be one of the following:

1. Bolt-on circuit breakers.
2. Fused switches.

INTEGRATED TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICES

Surge Protective Device (SPD)

1. SPD shall be Listed and Component Recognized in accordance with UL 1449 Second Edition to include Section 37.3 highest fault current category. SPD shall be UL 1283 listed.
2. SPD shall be installed by and shipped from the electrical distribution equipment manufacturer's factory.
3. The TVSS devices in lighting and appliance panelboards shall be bus mounted between the main and branch devices. TVSS devices bussed off the end of the panelboard are not allowed. Panelboards with TVSS will accommodate thru-feed lugs and sub-feed circuit breakers in single section and multi-section panelboards.
4. The TVSS devices in power distribution panelboards shall be cable connected.
5. SPD shall provide surge current diversion paths for all modes of protection; L-N, L-G, N- G in WYE systems.
6. SPD shall be modular in design. Each mode including N-G shall be fused with a 200kAIR UL recognized surge rated fuse and incorporate a thermal cutout device. TVSS shall safely reach an end-of-life condition when subjected to fault current levels between 0 and 200 kA, including low level fault currents from 5 to 5000 amperes.

7. Audible diagnostic monitoring shall be by way of audible alarm. This alarm shall activate upon a fault condition. An alarm on/off switch shall be provided to silence the alarm. An alarm push to test switch shall be provided.
8. SPD shall meet or exceed the following criteria:
 - a. Minimum surge current capability (single pulse rated) per phase shall be:
 - 1) Service Entrance Panelboard locations: 240kA per phase
 - 2) Distribution and lighting and Appliance Panelboard locations:
160kA per phase
 - b. UL 1449 Suppression Voltage Ratings:

<u>VOLTAGE</u>	<u>LOCATION</u>	<u>L-N</u>	<u>L-G</u>	<u>N-G</u>
208Y/120V	Distribution:	400V	400V	400V
480Y/277V	Distribution:	800V	800V	800V
9. SPD shall have a minimum EMI/RFI filtering of up to -30 dB over the range of 100 kHz to 100 MHz.
10. SPD shall be provided with one set of NO/NC dry contacts.
11. The manufacturer of the electrical equipment in which the TVSS is installed shall warrant the integrated TVSS device to be free from defects in material and workmanship for a period of ten (10) years from the date of invoice the manufacturer or its authorized sales channel.

OVERCURRENT PROTECTIVE DEVICES

Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with 5mA trip sensitivity.
3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
4. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage. Verify exact voltage of shunt trip with fire alarm vendor.

Fused Switch: NEMA KS 1, Type HD; clips to accommodate indicated fuses; lockable handle.

PART 2 - EXECUTION

INSTALLATION

Install panelboards and accessories according to NEMA PB 1.1.

Mounting Heights: Top of trim 86 inches above finished floor, unless otherwise indicated. Highest switch or breaker at 72" max above finished floor.

Mounting: Plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

Install filler plates in unused protective device spaces.

Wiring in Panelboard Gutters: Arrange conductors into groups and bundle and wrap with wire ties after

completing load balancing.

Locate panelboards so that ratings are not reduced by heat from external sources.

IDENTIFICATION

Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Basic Electrical Materials and Methods."

Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

Circuit Directory: Create a directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

FIELD QUALITY CONTROL

Testing and Inspection: After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

Balancing Loads: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes as follows:

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data-processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

TESTING AND ADJUSTMENTS

Provide a complete fault current coordination study and an arc flash hazard study and tag all gear accordingly. Provide labeling on all switchgear and switch boards. Adjust all trip and parameter settings in accordance with the calculations.

END OF SECTION 260400

DRAWINGS

Project drawings are attached below or are available in electronic form at:

<https://files.acrobat.com/a/preview/3dcc46f8-c759-43f6-ac32-385969df34fd>

FREDERICK DOUGLAS SENIOR HIGH SCHOOL
 GYMNASIUM HVAC
 NEW ORLEANS, LOUISIANA

- CONSTRUCTION NOTES:
1. SHUTDOWNS MUST BE SCHEDULED WITH SCHOOL REPRESENTATIVE A MINIMUM OF ONE MONTH BEFORE PERFORMING WORK.
 2. THE CONTRACT TIME FOR THIS PROJECT IS 120 CALENDAR DAYS.
 3. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS ON SITE PRIOR TO BIDDING AND INCLUDE ALL NECESSARY OFFSETS, MODIFICATIONS, ETC.
 4. CONTRACTOR SHALL INCLUDE IN THE COST ALL PERMIT AND INSPECTION FEES.
 5. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 6. SEE M-4 FOR EXISTING CONDITION PHOTOGRAPHS.

