



**LOUISIANA STATE UNIVERSITY
HEALTH SCIENCES CENTER**

Baton Rouge OCIS AV Equipment

ITB#002985

Scaled Bid Due Tuesday , June 23rd, 2026 @2:00pm central

**Mandatory Pre-Bid June 9nd, 2026 – 10am
50 Field House Drive
Room 1280
Baton Rouge, LA 70803**

LSU Health Sciences Center – New Orleans

BR OCIS AV EQUIPMENT

Invitation to Bid # 002985

**Deadline for sealed bid submission will be Tuesday , June 23rd, 2026 @2:00pm central
433 Bolivar, New Orleans, La 70112 6th Floor Purchasing**

Mandatory Pre-Bid June 9th, 2026 – 10am

**50 Field House Drive
Room 1280
Baton Rouge, LA 70803**

SECTION 1 – BIDDING AND CONTRACT DOCUMENTS

1.1 Definitions:

Bidder – a legal entity that submits an offer to sell to the Owner on a specified body of work. Generally where the term “Bidder” is used in the specifications, the indication is that the requirement or responsibility is associated with the bid submittal or other pre-award activities.

Service provider – vendor that performs the services as specified herein. The term “Service provider” can also be used in the specification as an inclusive term that references the Service provider and all persons, Subservice providers, or other parties of interest acting on behalf of the Service provider in the performance of the contract as described in the specifications.

1.2 Interpretation of Documents and Prior Approvals:

If there is any doubt of the meaning of any part of the specifications, submit to Mark Malter via e-mail at mmalte@lsuhsc.edu a written request for an interpretation no later than **EOB on June 15th, 2026**. A response will be made by addendum issued to each bidder receiving a set of the specifications. LSUHSC will not be responsible for any other explanations or interpretation of the specifications or proposed documents.

1.3 Bidder’s Representation:

Each Bidder by his bid represents the following:

- Bidder has read and understands the Bidding Documents and his or her bid is made in accordance therewith.
- Bidder’s bid is based solely upon the materials, systems and services described in the Bidding Documents as advertised and as modified by addenda.
- Bid is not based on any verbal instructions contrary to the Contract Documents and addenda

1.4 Bidding Procedure & Bid Submission:

Bidders must properly complete and sign Bid, including all required attestations and addenda. Any exceptions to the attached terms and conditions or the indemnification agreement shall be presented at the time of the bid submission. Note that any exceptions may result in a disqualified bid if the aforementioned exceptions are in conflict with state guidelines governing LSUHSC. Bids must be signed by a representative of your company authorized to enter into contracts on behalf of your organization in accordance with Louisiana R.S. 39:1594.

These documents must be included with the bid:

1. Signed Invitation to Bid Document
2. Completed Bidders Price Sheet (**Page 10 with Total completed**)
3. Supplier Quote

All bids are due by Tuesday , June 23rd, 2026 @2:00pm central

at 433 Bolivar Street, Room 623 (Purchasing Department), New Orleans, LA 70112.

Late bids will not be accepted and will be returned unopened.

It is the bidder's responsibility to make sure bids are delivered before the bid opening.

Fax or e-mail bids will not be accepted.

Delays by mail, traffic, or any other reason will be at the bidders own risk.

Submitted sealed bids must be time stamped in our office before 2:00pm on the day listed above.

The Sealed bid package must be delivered at the Bidder's expense to:

Mark Malter
Procurement Analyst, LSU Health Sciences Center
433 Bolivar St.
6th Floor, Purchasing Dept - Room 623
New Orleans, LA 70112
Office phone: 504-568-2947
Email:mmalte@lsuhsc.edu

BIDS SHALL BE DELIVERED IN A SEALED ENVELOPE WITH THE BID NUMBER & VENDOR NAME CLEARLY MARKED ON THE OUTSIDE OF THE ENVELOPE.

In accordance with R.S. 39:1581, Chapter 5, Section 521C of the Louisiana State Purchasing Rules and Regulations, when an error is made in extending total prices, the unit bid price will govern.

Award: LSUHSC-NO will award to the lowest responsive and responsible bidder based on the unit pricing of any and all items.

1.5 Calendar of Events:

<u>Event</u>	<u>Date</u>
ITB Announcement	Tuesday, May 26th, 2026.
Mandatory Pre-Bid Meeting	Tuesday, June 9th, 2026 @10am
Mandatory Pre-Bid June 9th, 2026 – 10am 50 Field House Drive Room 1280 Baton Rouge, LA 70803	
Written Inquiry Deadline (EOB)	Monday, June 15th, 2026.
Responses to Inquiries	Tuesday, June 17 th , 2026.
Bid Submission Deadline (2:00 PM)	Tuesday, June 23rd, 2026.

NOTE: LSUHSC reserves the right to amend and/or change this schedule of ITB activities, as it deems necessary.

1.6 Compliance with Applicable Laws and Regulations:

Service provider shall perform all requirements under this contract in strict observance of and in compliance with all applicable laws, regulations, ordinances, codes and any other legislative or statutory requirements. Service provider warrants the performance of services under this contract shall be fully compliant with the current requirements of the Occupational Safety and Health Act (OSHA) to include as it may be amended throughout the term of this contract. Service provider shall take precautions to insure work is performed in compliance with occupational safety standards. Service provider shall obtain all permits and licenses and pay all taxes, charges and fees necessary to perform the services under this contract.

1.7 Resolving Contract Disputes:

State statute requires that disputes arising under this contract not be resolved in a forum outside of Louisiana. Requiring contract disputes to be resolved in a forum outside of this state or requiring their interpretation to be governed by the laws of another jurisdiction, are inequitable and against the public policy of this state.

1.8 Late Payment Policy: State statute RS 39:1695 requires that if a state agency fails to make any payment within 90 days of the due date, that agency shall pay, in addition to the payment, interest on the amount due at the rate established pursuant to Civil Code Article 2824 (B) (3) per year, from the 91st day after the due date.


Section 2 – Bidders Price Sheet.

Please list your total bid price that includes all costs and any fees.

Please also provide a quote to match.

Total Bid Price _____

Invitation to Bid

LSUHSC New Orleans		BIDS WILL BE PUBLICLY OPENED: June 23, 2026 02:00 PM
VENDOR NO. : SOLICITATION : 002985 OPENING DATE : 06/23/2026		Return Sealed Bid to: Purchasing Department BUYER : Malter, Mark Wade BUYER EMAIL : mmalte@lsuhsc.edu BUYER PHONE : DATE ISSUED : 05/26/2026 REQ. NO : FISCAL YEAR : 0

BR OCIS AV EQUIPMENT

To be Completed by Vendor:

BUSINESS NAME _____

ADDRESS _____

TAX ID NUMBER _____

_____ % CASH DISCOUNT FOR PROMPT PAYMENT IF MADE WITHIN THIRTY 30 DAYS. CASH DISCOUNTS FOR LESS THAN 30 DAYS OR LESS THAN 1% WILL BE ACCEPTED, BUT WILL NOT BE CONSIDERED IN DETERMINING AWARDS. ON INDEFINITE QUANTITY TERM CONTRACTS, CASH DISCOUNTS WILL BE ACCEPTED AND TAKEN BUT WILL NOT BE CONSIDERED IN DETERMINING AWARDS.

- INSTRUCTION TO BIDDERS
1. READ THE ENTIRE BID (INCLUDING ALL TERMS AND CONDITIONS AND SPECIFICATIONS).
 - DIVERSE SUPPLIER
 - (A) SUPPLIER UNDERSTANDS THAT LSU, AS THE STATE'S FLAGSHIP UNIVERSITY, HAS AN INTEREST IN PROVIDING ENTREPRENEURIAL OPPORTUNITIES TO DIVERSITY-OWNED BUSINESSES. THE UNIVERSITY IS DEDICATED TO PROMOTING THE GROWTH AND DEVELOPMENT OF MINORITY, WOMEN, AND SMALL AND HISTORICALLY UNDERUTILIZED BUSINESSES ("DIVERSE BUSINESSES") BY PROVIDING OPPORTUNITIES TO PARTICIPATE IN UNIVERSITY CONTRACTS.
 - (B) IN SUPPORT OF THIS COMMITMENT, THE SUPPLIER SHALL USE GOOD FAITH AND BEST EFFORTS TO PROVIDE OPPORTUNITIES TO DIVERSE BUSINESSES THAT ARE EITHER CERTIFIED BY THE STATE OR ANOTHER CERTIFYING AGENCY IN A DIVERSE CATEGORY, AS A SUBCONTRACTOR OR SUPPLIER UNDER THIS AGREEMENT.
 - (C) IF APPLICABLE, SUPPLIER SHALL PROVIDE LSU WITH A LIST OF DIVERSITY-OWNED BUSINESSES DURING EACH CONTRACT YEAR, THE LIST OF BUSINESSES SHOULD IDENTIFY:
 - (1) THE NAME OF THE BUSINESS;
 - (2) ITS PRINCIPAL OFFICE OR ADDRESS;
 - (3) THE OWNER(S); AND
 - (4) THE SERVICES OR GOODS THAT IT MAY PROVIDE OR SUPPLY AND THE VALUE OF THE GOODS OR SERVICES PROCURED FROM THE BUSINESSES INCLUDED ON SUPPLIER'S LIST.
 - (D) TO THE EXTENT THAT ANY FEDERAL OR STATE LAW, RULE, OR REGULATION WOULD REQUIRE THAT THIS SECTION BE MODIFIED OR VOIDED, THE PARTIES AGREE THAT SUCH PROVISION CAN BE AMENDED OR SEVERED FROM THE AGREEMENT WITHOUT AFFECTING ANY OF THE OTHER TERMS OF THE AGREEMENT.
 2. ALL BID PRICES MUST BE TYPED OR WRITTEN IN INK. ANY CORRECTIONS, ERASURES OR OTHER FORMS OF ALTERATION TO UNIT PRICES SHOULD BE INITIALIZED BY THE BIDDER.
 3. THIS BID IS TO BE MANUALLY SIGNED IN INK BY A PERSON AUTHORIZED TO BIND THE VENDOR (See No.9).