GYM BUILDING



Table of Contents:

T-1	TITLE SHEET
M-1	FLOOR PLAN - DEMOLITION
M-2	FLOOR PLAN - MECHANICAL
M-3	MECHANICAL SCHEDULES & DETAILS
M4	EXISTING CONDITION PHOTOGRAPHS
E-1	FLOOR PLAN - ELECTRICAL

MECHANICAL ENGINEER - CRUMB ENGINEERING, LLC

ELECTRICAL ENGINEER - ELLIS ENGINEERING, LLC

Crumb Engineering, LLC

4609 fairfield street
 P-504.455.4450
 Metairie, La 70006
 T-504.455.4451

FREDERICK DOUGLAS SENIOR HIGH SCHOOL
 GYMNASIUM HVAC

3820 ST. CLAUDE AVE.
 NEW ORLEANS, LA 70117



These drawings are the property of the designer and are not to be reproduced in whole or in part. They are only to be used for the project and site specifically identified herein.

Scales stated hereon are valid on the original drawings only. Contractor shall carefully review all dimensions and conditions shown and report to the engineer any errors, inconsistencies, or omissions discovered.

These plans were prepared in the office under our personal supervision, and to the best of our knowledge comply with state and local codes. We will generally administer construction.

PROJ. #.	revisions

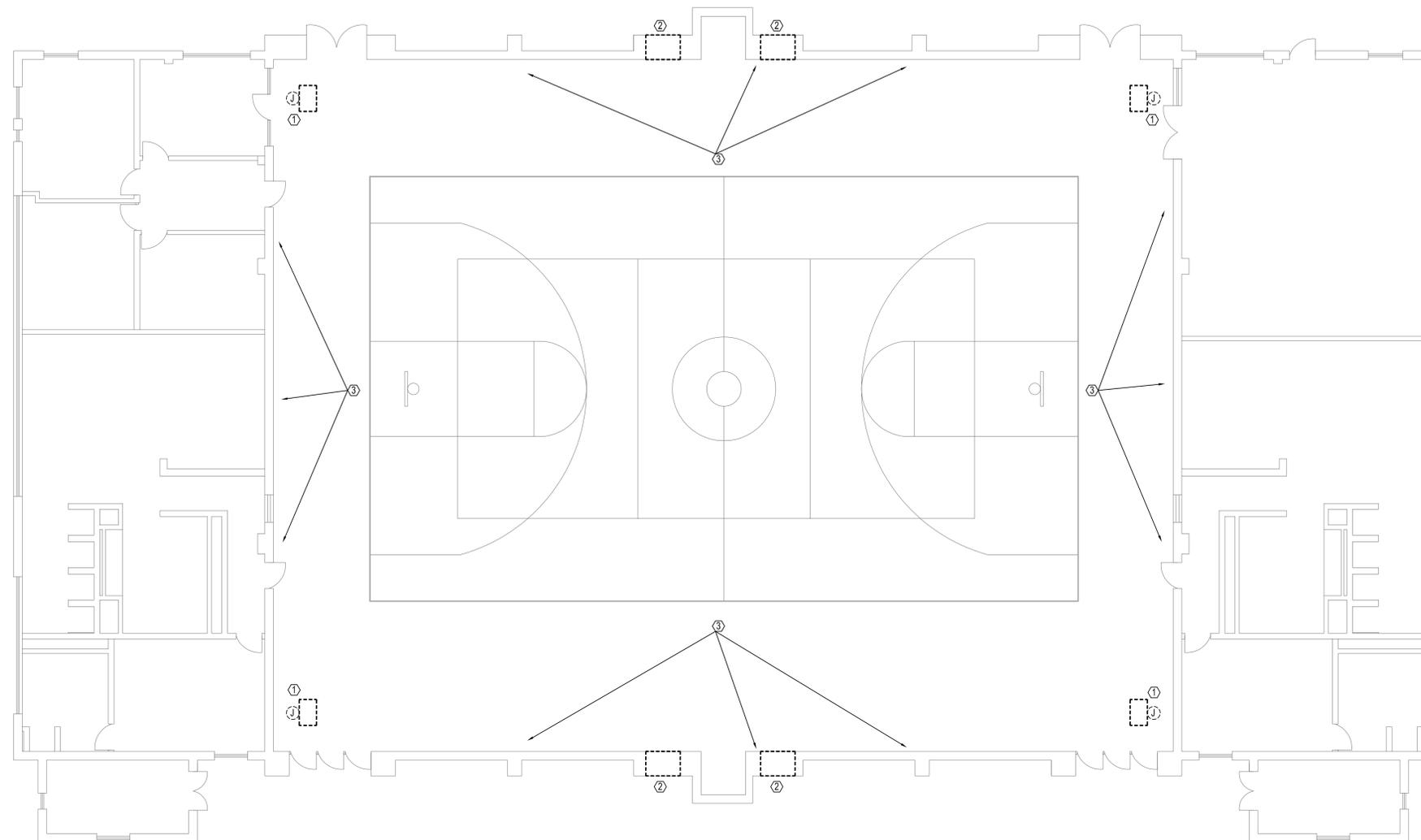
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T-1

DEMOLITION PLAN - MECHANICAL

SCALE: 3/8" = 1'-0"



GENERAL NOTES THIS SHEET:

1. EXISTING MECHANICAL TO REMAIN UNLESS NOTED.
2. MAINTAIN OPERATION OF ALL MECHANICAL ITEMS TO REMAIN.
3. REMOVE ALL INTERIOR GAS PIPING SERVING GAS FIRED UNIT HEATERS. CAP PIPING AND REMOVE AS MUCH EXTERIOR PIPING AS POSSIBLE.

SPECIFIC NOTES THIS SHEET:

- ① REMOVE EXISTING GAS FIRED UNIT HEATER, GAS PIPING, THERMOSTAT AND FLUE. PATCH ROOF OPENING WITH 304 S.S. CAP.
- ② REMOVE EXISTING EXHAUST FAN. PATCH WALL INTERIOR AND EXTERIOR FACE WITH 18 GA. 304 S.S. ANCHORED TO EXISTING BRICK.
- ③ UNDER ALTERNATE #1, RE-INSULATE EXISTING COLD WATER AND HOT WATER PIPING ABATED UNDER SEPARATE PROJECT. SEE INSULATION SUMMARY THIS SHEET FOR PIPE SIZES AND LENGTHS. VISIT SITE FOR EXISTING CONDITIONS.



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These plans were prepared in this office under our personal supervision, and to the best of our knowledge comply with state and local codes. We will generally administer construction.