VENDOR PHONE NUMBER:	TITLE	DATE
EMAIL ADDRESS:		
SIGNATURE OF AUTHORIZED BIDDER (MUST BE SIGNED)	NAME OF BIDDER (TYPED OR PRINTED)	

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 2 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

4. BID PRICES SHALL INCLUDE DELIVERY OF ALL ITEMS F.O.B. DESTINATION OR AS OTHERWISE PROVIDED. BIDS CONTAINING "PAYMENT IN ADVANCE" OR "C.O.D." REQUIREMENTS MAY BE REJECTED. PAYMENT IS TO BE MADE WITHIN 30 DAYS AFTER RECEIPT OF A PROPERLY EXECUTED INVOICE THAT IS APPROVED BY LSUHSC OR DELIVERY, WHICHEVER IS LATER.

5. DESIRED DELIVERY: 10 DAYS AFTER RECEIPT OF ORDER, UNLESS SPECIFIED ELSEWHERE.

6. TO ASSURE CONSIDERATION OF YOUR BID, SEE HEADER FOR RETURN INSTRUCTIONS. ALL BIDS AND ADDENDA SHOULD BE RETURNED IN AN ENVELOPE OR PACKAGE AND CLEARLY ENDORSED WITH THE BID OPENING DATE, BID OPENING TIME, BID NUMBER, AND BID TITLE. ALL REQUEST FOR QUOTATIONS AND ADDENDA SHOULD BE SUBMITTED VIA FAX, EMAIL OR PLACED IN AN ENVELOPE AND DELIVERED.

7. BIDS SUBMITTED ARE SUBJECT TO PROVISIONS OF THE LAWS OF THE STATE OF LOUISIANA INCLUDING BUT NOT LIMITED TO L.R.S. 39:1551-1736; PURCHASING RULES AND REGULATIONS; EXECUTIVE ORDERS; STANDARD TERMS AND CONDITIONS; SPECIAL CONDITIONS; AND SPECIFICATIONS LISTED IN THIS SOLICITATION.

PROHIBITION OF DISCRIMINATORY BOYCOTTS OF ISRAEL:

IN ACCORDANCE WITH EXECUTIVE ORDER NUMBER JBE 2018-15, EFFECTIVE MAY 22, 2018, FOR ANY CONTRACT FOR \$100,000 OR MORE AND FOR ANY CONTRACTOR WITH FIVE OR MORE EMPLOYEES, CONTRACTOR, OR ANY SUBCONTRACTOR, SHALL CERTIFY IT IS NOT ENGAGING IN A BOYCOTT OF ISRAEL, AND SHALL, FOR THE DURATION OF THIS CONTRACT, REFRAIN FROM A BOYCOTT OF ISRAEL. THE STATE RESERVES THE RIGHT TO TERMINATE THIS CONTRACT IF THE CONTRACTOR, OR ANY SUBCONTRACTOR, ENGAGES IN A BOYCOTT OF ISRAEL DURING THE TERM OF THE CONTRACT.

8. IMPORTANT:

BY SIGNING THIS BID, THE BIDDER CERTIFIES COMPLIANCE WITH ALL INSTRUCTIONS TO BIDDERS, TERMS, CONDITIONS, AND SPECIFICATIONS AND FURTHER CERTIFIES THAT THIS BID IS MADE WITHOUT COLLUSION OR FRAUD. ALL BID INFORMATION SHALL BE MADE WITH INK OR TYPEWRITTEN.

9. SIGNATURE AUTHORITY:

SUBMIT EVIDENCE WITH THE BID OR UPON REQUEST

R.S. 39:1594 (C) (4) EVIDENCE OF AGENCY, CORPORATE, OR PARTNERSHIP AUTHORITY SHALL BE REQUIRED FOR SUBMISSION OF A BID TO PURCHASING AGENCIES OF THE STATE OF LOUISIANA.

THE AUTHORITY OF THE SIGNATURE OF THE PERSON SUBMITTING THE BID SHALL BE DEEMED SUFFICIENT AND ACCEPTABLE IF ANY OF THE FOLLOWING CONDITIONS ARE MET:

- (A) THE SIGNATURE ON THE BID IS THAT OF ANY CORPORATE OFFICER LISTED ON THE MOST CURRENT ANNUAL REPORT ON FILE WITH THE SECRETARY OF STATE, OR THE SIGNATURE ON THE BID IS THAT OF ANY MEMBER OF A PARTNERSHIP OR PARTNERSHIP IN COMMENDAM LISTED IN THE MOST CURRENT PARTNERSHIP RECORDS ON FILE WITH THE SECRETARY OF STATE.
- (B) THE SIGNATURE ON THE BID IS THAT OF AN AUTHORIZED REPRESENTATIVE OF THE CORPORATION, PARTNERSHIP, OR OTHER LEGAL ENTITY AND THE BIDDER SUBMITS OR PROVIDES UPON REQUEST A CORPORATE RESOLUTION, CERTIFICATION AS TO THE CORPORATE PRINCIPAL, OR OTHER DOCUMENTS INDICATING AUTHORITY WHICH ARE ACCEPTABLE TO THE PUBLIC ENTITY, INCLUDING REGISTRATION ON AN ELECTRONIC INTERNET DATABASE MAINTAINED BY THE PUBLIC ENTITY.
- (C) THE CORPORATION, PARTNERSHIP, OR OTHER LEGAL ENTITY HAS FILED IN THE APPROPRIATE RECORDS OF THE SECRETARY OF STATE IN WHICH THE PUBLIC ENTITY IS LOCATED, AN AFFIDAVIT, RESOLUTION, OR OTHER ACKNOWLEDGED OR

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 3 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

AUTHENTIC DOCUMENT INDICATING THE NAMES OF ALL PARTIES AUTHORIZED TO SUBMIT BIDS FOR PUBLIC CONTRACTS. SUCH DOCUMENT ON FILE WITH THE SECRETARY OF STATE SHALL REMAIN IN EFFECT AND SHALL BE BINDING UPON THE PRINCIPAL UNTIL SPECIFICALLY RESCINDED AND CANCELED FROM THE RECORDS OF THE RESPECTIVE OFFICES.

IT IS ACCEPTABLE FOR THE SIGNATURE ON THE BID TO BE LISTED AS A VENDOR CONTACT ON LAPAC (LOUISIANA PROCUREMENT AND CONTRACT NETWORK)

10. INQUIRIES:

ADDRESS ALL INQUIRIES AND CORRESPONDENCE TO THE BUYER AT THE PHONE NUMBER AND ADDRESS SHOWN ABOVE.

11. BID FORMS:

ALL WRITTEN BIDS, UNLESS OTHERWISE PROVIDED FOR, MUST BE SUBMITTED ON, AND IN ACCORDANCE WITH FORMS PROVIDED AND PROPERLY SIGNED. BIDS SUBMITTED IN THE FOLLOWING MANNER WILL NOT BE ACCEPTED:

- A. BID CONTAINS NO SIGNATURE INDICATING INTENT TO BE BOUND
- B. BID FILLED OUT IN PENCIL; AND
- C. BID NOT SUBMITTED PER THE SOLICITATION DOCUMENT.

BIDS MUST BE RECEIVED AT THE ADDRESS SPECIFIED IN THE SOLICITATION PRIOR TO BID OPENING TIME IN ORDER TO BE CONSIDERED.