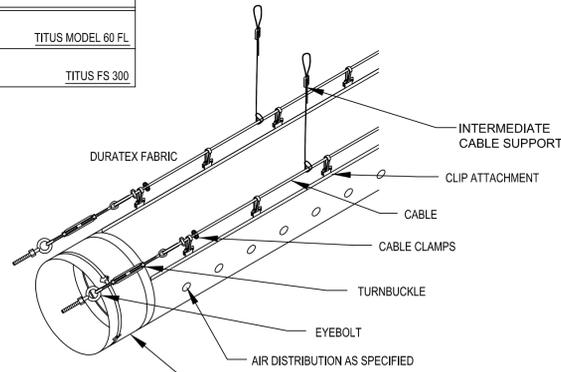
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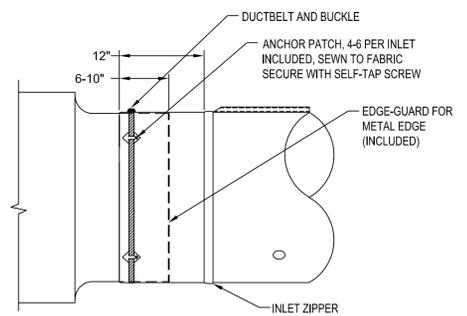
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PACKAGED		AIR										UNIT		SCHEDULE		
MARK	TOTAL COOLING MBTUH	SENSIBLE COOLING MBTUH	TOTAL CFM	OUTSIDE AIR CFM	HEATING CAP. KW (AUX)	ENT AIR DB/ WB	LVG AIR DB/ WB	EXT SP IN W.C.	EVAP. CAPACITY			HOT GAS REHEAT		UNIT FLA FUSE	EER COP	DESCRIPTION
									H.P.	VOLTS	PH.	LAT	CAPACITY(MBH)			
RTU-1, 2	326	160	6000	1500	30	80.3/72.3	55.2/55.0	1.0	5	208	3	74	122	140 200	10.3 2.3	PACKAGED ROOFTOP 2-STAGE HEAT PUMP WITH SIDE DISCHARGE, CURB ASSEMBLY, VFD FAN, MAIN DISCONNECT SWITCH, MODULATING O/A DAMPER, GFI RECEPTACLE, MERV 13 FILTERS, DRAW THRU CONFIGURATION, HOT GAS REHEAT, HOT GAS BYPASS, AUXILIARY HEAT, FACTORY HUMIDITY AND CO2 CONTROL. AAON-RN-030
RTU-3, 4	110	68.7	2500	300	7.5	78.5/62.6	52.8/52.6	1.0	2	208	3	-	-	45 80	10.4 2.8	PACKAGED ROOFTOP HEAT PUMP WITH SIDE DISCHARGE, CURB ASSEMBLY, VFD FAN, MAIN DISCONNECT SWITCH, 2-POSITION O/A DAMPER, GFI RECEPTACLE, MERV 13 FILTER, DRAW THRU CONFIGURATION, HOT GAS REHEAT, AUXILIARY HEAT, FACTORY HUMIDITY CONTROL. AAON-RN-010

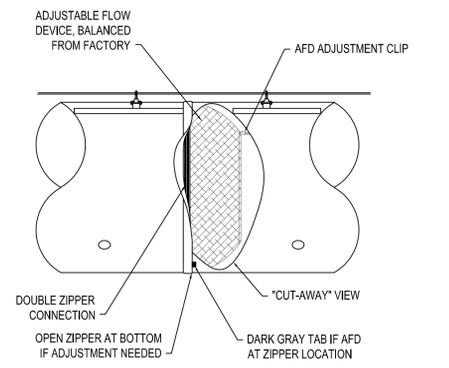
DIFFUSER	GRILLE	&	REGISTER
MARK	DESCRIPTION		
R-1	ALUMINUM HEAVY DUTY GYM GRILLE WITH 1/2" BLADE SPACING		
S-1	SIDEWALL DOUBLE DEFLECTION ALUMINUM REGISTER WITH 3/4" BLADE SPACING		



FABRIC DUCT SUSPENSION DETAIL
2 ROW CABLE SUSPENSION AT 10&2 O'CLOCK NO SCALE

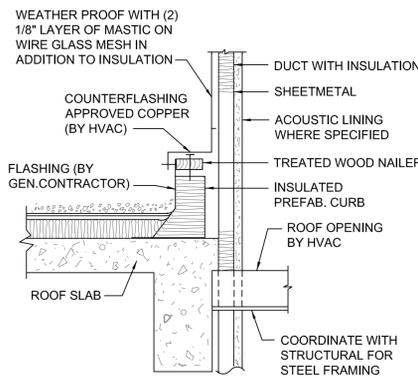


FABRIC DUCT INLET ATTACHMENT DETAIL
DURATEX TYPE WITH ZIPPER AND OVERLAP NO SCALE

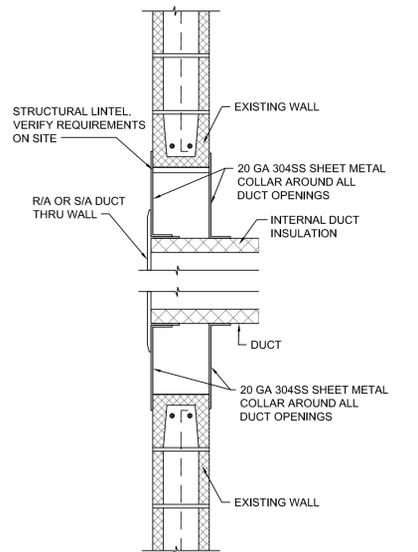


FABRIC DUCT ADJUSTABLE FLOW DEVICE (AFD)
NO SCALE

INSTALLED AT ZIPPER LOCATION AT INLET OR AS SPECIFIED IN OTHER LOCATIONS. ZIPPER TO ZIPPER CONNECTION AS SHOWN. EXTERNAL LABEL IDENTIFIES LOCATION

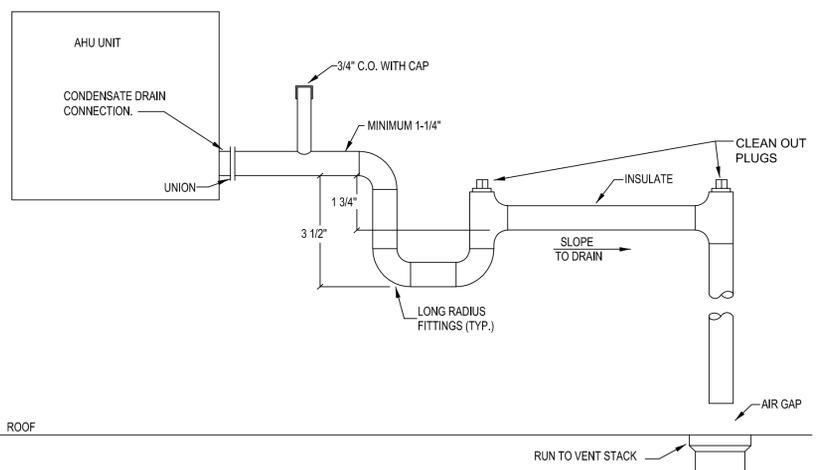


DUCT PENETRATION THRU ROOF
NO SCALE

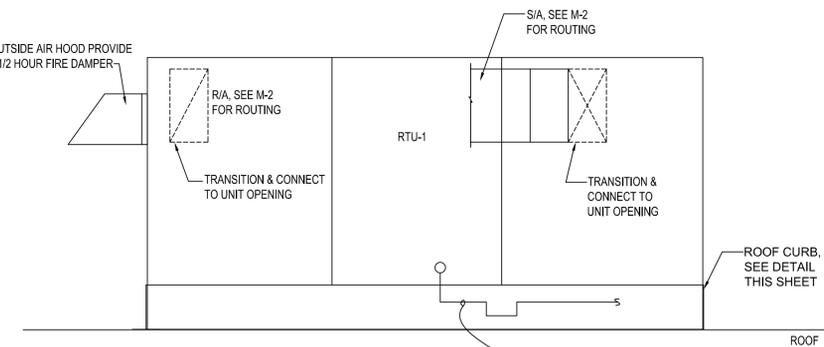


DUCT THROUGH EXTERIOR WALL DETAIL
SCALE: 1"=1'-0"

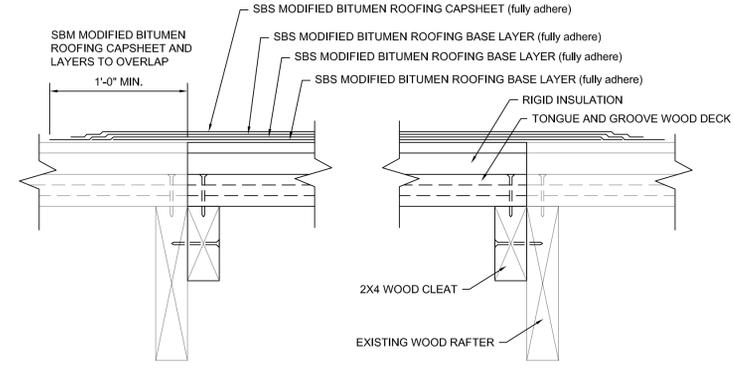
MECHANICAL		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	COLD WATER	RAG	RETURN AIR GRILLE
---	HOT WATER - NUMBER DENOTES TEMP	RD	ROOF DRAIN
---	HOT WATER CIRCULATING - NUMBER DENOTES TEMP	(TYP)	TYPICAL
---	VENT	VTR	VENT THRU ROOF
SS	SANITARY SEWER	VD	VOLUME DAMPER
SD	STORM DRAIN	HD	HUB DRAIN
CO	CLEAN OUT	S/A	SUPPLY AIR
CFM	CUBIC FEET PER MINUTE	O/A	OUTSIDE AIR
CW	COLD WATER	(Symbol)	PLUMBING RISER DIAGRAM
HW	HOT WATER	(Symbol)	GATE VALVE
CLG.	CEILING	(Symbol)	CHECK VALVE
DN	DOWN	(Symbol)	VALVE IN VERTICAL RISE
EF	EXHAUST FAN	(Symbol)	UNION
FD	FLOOR DRAIN	(Symbol)	FLOOR DRAIN
HB	HOSE BIBB	(Symbol)	HOSE BIBB
R/A	RETURN AIR	(Symbol)	AIR CHAMBER (10" HIGH PIPE)
(Symbol)	BALL VALVE	(Symbol)	FLEX DUCT
(Symbol)	TEMPERATURE SENSOR	(Symbol)	VOLUME DAMPER
GL	GREASE LINE	G	GAS PIPING
CWS	CHILLED WATER SUPPLY	(Symbol)	HUMIDITY SENSOR
CWR	CHILLED WATER RETURN	(Symbol)	CARBON DIOXIDE SENSOR
HWS	HEATING WATER SUPPLY	FLD	UL 555 DYNAMIC FIRE DAMPER
HWR	HEATING WATER RETURN	E/A	EXHAUST AIR