12. STANDARDS OR QUALITY:

ANY PRODUCT OR SERVICE BID SHALL CONFORM TO ALL APPLICABLE FEDERAL AND STATE LAWS AND REGULATIONS AND THE SPECIFICATIONS CONTAINED IN THE SOLICITATION. UNLESS OTHERWISE SPECIFIED IN THE SOLICITATION, ANY MANUFACTURER'S NAME, TRADE NAME, BRAND NAME, OR CATALOG NUMBER USED IN THE SPECIFICATION IS FOR THE PURPOSE OF DESCRIBING THE STANDARD OF QUALITY, PERFORMANCE, AND CHARACTERISTICS DESIRED AND IS NOT INTENDED TO LIMIT OR RESTRICT COMPETITION. BIDDER MUST SPECIFY THE BRAND AND MODEL NUMBER OF THE PRODUCT OFFERED IN HIS/HER BID. BIDS NOT SPECIFYING BRAND AND MODEL NUMBER SHALL BE CONSIDERED AS OFFERING THE EXACT PRODUCTS SPECIFIED IN THE SOLICITATION. LSUHSC RESERVES THE RIGHT TO INSPECT AND TEST THE DELIVERED ITEMS FOR COMPLIANCE WITH THE BID SPECIFICATIONS. IF THE ITEM FAILS TO MEET THE SPECIFICATIONS, THE COST OF TEST AND INSPECTION WILL BE PAID BY THE CONTRACTOR. IF THE ITEM IS IN COMPLIANCE, COST OF ALL TESTS WILL BE PAID BY LSUHSC.

13. DESCRIPTIVE INFORMATION:

BIDDERS PROPOSING AN EQUIVALENT BRAND OR MODEL SHOULD SUBMIT WITH THE BID, INFORMATION (SUCH AS ILLUSTRATIONS, DESCRIPTIVE LITERATURE, AND TECHNICAL DATA) SUFFICIENT FOR LSUHSC TO EVALUATE QUALITY, SUITABILITY, AND COMPLIANCE WITH THE SPECIFICATIONS IN THE SOLICITATION. FAILURE TO SUBMIT DESCRIPTIVE INFORMATION MAY CAUSE BID TO BE REJECTED. ANY CHANGE MADE TO A MANUFACTURER'S PUBLISHED SPECIFICATION SUBMITTED FOR A PRODUCT SHALL BE VERIFIABLE BY THE MANUFACTURER. IF ITEM(S) BID DO NOT FULLY COMPLY WITH SPECIFICATIONS (INCLUDING BRAND AND/OR PRODUCT NUMBER), BIDDER MUST STATE IN WHAT RESPECT ITEMS(S) DEVIATE. FAILURE TO NOTE EXCEPTIONS ON THE BID FORM WILL NOT RELIEVE THE SUCCESSFUL BIDDER(S) FROM SUPPLYING THE ACTUAL PRODUCTS REQUESTED.

14. BID OPENING:

BIDDERS MAY ATTEND THE BID OPENING, BUT NO INFORMATION OR OPINIONS CONCERNING THE ULTIMATE CONTRACT AWARD WILL BE GIVEN AT THE BID OPENING OR DURING THE EVALUATION PROCESS. BIDS MAY BE EXAMINED WITHIN 72 HOURS AFTER BID OPENING. INFORMATION PERTAINING TO COMPLETED FILES MAY BE SECURED BY VISITING LSUHSC DURING NORMAL

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 4 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

WORKING HOURS. WRITTEN BID TABULATIONS WILL NOT BE FURNISHED.

15. AWARDS:

AWARD WILL BE MADE TO THE LOWEST RESPONSIBLE AND RESPONSIVE BIDDER. LSUHSC RESERVES THE RIGHT TO AWARD ITEMS SEPARATELY, GROUPED, OR ON AN ALL OR NONE BASIS , AND TO REJECT ANY OR ALL BIDS AND WAIVE ANY INFORMALITIES.

16. PRICES:

UNLESS OTHERWISE SPECIFIED BY LSUHSC IN THE SOLICITATION, BID PRICES MUST BE COMPLETE, INCLUDING TRANSPORTATION PREPAID BY BIDDER TO DESTINATION AND FIRM FOR ACCEPTANCE FOR A MINIMUM OF 30 DAYS. IF ACCEPTED, PRICES MUST BE FIRM FOR THE CONTRACTUAL PERIOD. BIDS OTHER THAN F.O.B. DESTINATION MAY BE REJECTED. PRICES SHOULD BE QUOTED IN THE UNIT (EACH, BOX, CASE, ETC.) AS SPECIFIED IN THE SOLICITATION.

17. TAXES:

VENDOR IS RESPONSIBLE FOR INCLUDING ALL APPLICABLE TAXES IN THE BID PRICE. LSUHSC AGENCIES ARE EXEMPT FROM ALL STATE AND LOCAL SALES AND USE TAXES.

18. NEW PRODUCTS:

UNLESS SPECIFICALLY CALLED FOR IN THE SOLICITATION, ALL PRODUCTS FOR PURCHASE MUST BE NEW, NEVER PREVIOUSLY USED, AND THE CURRENT MODEL AND/OR PACKAGING. NO REMANUFACTURED, DEMONSTRATOR, USED OR IRREGULAR PRODUCT WILL BE CONSIDERED FOR PURCHASE UNLESS OTHERWISE SPECIFIED IN THE SOLICITATION. THE MANUFACTURER'S STANDARD WARRANTY WILL APPLY UNLESS OTHERWISE SPECIFIED IN THE SOLICITATION.

19. CONTRACT RENEWALS:

UPON AGREEMENT OF LSUHSC AND THE CONTRACTOR , A TERM CONTRACT MAY BE EXTENDED FOR 4 (FOUR) ADDITIONAL 12 MONTH PERIODS AT THE SAME PRICES, TERMS AND CONDITIONS. IN SUCH CASES, THE TOTAL CONTRACT TERM CANNOT EXCEED 60 MONTHS. RS 39:1615

20. CONTRACT CANCELLATION:

TERMINATION FOR NONCOMPLIANCE:

LSUHSC HAS THE RIGHT TO CANCEL ANY CONTRACT, IN ACCORDANCE WITH PURCHASING RULES AND REGULATIONS, FOR CAUSE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- (1) FAILURE TO DELIVER WITHIN THE TIME SPECIFIED IN THE CONTRACT;
- (2) FAILURE OF THE PRODUCT OR SERVICE TO MEET SPECIFICATIONS, CONFORM TO SAMPLE QUALITY OR TO BE DELIVERED IN GOOD CONDITION;
- (3) MISREPRESENTATION BY THE CONTRACTOR;
- (4) FRAUD, COLLUSION , CONSPIRACY OR OTHER UNLAWFUL MEANS OF OBTAINING ANY CONTRACT WITH THE STATE;
- (5) CONFLICT OF CONTRACT PROVISIONS WITH CONSTITUTIONAL OR STATUTORY PROVISIONS OF STATE OR FEDERAL LAW;
- (6) ANY OTHER BREACH OF CONTRACT.

FURTHER, LSUHSC MAY TERMINATE THIS CONTRACT FOR CAUSE BASED UPON THE FAILURE OF THE CONTRACTOR TO COMPLY WITH THE TERMS AND/OR CONDITIONS OF THE CONTRACT; PROVIDED THAT LSUHSC SHALL GIVE THE CONTRACTOR WRITTEN NOTICE SPECIFYING THE FAILURE. IF WITHIN THIRTY (30) DAYS AFTER RECEIPT OF SUCH NOTICE, THE CONTRACTOR SHALL NOT HAVE EITHER CORRECTED SUCH FAILURE OR, IN THE CASE WHICH CANNOT BE CORRECTED IN THIRTY (30) DAYS, BEGUN IN GOOD FAITH TO CORRECT SAID FAILURE AND THEREAFTER PROCEEDED DILIGENTLY TO COMPLETE SUCH CORRECTION, THEN LSUHSC MAY, AT ITS OPTION, PLACE THE CONTRACTOR IN DEFAULT AND THE CONTRACT SHALL TERMINATE ON THE DATE

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 5 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

SPECIFIED IN SUCH NOTICE. THE CONTRACTOR MAY EXERCISE ANY RIGHTS AVAILABLE TO IT UNDER LOUISIANA LAW TO TERMINATE FOR CAUSE UPON THE FAILURE OF LSUHSC TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS CONTRACT; PROVIDED THAT THE CONTRACTOR SHALL GIVE LSUHSC WRITTEN NOTICE SPECIFYING LSUHSC'S FAILURE AND A REASONABLE OPPORTUNITY FOR LSUHSC TO CURE THE DEFECT

TERMINATION FOR CONVENIENCE:

LSUHSC MAY, AT ANY TIME, TERMINATE THE CONTRACT FOR THEIR CONVENIENCE AND WITHOUT CAUSE. UPON RECEIPT OF WRITTEN NOTICE FROM LSUHSC OF SUCH TERMINATION FOR THEIR CONVENIENCE, THE CONTRACTOR SHALL: CEASE OPERATIONS AS DIRECTED BY LSUHSC IN THE NOTICE; TAKE ACTIONS NECESSARY, OR THAT LSUHSC MAY DIRECT, FOR THE PROTECTION AND PRESERVATION OF THE WORK; AND EXCEPT FOR WORK DIRECTED TO BE PERFORMED PRIOR TO THE EFFECTIVE DATE OF TERMINATION STATED IN THE NOTICE, TERMINATE ALL EXISTING SUBCONTRACTS AND PURCHASE ORDERS AND ENTER INTO NO FURTHER SUBCONTRACTS AND PURCHASE ORDERS. IN CASE OF SUCH TERMINATION FOR LSUHSC'S CONVENIENCE, THE CONTRACTOR SHALL BE ENTITLED TO RECEIVE PAYMENT FOR WORK EXECUTED. LSUHSC SHALL NOT BE RESPONSIBLE OR OTHERWISE LIABLE FOR ANY DEMOBILIZATION COSTS OR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM SUCH TERMINATION.