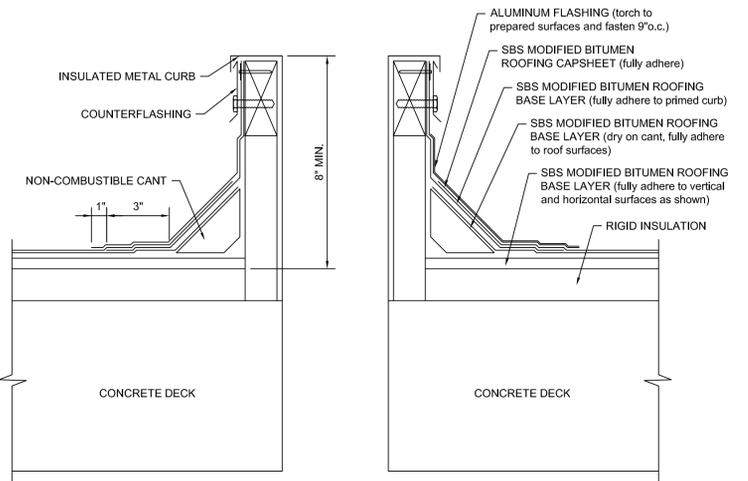
A/C UNIT CONDENSATE DRAIN DETAIL (DRAW-THRU)
NO SCALE



TYPICAL RTU UNIT DETAIL
NO SCALE



ROOF PATCH DETAIL
SCALE: 3"=1'-0"



HVAC CURB
SCALE: 3"=1'-0"

- NOTES:
- DISSIMILAR METAL TYPES SUBJECT TO ELECTROLYTIC REACTION SHOULD BE PHYSICALLY SEPARATED.
 - THE CARPENTRY AND METAL WORK SHOWN DEPICTS JOB-SITE ASSEMBLE AND SHOULD BE DESIGNED/FABRICATED/INSTALLED ACCORDING TO GENERALLY ACCEPTED PRACTICES, STANDARDS AND APPROVALS.
 - REQUIREMENTS AND RECOMMENDATIONS DETAILED IN SPECIFICATIONS SHALL APPLY IN ADDITION TO THE ABOVE DRAWING.
 - PREPARE GRANULE SURFACES UNDER FLASHING BY TORCH PREPARATION.
 - CAUTION: IT IS RECOMMENDED THAT ALL PRACTICES PERTAINING TO NRCA CERTA GUIDELINES BE FOLLOWED WHEN TORCHING METHODS ARE EMPLOYED. THIS INCLUDES PERFORMING A FIRE WATCH FOLLOWING ANY TORCH APPLICATIONS. ALWAYS HAVE APPROVED FIRE-EXTINGUISHING EQUIPMENT NEARBY.

Crumb Engineering, LLC

FREDERICK DOUGLAS SENIOR HIGH SCHOOL
GYMNASIUM HVAC



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Scales stated hereon are valid on the original drawings only. Contractor shall carefully review all dimensions and conditions shown and report to the engineer any errors, inconsistencies, or omissions discovered.