TERMINATION FOR NON-APPROPRIATION OF FUNDS:

THE CONTINUATION OF THIS CONTRACT IS CONTINGENT UPON THE APPROPRIATION OF FUNDS TO FULFILL THE REQUIREMENTS OF THE CONTRACT.

21. DEFAULT OF CONTRACT:

FAILURE TO DELIVER WITHIN THE TIME SPECIFIED IN THE BID WILL CONSTITUTE A DEFAULT AND MAY CAUSE CANCELLATION OF THE CONTRACT. WHERE THE UNIVERSITY HAS DETERMINED THE CONTRACTOR TO BE IN DEFAULT, THE UNIVERSITY RESERVES THE RIGHT TO PURCHASE ANY OR ALL PRODUCTS OR SERVICES COVERED BY THE CONTRACT ON THE OPEN MARKET AND TO CHARGE THE CONTRACTOR WITH COST IN EXCESS OF THE CONTRACT PRICE. UNTIL SUCH ASSESSED CHARGES HAVE BEEN PAID, NO SUBSEQUENT BID FROM THE DEFAULTING CONTRACTOR WILL BE CONSIDERED.

22. ORDER OF PRIORITY:

IN THE EVENT THERE IS A CONFLICT BETWEEN THE INSTRUCTIONS TO BIDDERS OR STANDARD CONDITIONS AND THE SPECIAL CONDITIONS, THE SPECIAL CONDITIONS SHALL GOVERN.

23. APPLICABLE LAW:

ALL CONTRACTS SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAWS OF THE STATE OF LOUISIANA.

24. COMPLIANCE WITH CIVIL RIGHTS LAWS:

BY SUBMITTING AND SIGNING THIS BID, BIDDER AGREES TO ABIDE BY THE REQUIREMENTS OF THE FOLLOWING AS APPLICABLE: TITLE VI AND VII OF THE CIVIL RIGHTS ACT OF 1964, AS AMENDED BY THE EQUAL OPPORTUNITY ACT OF 1972, FEDERAL EXECUTIVE ORDER 11246, FEDERAL REHABILITATION ACT OF 1973, AS AMENDED, THE VETERAN'S READJUSTMENT ASSISTANCE ACT OF 1974, TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, THE AGE ACT OF 1975, AND BIDDER AGREES TO ABIDE BY THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF 1990. BIDDER AGREES NOT TO DISCRIMINATE IN ITS EMPLOYMENT PRACTICES AND WILL RENDER SERVICES UNDER ANY CONTRACT ENTERED INTO AS A RESULT OF THIS SOLICITATION WITHOUT REGARD TO RACE, COLOR, RELIGION, SEX, AGE, NATIONAL ORIGIN, POLITICAL AFFILIATION, DISABILITY, VETERAN STATUS, OR ANY OTHER NON-MERIT FACTOR. ANY ACT OF DISCRIMINATION COMMITTED BY BIDDER, OR FAILURE TO COMPLY WITH THESE STATUTORY OBLIGATIONS WHEN APPLICABLE, SHALL BE GROUNDS FOR TERMINATION OF ANY CONTRACT ENTERED INTO AS A RESULT OF THIS SOLICITATION.

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 6 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

25. SPECIAL ACCOMMODATIONS:

ANY "QUALIFIED INDIVIDUAL WITH A DISABILITY" AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT WHO HAS SUBMITTED A BID AND DESIRES TO ATTEND THE BID OPENING, MUST NOTIFY THIS OFFICE IN WRITING NOT LATER THAN SEVEN DAYS PRIOR TO THE BID OPENING DATE OF THEIR NEED FOR SPECIAL ACCOMMODATIONS. IF THE REQUEST CANNOT BE REASONABLY PROVIDED, THE INDIVIDUAL WILL BE INFORMED PRIOR TO THE BID OPENING.

26. INDEMNITY:

CONTRACTOR AGREES, UPON RECEIPT OF WRITTEN NOTICE OF A CLAIM OR ACTION, TO DEFEND THE CLAIM OR ACTION, OR TAKE OTHER APPROPRIATE MEASURE, TO INDEMNIFY, AND HOLD HARMLESS, LSUHSC, ITS OFFICERS, ITS AGENTS AND ITS EMPLOYEES FROM AND AGAINST ALL CLAIMS AND ACTIONS FOR BODILY INJURY, DEATH OR PROPERTY DAMAGES CAUSED BY THE FAULT OF THE CONTRACTOR, OFFICERS, ITS AGENTS, OR ITS EMPLOYEES. CONTRACTOR IS OBLIGATED TO INDEMNIFY ONLY TO THE EXTENT OF THE FAULT OF THE CONTRACTOR, ITS OFFICERS, ITS AGENTS, OR ITS EMPLOYEES. HOWEVER, THE CONTRACTOR SHALL HAVE NO OBLIGATION AS SET FORTH ABOVE WITH RESPECT TO ANY CLAIM OR ACTION FROM BODILY INJURY, DEATH OR PROPERTY DAMAGES ARISING OUT OF THE FAULT OF THE UNIVERSITY, ITS OFFICERS, ITS AGENTS OR ITS EMPLOYEES.

27. IN ACCORDANCE WITH THE PROVISIONS OF (RS 39:2192):

IN AWARDING CONTRACTS, ANY PUBLIC ENTITY IS AUTHORIZED TO REJECT THE LOWEST BID FROM, OR NOT AWARD THE CONTRACT TO, A BUSINESS IN WHICH ANY INDIVIDUAL WITH AN OWNERSHIP INTEREST OF FIVE PERCENT OR MORE HAS BEEN CONVICTED OF, OR HAS ENTERED A PLEA OF GUILTY OR NOLO CONTENDERE TO ANY STATE FELONY CRIME OR EQUIVALENT FEDERAL FELONY CRIME COMMITTED IN THE SOLICITATION OR EXECUTION OF A CONTRACT OR BID AWARDED UNDER THE LAWS GOVERNING PUBLIC CONTRACTS UNDER THE PROVISIONS OF CHAPTER 10 OF TITLE 38 OF THE LOUISIANA REVISED STATUTES OF 1950, PROFESSIONAL, PERSONAL, CONSULTING, AND SOCIAL SERVICES PROCUREMENT UNDER THE PROVISIONS OF CHAPTER 16 OF TITLE 39, OR THE LOUISIANA PROCUREMENT CODE UNDER THE PROVISIONS OF CHAPTER 17 OF TITLE 39.

28. CERTIFICATION OF NO SUSPENSION OR DEBARMENT:

BY SIGNING AND SUBMITTING THIS BID, THE BIDDER CERTIFIES THAT THEIR BUSINESS ENTITY, ANY SUBCONTRACTORS OR PRINCIPALS ARE NOT SUSPENDED OR DEBARRED BY EITHER THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, OFFICE OF INSPECTOR GENERAL (OIG) OR THE GENERAL SERVICES ADMINISTRATION (GSA) IN ACCORDANCE WITH THE REQUIREMENTS IN "AUDIT REQUIREMENTS IN SUBPART F OF THE OFFICE OF MANAGEMENT AND BUDGET'S UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS."

A LIST OF PARTIES WHO HAVE BEEN SUSPENDED OR DEBARRED CAN BE VIEWED VIA THE INTERNET AT [HTTPS://SAM.GOV](https://SAM.GOV)

IF AT ANY TIME DURING THE TERM OF THE CONTRACT AWARDED AS A RESULT OF THIS INVITATION TO BID, THIS ENTITY OR ANY OF ITS EMPLOYEES OR SUBCONTRACTORS APPEARS ON EITHER LISTING, THIS ENTITY WILL NOTIFY THE CONTRACTING AGENCY, AND THE CONTRACT WILL BE TERMINATED. THE CONTRACTING AGENCY WILL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM SAID TERMINATION.

29. FEDERAL CLAUSES (IF APPLICABLE):

ANTI-KICKBACK CLAUSE. THE CONTRACTOR HEREBY AGREES TO ADHERE TO THE MANDATE DICTATED BY THE COPELAND "ANTI-KICKBACK" ACT WHICH PROVIDES THAT EACH CONTRACTOR OR SUB GUARANTEE SHALL BE PROHIBITED FROM INDUCING BY ANY MEANS, ANY PERSON EMPLOYED IN THE COMPLETION OF WORK, TO GIVE UP ANY PART OF THE COMPENSATION TO WHICH HE IS OTHERWISE ENTITLED.

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 7 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

CLEAN AIR ACT:

THE CONTRACTOR HEREBY AGREES TO ADHERE TO THE PROVISIONS WHICH REQUIRE COMPLIANCE WITH ALL APPLICABLE STANDARDS, ORDERS OR REQUIREMENTS ISSUED UNDER SECTION 306 OF THE CLEAN WATER ACT, WHICH PROHIBITS THE USE UNDER NON-EXEMPT FEDERAL CONTRACTS, GRANTS, OR LOANS OF FACILITIES INCLUDED ON THE EPA LIST OF VIOLATING FACILITIES.

ENERGY POLICY AND CONSERVATION ACT:

THE CONTRACTOR HEREBY RECOGNIZES THE MANDATORY STANDARDS AND POLICIES RELATING TO ENERGY EFFICIENCY WHICH ARE CONTAINED IN THE STATE ENERGY CONSERVATION PLAN ISSUED IN COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT (P.L. 94-163)

CLEAN WATER ACT:

THE CONTRACTOR HERBY AGREES TO ADHERE TO THE PROVISIONS WHICH REQUIRE COMPLIANCE WITH ALL APPLICABLE STANDARDS, ORDERS, OR REQUIREMENTS ISSUED UNDER SECTION 508 OF THE CLEAN WATER ACT WHICH PROHIBITS THE USE UNDER NON-EXEMPT FEDERAL CONTRACTS, GRANTS, OR LOANS OF FACILITIES INCLUDED ON THE EPA LIST OF VIOLATING FACILITIES.

ANTI-LOBBYING AND DEBARMENT ACT:

THE CONTRACTOR WILL BE EXPECTED TO COMPLY WITH FEDERAL STATUES REQUIRED IN THE ANTI-LOBBYING ACT AND THE DEBARMENT ACT.

30. ADHERENCE TO JCAHO STANDARDS:

WHERE APPLICABLE, LSUHSC IS ACCREDITED BY THE JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS AND AS SUCH ALL CONTRACTORS, SUBCONTRACTORS, AND VENDORS AGREE TO ADHERE TO THE APPLICABLE STANDARDS PROMULGATED BY THE COMMISSION

31. IN ACCORDANCE WITH LOUISIANA LAW, ALL CORPORATIONS (RS 12:163) AND LIMITED LIABILITY COMPANIES (RS 12:1308.2) MUST BE IN GOOD STANDING WITH THE LOUISIANA SECRETARY OF STATE IN ORDER TO HOLD A CONTRACT WITH THE STATE.

32. INTERPRETATION OF DOCUMENT:

ANY INTERPRETATION OF THE BID OR QUOTATION DOCUMENT WILL ONLY BE MADE BY AN ADDENDUM ISSUED IN WRITING BY THE PURCHASING DEPARTMENT. SUCH ADDENDUM WILL BE MAILED OR DELIVERED TO EACH PERSON RECEIVING A SET OF THE ORIGINAL BID OR QUOTATION DOCUMENTS. LSUHSC WILL NOT BE RESPONSIBLE FOR ANY OTHER EXPLANATION OR INTERPRETATION OF THE DOCUMENTS.

33. THIS SOLICITATION CONTAINS ALL TERMS AND CONDITIONS WITH RESPECT TO THE PURCHASE OF THE GOODS AND OR SERVICES SPECIFIED HEREIN. SUBMITTAL OF ANY CONTRARY TERMS AND CONDITIONS MAY CAUSE YOUR BID TO BE REJECTED. BY SIGNING AND SUBMITTING A BID, VENDOR AGREES THAT CONTRARY TERMS AND CONDITIONS WHICH MAY BE INCLUDED IN ITS BID ARE NULLIFIED AND AGREES THAT THIS CONTRACT SHALL BE CONSTRUED IN ACCORDANCE WITH THIS SOLICITATION.

34. VENDORS FORMS:

THE PURCHASE/RELEASE ORDER IS THE ONLY BINDING DOCUMENT TO BE ALLOWED AGAINST THIS CONTRACT. SIGNING OF VENDOR'S FORMS IS NOT ALLOWED.

Invitation to Bid

STANDARD TERMS & CONDITIONS

Page 8 of 10

NUMBER : 002985
OPEN DATE : 06/23/2026 TIME: 02:00 PM

BIDDER:

35. PUBLICIZING AWARDS:

IN ACCORDANCE WITH L.A.C 34:I.535, UNSUCCESSFUL BIDDERS WILL BE NOTIFIED OF THE AWARD PROVIDED THEY SUBMIT WITH THEIR BID A SELF-ADDRESSED STAMPED ENVELOPE REQUESTING THIS INFORMATION.

36. PREFERENCE:

IN ACCORDANCE WITH LOUISIANA REVISED STATUTES 39:1595, A PREFERENCE MAY BE ALLOWED FOR PRODUCTS MANUFACTURED, PRODUCED, GROWN, OR ASSEMBLED IN LOUISIANA OF EQUAL QUALITY. DO YOU CLAIM THIS PREFERENCE?

YES _____

SPECIFY THE LINE NUMBER (S) _____

SPECIFY LOCATION WITHIN LOUISIANA WHERE THIS PRODUCT IS MANUFACTURED, PRODUCED, GROWN OR ASSEMBLED _____

(NOTE: IF MORE SPACE IS REQUIRED, INCLUDE ON SEPARATE SHEET.)

DO YOU HAVE A LOUISIANA BUSINESS WORK FORCE? YES _____ NO _____

IF SO, DO YOU CERTIFY THAT AT LEAST FIFTY PERCENT (50%) OF YOUR LOUISIANA WORKFORCE IS COMPRISED OF LOUISIANA RESIDENTS?

YES _____ NO _____

FAILURE TO SPECIFY ABOVE INFORMATION MAY CAUSE ELIMINATION FROM PREFERENCES.

PREFERENCES SHALL NOT APPLY TO SERVICE CONTRACTS.

37. AUDIT OF RECORDS: THE STATE LEGISLATIVE AUDITOR, FEDERAL AUDITORS, AND INTERNAL AUDITORS OF THE STATE SHALL HAVE THE RIGHT TO INSPECT AND AUDIT ALL TIMEKEEPING AND EXPENSE RECORDS OF THE CONTRACTING ENTITY OR ANY SUBCONTRACTOR OF THE CONTRACTING ENTITY TO SUBSTANTIATE AMOUNTS INVOICED BY SUPPLIER WITH RESPECT TO THIS AGREEMENT. THE RIGHTS OF INSPECTION AND AUDIT SHALL COMMENCE AS OF THE DATE OF THIS AGREEMENT AND SHALL CONTINUE FOR A PERIOD OF FIVE (5) YEARS AFTER PROJECT ACCEPTANCE OR AS REQUIRED BY APPLICABLE STATE AND FEDERAL LAW. THE CONTRACTING ENTITY AND ANY SUBCONTRACTOR OF THE CONTRACTING ENTITY SHALL MAINTAIN ALL TIMEKEEPING AND EXPENSE RECORDS RELATED TO THIS AGREEMENT FOR THE ENUMERATED FIVE (5) YEAR PERIOD.

38. CONFIDENTIALITY: CONTRACTOR SHALL PROTECT FROM UNAUTHORIZED USE AND DISCLOSURE ALL INFORMATION RELATING TO THE STATE'S OPERATIONS AND DATA (E.G. FINANCIAL, STATISTICAL, PERSONAL, TECHNICAL, ETC.) THAT BECOMES AVAILABLE TO THE CONTRACTOR IN CARRYING OUT THIS CONTRACT. CONTRACTOR SHALL USE PROTECTING MEASURES THAT ARE THE SAME OR MORE EFFECTIVE THAN THOSE USED BY THE STATE. CONTRACTOR IS NOT REQUIRED TO PROTECT INFORMATION OR DATA THAT IS PUBLICLY AVAILABLE OUTSIDE THE SCOPE OF THIS CONTRACT; ALREADY RIGHTFULLY IN THE CONTRACTOR'S POSSESSION; INDEPENDENTLY DEVELOPED BY THE CONTRACTOR OUTSIDE THE SCOPE OF THIS CONTRACT; OR RIGHTFULLY OBTAINED FROM THIRD PARTIES.

39. CYBERSECURITY TRAINING: IN ACCORDANCE WITH LA. R.S. 42:1267(B)(3) AND THE STATE OF LOUISIANA'S INFORMATION SECURITY POLICY, IF THE CONTRACTOR, ANY OF ITS EMPLOYEES, AGENTS, OR SUBCONTRACTORS WILL HAVE ACCESS TO STATE GOVERNMENT INFORMATION TECHNOLOGY ASSETS, THE CONTRACTOR'S EMPLOYEES, AGENTS, OR SUBCONTRACTORS WITH SUCH ACCESS MUST COMPLETE CYBERSECURITY TRAINING ANNUALLY, AND THE CONTRACTOR MUST PRESENT EVIDENCE OF SUCH COMPLIANCE ANNUALLY AND UPON REQUEST. THE CONTRACTOR MAY USE THE CYBERSECURITY TRAINING COURSE OFFERED BY THE LOUISIANA DEPARTMENT OF STATE CIVIL SERVICE WITHOUT ADDITIONAL COST OR MAY USE ANY ALTERNATE COURSE APPROVED IN WRITING BY THE OFFICE OF TECHNOLOGY SERVICES.