These plans were prepared in the office under our personal supervision and to the best of our knowledge comply with state and local codes. We will generally administer construction.

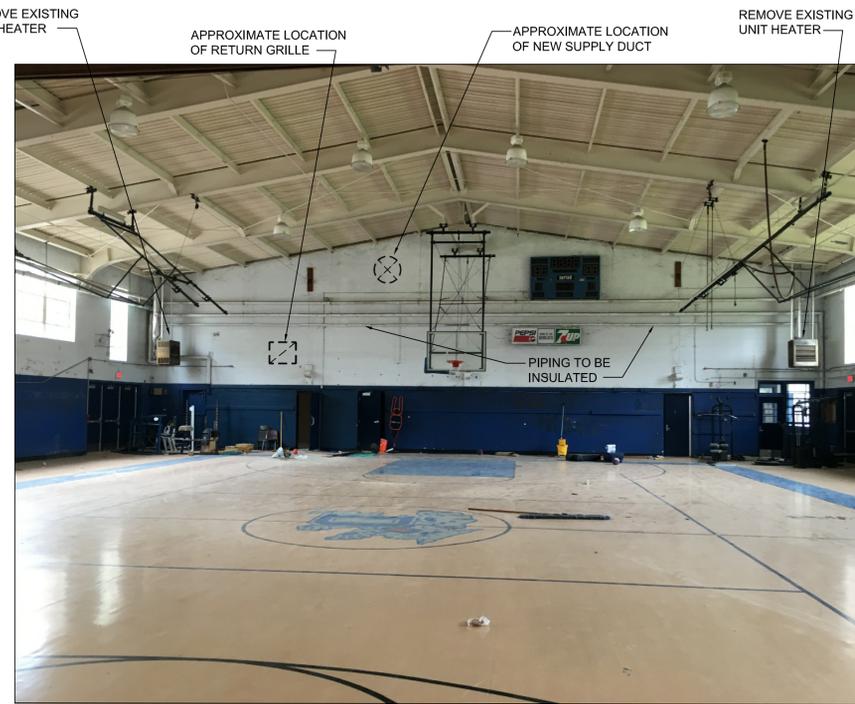
PROJ. #.	date
	12 AUG 2016

revisions

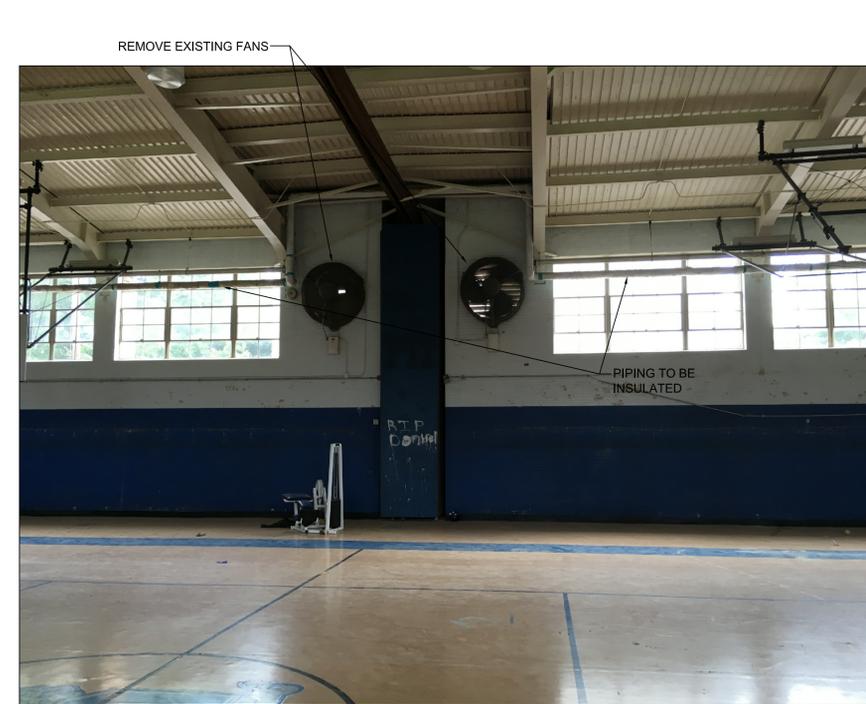
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PHOTOGRAPH 1
NO SCALE