Invitation to Bid

STANDARD TERMS & CONDITIONS	Page 9 of 10
NUMBER : 002985 OPEN DATE : 06/23/2026 TIME: 02:00 PM	BIDDER:
<p>FOR PURPOSES OF THIS SECTION, "ACCESS TO STATE GOVERNMENT INFORMATION TECHNOLOGY ASSETS" MEANS THE POSSESSION OF CREDENTIALS, EQUIPMENT, OR AUTHORIZATION TO ACCESS THE INTERNAL WORKINGS OF STATE INFORMATION TECHNOLOGY SYSTEMS OR NETWORKS. EXAMPLES WOULD INCLUDE BUT NOT BE LIMITED TO STATE-ISSUED LAPTOPS, VPN CREDENTIALS TO ACCESS THE STATE NETWORK, BADGING TO ACCESS THE STATE'S TELECOMMUNICATIONS CLOSETS OR SYSTEMS, OR PERMISSIONS TO MAINTAIN OR MODIFY IT SYSTEMS USED BY THE STATE. FINAL DETERMINATION OF SCOPE INCLUSIONS OR EXCLUSIONS RELATIVE TO ACCESS TO STATE GOVERNMENT INFORMATION TECHNOLOGY ASSETS WILL BE MADE BY THE OFFICE OF TECHNOLOGY SERVICES.</p>	

Invitation to Bid

PRICE SHEET		Page 10 of 10			
NUMBER : 002985 OPEN DATE : 06/23/2026 TIME: 02:00 PM		BIDDER:			
UNLESS SPECIFIED ELSEWHERE SHIP TO: 433 Bolivar St New Orleans LA 70112					
Line No.	Description	Qty	UOM	Unit Price	Extended Amount
1	BR OCIS AV EQUIPMENT Specify brand, model bid(if applicable) <hr style="width: 30%; margin-left: 0;"/> BR OCIS AV EQUIPMENT	1.00	EA		

LSU Health New Orleans (LSUHNO) requests bids for the School of Nursing Off Campus Instructional Site (OCIS) Audio/Visual Upgrade as specified in this scope of work.

The parts list attached is not meant to be an exhaustive list of all necessary parts, but includes all major components needed to achieve the desired functionality; the integrator is responsible for providing all components for the system not specified in this document as OFE (Owner Furnished Equipment) to complete a functioning system as described in this document. The integrator is responsible for providing specifications for power, data, conduit, and floor penetration(s). The integrator is also responsible for field verification of all dimensions during the installation process. A one-line drawing of the system design must be submitted to LSUHNO for comments and revisions before installation.

This document and the Parts List associated with this project supersedes any other documents which describe general standards as dictated by LSUHNO. Any question on this or any part of the bid must be submitted as detailed in the bid documents.

All installation must be performed following the manufacturer's specifications.

All bidders on this project must be direct dealers for Crestron equipment.

Summary

There are several types of spaces in this project:

- Debrief Rooms B330, B350
- Skills Lab B340
- Simulation Control Room B373 (South and North), Simulation Rooms B371, B377
- Simulation Control Room B374 (South and North), Simulation Rooms B370, B378
- Shared Classroom B320
- Shared Classroom 1340
- Anatomy Lab

Each of these will be described in its own section.

Debrief Rooms B330, B350

Control

The systems for these rooms are identical. The description below is for one room that will be duplicated for the other. The entire system must be controlled with a Crestron VC-4 control system. The integrator is responsible for providing one Room license per room and programming the system. The VC-4 server is OFE. The user interface with

the control system will be a Crestron TSW-770-X-S touch panel. The user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Hide Picture on/off
- Mute mic on/off
- Mute Volume on/off
- Camera control with presets
- The ability to send an e-mail help request to the LSUHNO Support from the touch panel
- Crestron's X-Panel web-based control

Equipment Placement

The following equipment will be installed behind the display or under the table directly beneath the display:

- Crestron DM-NVX-360 Encoder/Decoder (x2)
- Q-Sys Core8Flex
- Dell MFF PC (OFE)
- USB Hub
- Crestron HD-HA2-4KZ-E
- Learning Space Capture device (OFE)

Video

The Sony Professional 75" monitor will be mounted on the Chief mount as directed and approved by LSUHNO.

The Dell MFF PC (OFE) will be connected to the input of the DM-NVX-360 set in decoder mode. The output of the DM-NVX-360 will be connected to the input of the HDMI DA. One output of the HDMI DA will be connected to the display via a long HDMI cable that will run through the wall behind the display. The other DA output will be connected to the Learning Space capture device (OFE).

Another DM-NVX-360 will be mounted under the table and an HDMI connected to the HDMI input of the NVX will be pulled up through the table's cable management for users to connect a laptop (OFE) at the table. The USB connection of the NVX-360 will be used to connect the wireless mouse and keyboard combination at the table to the PC in the credenza (OFE) via NUX routing.

The Marshall USB PTZ camera mounted above the display and will be connected to the PC (OFE) for web conferencing. The Axis cameras (OFE) for Learning Space will be placed as directed and approved by LSUHNO. Configuration of the Learning Space devices (OFE) will be performed by Elevate Health and LSUHNO.

Audio

The audio from the NVX system will be routed by the Core8Flex using AES67 audio routing. The Shure MXA902 microphone with loudspeaker will be routed by the Core8Flex using Dante audio; this microphone will be used only for conferencing and recording audio, not for sound reinforcement in the room. The Core8Flex will be connected to the PC (OFE) via USB to provide microphone audio to the PC (OFE) for web conferencing.

The Learning Space Audio Network Bridge (OFE) will receive two channel analog audio from the Core8Flex and will send two channel analog audio to the Core8Flex to provide connectivity to the Learning Space system (OFE).

Recording

The Learning Space system (OFE) will use the Axis cameras (OFE), Audio Network Bridge (OFE), and Learning Space Capture device (OFE) to create a recording within the Learning Space system (OFE). This system (OFE) will be configured by Elevate Health and LSUHNO; the hardware installation and field connections will be performed by the integrator as part of this project as directed and approved by LSUHNO.

Scheduling

The Crestron TSS-1070 will be mounted in the hallway outside of the room next to the door. The panel will be configured for 25Live by LSUHNO

Networking

The integrator will connect the NVX endpoints and other network endpoints to field jacks provided and configured by LSUHNO. The switch will be configured and managed by the LSUHNO Enterprise Network Group. Cabling for all network endpoints from the network closet to this room will be provided and installed by LSUHNO. The integrator is responsible for all network patch cables at the field end which must adhere to LSUHNO network specifications.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must** be **plenum** rated. All cables connected to Crestron devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Skills Lab B340

Control

The entire system must be controlled with a Crestron VC-4 control system. The integrator is responsible for providing one Room license per room and programming the system. The VC-4 server is OFE. The user interface with the control system will be a Crestron TS-1070-X-S touch panel. The user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Video Routing
- Hide Picture on/off
- Mute Microphone on/off
- Mute Volume on/off
- The ability to send an e-mail help request to the LSUHNO Support from the touch panel
- Crestron's X-Panel web-based control

The TSS-1070 scheduling panel will be mounted and connected by the integrator and configured by LSUHNO for use with 25Live.

Lectern

The lectern used for this project must be a Marshall Furniture custom lectern (Model number LSU-MWSP-32). The lectern will house the following devices:

- Crestron DM-NVX-360 Encoder/Decoder (x2)
- Q-Sys Core 110f
- Dell AIO PC (OFE)
- Monitor arm for Dell AIO PC (PC is OFE)
- USB Hub
- Crestron AM-3200-WF
- Crestron TS-1070
- Axis Network Audio Bridge (x4)
- Sennheiser gooseneck microphone
- j5Create 360 degree camera on mount
- Extron Cable Cubby 500 with cable pass through

Video

The Dell AIO PC (OFE) will be connected to the input of the DM-NVX-360. An HDMI cable will be connected to the HDMI input of the second DM-NVX-360 and the other end of that cable will be pulled through the Cable Cubby to the lectern top for users to connect a laptop (OFE).

Around the room on the walls above each of the 15 beds, will be mounted a Sony Professional 55" monitor on the Chief mount as directed and approved by LSUHNO. Behind each display will be a Crestron DM-NVX-D30 with its output connected to the HDMI input of the display.

There will be additional equipment behind four of these displays to support recording with Learning Space. These four will be designated by LSUHNO. Behind these displays there will also be mounted a Crestron HD-DA2-4KZ-E and a Learning Space capture device (OFE). One output of the DA2 will be connected to the Learning Space capture device (OFE) via HDMI and the other to the HDMI input of the display.

Next to each bed at outlet level will be mounted a Crestron DM-NXV-E20-2G to provide a local input for the monitor that can also be distributed across all monitors in the room if desired.

The j5Create 360 degree webcam will be mounted on the lectern and be connected to the AIO PC (OFE) via USB for web conferencing.

The Axis cameras (OFE) for Learning Space will be placed as directed and approved by LSUHNO. Configuration of the Learning Space devices (OFE) will be performed by Elevate Health and LSUHNO.

Audio

The Q-Sys Core 110f will be located in the lectern. The audio from the NVX system will be routed by the Core 110f using AES67 audio routing. The Shure MXA902 microphones with loudspeakers will be routed by the Core 110f using Dante audio; this microphone will be used only for conferencing and recording audio, not for sound reinforcement in the room. The Sennheiser wireless microphones will connect to the Sennheiser SL MCR 4 receiver and their audio routed by the Core 110f via Dante audio. These microphones will be used both for recording and sound reinforcement. The Core 110f will be connected to the credenza PC (OFE) via USB to provide a mix of the microphone audio to the PC for web conferencing.

In the lectern, four Learning Space Audio Network Bridges (OFE) will each receive two channel analog audio from the Core 110f and each will send two channel analog audio to the Core 110f to provide connectivity to the Learning Space system (OFE).

The four Shure MXA902 units will provide local sound reinforcement for the mix of the wireless microphones and program audio.

Recording

The Learning Space system (OFE) will use the Axis cameras (OFE), Audio Network Bridges (OFE), and Learning Space Capture devices (OFE) to create a recording within the Learning Space system (OFE). This system (OFE) will be configured by Elevate Health and LSUHNO; the hardware installation and field connections will be performed by the integrator as part of this project as directed and approved by LSUHNO.

Scheduling

The Crestron TSS-1070 will be mounted in the hallway outside of the room next to the door. The panel will be configured for 25Live by LSUHNO

Networking

The integrator will connect the NVX and other network endpoints to field jacks provided and configured by LSUHNO. The switch will be configured and managed by the LSUHNO Enterprise Network Group. Cabling for all network endpoints from the network closet to this room will be provided and installed by LSUHNO. The integrator is

responsible for all network patch cables at the field end which must adhere to LSUHNO network specifications.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must be plenum** rated. All cables connected to Crestron devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Simulation Control Room B373 (South and North), Simulation Rooms B371, B377

Control

The entire system must be controlled with a Crestron VC-4 control system running on an LSUHNO server (OFE) in the LSUHNO data center. The integrator will provide the required single room license for B373, B371, and B377. B373 South will control B371 and B373 North will control B377. Both South and North sides of the control room will be identical.

Within B373 is a control station, South and North, for each room that faces its Simulation room. Each control station will have a Crestron TS-1070 touch panel on the table top; the user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Video Routing
- Hide Picture on/off
- Mute Volume on/off
- Lighting control
- Crestron's X-Panel web-based control

Tables and Rack

Within B373, there will be two counter height tables (OFE), one on each South and North sides of the room. There will be a short floor rack provided by the integrator on the wall opposite the door. Mounted on or under each table (Sout and North) will be:

- 2 Crestron DM-NVX-360
- 1 Crestron TS-1070
- 1 Q-Sys QIO-ML2x2
- 1 Sennheiser MEG 14-40 with a Sennheiser MAT 133-S B table stand
- 1 pair JBL 104 monitor speakers
- 1 pair Sennheiser HD 200 PRO headphones
- 1 Cisco IP Phone (OFE)
- 1 JK Audio QTIFB handset tap

The integrator will mount in the short rack:

- 1 Crestron AMP-X50MP
- 1 Q-Sys Core 110f
- 2 Learning Space Network Audio Interfaces (OFE)
- 1 Furman M-8x2 power conditioner

Inside of B371 and B377, each room will have installed the following equipment at the listed locations, all of which will be coordinated with and approved by LSUHNO:

- 1 Sony 55" display mounted on the specified Chief mount, wall mounted
- 1 Shure MXA 902 microphone with loudspeaker, ceiling mounted
- 3 Crestron DM-NVX-360 units, 1 behind the display, 1 at the bedside nightstand, 1 on laptop cart
- 1 Crestron HD-DA2-4KZ-E, behind display
- 2 Leaning Space cameras (OFE), TBD
- 1 Learning Space Digital Capture Unit (OFE), behind display
- 1 Learning Space Wireless Bridge (OFE), TBD
- 1 Yamaha VXS1MLX mini speaker, at the head of the bed

Video

South and North sides of the control room will each have 2 DM-NVX-360 units mounted under the table each with an HDMI cable connected to their inputs to provide two HDMI inputs; one for a PC (OFE) and one for a laptop (OFE). These inputs can be routed as needed to the display in their respective Simulation rooms.

Within rooms B371 and B377, each room will have a Sony 55" display mounted as directed and approved by LSUHNO. Behind each display will be a DM-NVX-360 endpoint, its HDMI output being connected to a HD-DA2-4KZ-E. One of the outputs of this device will be connected to the HDMI input of the display. The other output will be connected to the Learning Space Digital Unit (OFE).

The two Learning Space digital cameras (OFE) will be mounted as specified and approved by LSUHNO. The network wiring to support these units will be provided by LSUHNO; the integrator is responsible for mounting and connecting these devices in the field. The camera will be configured for Learning Space by Elevate Health and LSUHNO.

Another DM-NVX-360 unit will be installed at the bedside nightstand in each room and connected to the simulated vitals monitor (OFE) via HDMI. The third DM-NVX-360 unit will be installed on the laptop cart provided by the integrator. It will be connected as needed to a network wall jack via a long ethernet patch cable.

Audio

All audio for rooms B373, B371 and B377 will be routed by the Q-Sys Core110f using AES67 or Dante audio as appropriate. The Q-Sys QIO-ML2x2 at each table will be connected as follows:

- Inputs:
 - Sennheiser table microphone
 - JK Audio phone tap
- Output:
 - JBL 104 monitor speakers
 - The Sennheiser headphones will be connected as needed to the headphone jack on the JBL 104

The control rooms will be able to communicate with their two simulation rooms using the Shure MXA902 microphone/loudspeaker units. The table microphone at each control station will allow the simulation coordinator to project their voice into the room over the MXA902 speaker utilizing the table microphone's push to talk feature. The coordinator will also be able to project their voice into the speaker placed at the simulated patient's head. This will be achieved by selecting the patient speaker on the touch panel and

routing the audio via Dante to the Core 110f. The Core110f will also be programmed with a pitch change feature that can be used on the patient speaker. By activating the feature on the Crestron touch panel, the user will be able to change the pitch of their voice to the patient speaker using a virtual slider.

At each control station, the JBL 104 monitor speakers will provide room audio from the associated simulation room. The simulation coordinator will be able to connect the headphones to the jack on the JBL speakers to provide private listening.

The Q-Sys Core110f in the rack, in addition to handling the digital audio, will output two analog audio channels to each of the Learning Space Network audio modules (OFE) and accept two analog audio channels from each device. The Core will also provide a single channel of analog audio to each channel of the Crestron amplifier to feed the patient microphone for each room to one channel. Two analog output channels will then be fed from the amplifier to the patient speakers in the room, one channel for each speaker.

The Learning Space Network audio modules (OFE) will allow for audio to be sent to the MXA902 loudspeaker in each room using Learning Space.

Networking

The integrator will connect the NVX endpoints and other network endpoints to field jacks provided and configured by LSUHNO. The switch will be configured and managed by the LSUHNO Enterprise Network Group. Cabling for all network endpoints from the network closet to this room will be provided and installed by LSUHNO. The integrator is responsible for all network patch cables at the field end which must adhere to LSUHNO network specifications.

Recording

The Learning Space system (OFE) will use the Axis cameras (OFE), Audio Network Bridge (OFE), and Learning Space Capture device (OFE) to create a recording within the Learning Space system (OFE). This system (OFE) will be configured by Elevate Health and LSUHNO; the hardware installation and field connections will be performed by the integrator as part of this project as directed and approved by LSUHNO.

Scheduling

The Crestron TSS-1070 will be mounted in the hallway outside of the Simulation rooms next to the doors. The panel will be configured for 25Live by LSUHNO

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must** be **plenum** rated. All cables connected to Crestron DM devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Simulation Control Room B374 (South and North), Simulation Rooms B370, B378

Control

The entire system must be controlled with a Crestron VC-4 control system running on an LSUHNO server (OFE) in the LSUHNO data center. The integrator will provide the required single room license for B373, B371, and B377. B374 South will control B370 and B374 North will control B378. Both South and North sides of the control room will be identical.