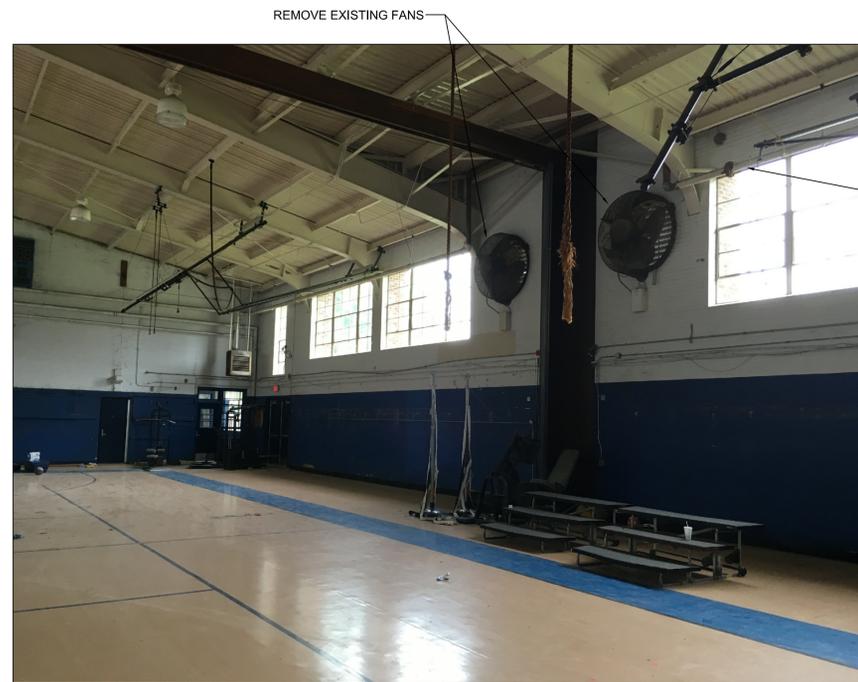


PHOTOGRAPH 2
NO SCALE

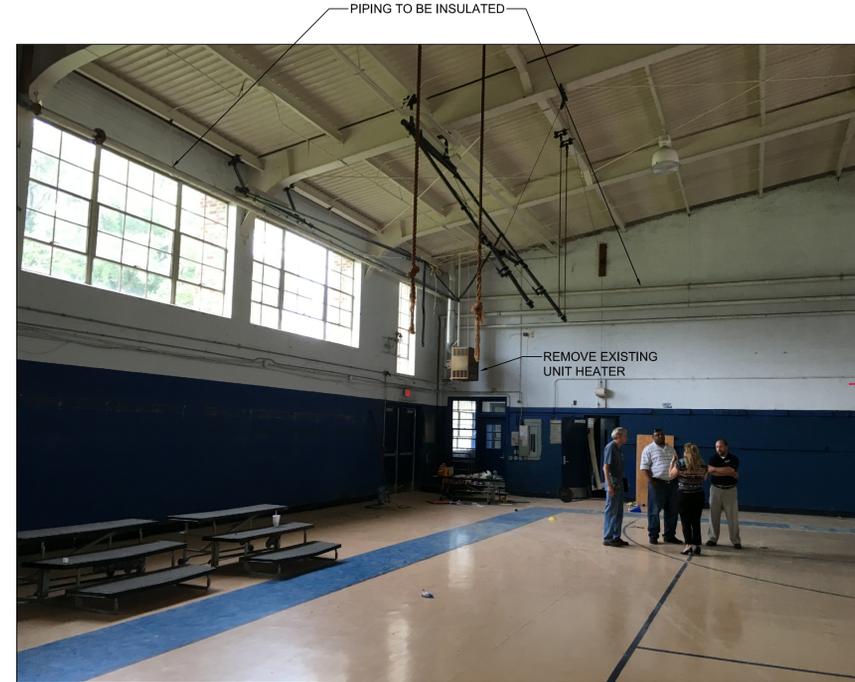


PHOTOGRAPH 3
NO SCALE

RUN TO VENT STACK



PHOTOGRAPH 4
NO SCALE



PHOTOGRAPH 5
NO SCALE

EXISTING CONDITION PHOTOGRAPHS
NO SCALE



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