Within B374 is a control station, South and North, for each room that faces its Simulation room. Each control station will have a Crestron TS-1070 touch panel on the table top; the user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Video Routing
- Hide Picture on/off
- Mute Volume on/off

- Lighting control
- Crestron's X-Panel web-based control

Tables and Rack

Within B374, there will be two counter height tables (OFE), one on each South and North sides of the room. There will be a short floor rack provided by the integrator on the wall opposite the door. Mounted on or under each table (Sout and North) will be:

- 2 Crestron DM-NVX-360
- 1 Crestron TS-1070
- 1 Q-Sys QIO-ML2x2
- 1 Sennheiser MEG 14-40 with a Sennheiser MAT 133-S B table stand
- 1 pair JBL 104 monitor speakers
- 1 pair Sennheiser HD 200 PRO headphones
- 1 Cisco IP Phone (OFE)
- 1 JK Audio QTIFB handset tap

The integrator will mount in the short rack:

- 1 Crestron AMP-X50MP
- 1 Q-Sys Core 110f
- 2 Learning Space Network Audio Interfaces (OFE)
- 1 Furman M-8x2 power conditioner

Inside of B370 and B378, each room will have installed the following equipment at the listed locations, all of which will be coordinated with and approved by LSUHNO:

- 1 Sony 55" display mounted on the specified Chief mount, wall mounted
- 1 Shure MXA 902 microphone with loudspeaker, ceiling mounted
- 3 Crestron DM-NVX-360 units, 1 behind the display, 1 at the bedside nightstand, 1 on laptop cart
- 1 Crestron HD-DA2-4KZ-E, behind display
- 2 Learning Space cameras (OFE), TBD
- 1 Learning Space Digital Capture Unit (OFE), behind display
- 1 Learning Space Wireless Bridge (OFE), TBD
- 1 Yamaha VXS1MLX mini speaker, at the head of the bed

Video

South and North sides of the control room will each have 2 DM-NVX-360 units mounted under the table each with an HDMI cable connected to their inputs to provide two HDMI

inputs; one for a PC (OFE) and one for a laptop (OFE). These inputs can be routed as needed to the display in their respective Simulation rooms.

Within rooms B370 and B378, each room will have a Sony 55" display mounted as directed and approved by LSUHNO. Behind each display will be a DM-NVX-360 endpoint, its HDMI output being connected to a HD-DA2-4KZ-E. One of the outputs of this device will be connected to the HDMI input of the display. The other output will be connected to the Learning Space Digital Unit (OFE).

The two Learning Space digital cameras (OFE) will be mounted as specified and approved by LSUHNO. The network wiring to support these units will be provided by LSUHNO; the integrator is responsible for mounting and connecting these devices in the field. The camera will be configured for Learning Space by Elevate Health and LSUHNO.

Another DM-NVX-360 unit will be installed at the bedside nightstand in each room and connected to the simulated vitals monitor (OFE) via HDMI. The third DM-NVX-360 unit will be installed on the laptop cart provided by the integrator. It will be connected as needed to a network wall jack via a long ethernet patch cable.

Audio

All audio for rooms B374, B370 and B378 will be routed by the Q-Sys Core110f using AES67 or Dante audio as appropriate. The Q-Sys QIO-ML2x2 at each table will be connected as follows:

- Inputs:
 - Sennheiser table microphone
 - JK Audio phone tap
- Output:
 - JBL 104 monitor speakers
 - The Sennheiser headphones will be connected as needed to the headphone jack on the JBL 104

The control rooms will be able to communicate with their two simulation rooms using the Shure MXA902 microphone/loudspeaker units. The table microphone at each control station will allow the simulation coordinator to project their voice into the room over the MXA902 speaker utilizing the table microphone's push to talk feature. The coordinator will also be able to project their voice into the speaker placed at the simulated patient's head. This will be achieved by selecting the patient speaker on the touch panel and routing the audio via Dante to the Core 110f. The Core110f will also be programmed with a pitch change feature that can be used on the patient speaker. By activating the feature on the Crestron touch panel, the user will be able to change the pitch of their voice to the patient speaker using a virtual slider.

At each control station, the JBL 104 monitor speakers will provide room audio from the associated simulation room. The simulation coordinator will be able to connect the headphones to the jack on the JBL speakers to provide private listening.

The Q-Sys Core110f in the rack, in addition to handling the digital audio, will output two analog audio channels to each of the Learning Space Network audio modules (OFE) and accept two analog audio channels from each device. The Core will also provide a single channel of analog audio to each channel of the Crestron amplifier to feed the patient microphone for each room to one channel. Two analog output channels will then be fed from the amplifier to the patient speakers in the room, one channel for each speaker.

The Learning Space Network audio modules (OFE) will allow for audio to be sent to the MXA902 loudspeaker in each room using Learning Space.

Networking

The integrator will connect the NVX endpoints and other network endpoints to field jacks provided and configured by LSUHNO. The switch will be configured and managed by the LSUHNO Enterprise Network Group. Cabling for all network endpoints from the network closet to this room will be provided and installed by LSUHNO. The integrator is responsible for all network patch cables at the field end which must adhere to LSUHNO network specifications.

Recording

The Learning Space system (OFE) will use the Axis cameras (OFE), Audio Network Bridge (OFE), and Learning Space Capture device (OFE) to create a recording within the Learning Space system (OFE). This system (OFE) will be configured by Elevate Health and LSUHNO; the hardware installation and field connections will be performed by the integrator as part of this project as directed and approved by LSUHNO.

Scheduling

The Crestron TSS-1070 will be mounted in the hallway outside of the Simulation rooms next to the doors. The panel will be configured for 25Live by LSUHNO.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only

come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must** be **plenum** rated. All cables connected to Crestron DM devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Shared Classroom B320

Control

This classroom is being shared with LSU A&M; this description will apply only to the LSUHNO portion of the system. All equipment specified as OFE-A, is being provided by LSU A&M as part of their portion of the project and will be installed and configured by another integrator. The installation of the LSUHNO equipment must be coordinated with the integrator responsible for installing the LSU A&M equipment. The entire system must be controlled with a Crestron CP4N (OFE-A) control system. The user interface with the control system will be a Crestron TS-1070-X-S touch panel (OFE-A). The user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Video Routing
- Hide Picture on/off
- Mute Microphone on/off
- Mute Volume on/off

- The ability to send an e-mail help request to the LSUHNO Support from the touch panel
- Crestron's X-Panel web-based control

Lectern

The lectern (OFE-A) used for this project will be provided by LSU A&M. The lectern (OFE-A) will house the following devices:

- Crestron DM-NVX-384 Encoder/Decoder (x2; 1 is OFE-A)
- Crestron DM-NVX-E30
- Crestron MD-NUX-R2 (OFE-A)
- Crestron HD-DA2-4KZ-E
- Dell SFF PC (OFE)
- Desktop PC (OFE-A)
- USB Hub
- Crestron TS-770 (OFE-A)
- Crestron CP4N (OFE-A)
- Crestron AMP-300 (OFE-A)
- Crestron PSU-MIDSPAN-USB-1-C (OFE-A)
- Axis Network Audio Bridge (OFE) (x1)
- Learning Space digital capture unit (OFE)
- Shure gooseneck microphone (OFE-A)
- j5Create 360 degree camera on mount
- Document camera (OFE-A)
- Furman M-8x2 power conditioner

Video

The Dell SFF PC (OFE) will be connected to the input of the DM-NVX-384. An HDMI cable will be connected to the HDMI input of the second DM-NVX-384 and the other end of that cable will be pulled through the cable management of the lectern (OFE) to the lectern top for users to connect a laptop (OFE). A Crestron DM-NVX-D30 will be located in the lectern. Its HDMI output will be connected to the input of the Crestron DA. One output of the DA will be connected to a lectern monitor (OFE-A) and the other to the Learning Space digital capture unit (OFE). This will allow the lectern monitor to display a duplicate of whatever content is being displayed in the room at the time and allow the capture unit to capture the same content. The USB connection of the DM-NVX-384 will be connected to the SFF Lectern PC (OFE) to provide routing of USB devices through the NVX system.

The Desktop PC (OFE-A) will be connected to one input of the DM-NVX-384 (OFE-A). The Crestron PSU-MIDSPAN-USB-1-C (OFE-A) will be connected to one of the USB-C

inputs of the DM-NVX-384 (OFE-A) and the USB-C input of the Crestron PSU-MIDSPAN-USB-1-C (OFE-A) will have a USB-C cable connected to it and pulled to the lectern (OFE-A) top for a user provided laptop. The document camera's HDMI output will be connected to the second HDMI input of the DM-NVX-384 (OFE-A). The USB output of the document camera will be connected to one of the ports on the DM-NUX-R2. The USB connection of the DM-NVX-384 will be connected to the SFF Lectern PC (OFE) to provide routing of USB devices through the NVX system.

The touch panel interface will allow users to select either of the DM-NVX-384 units (OFE, OFE-A) to route to the displays and to route USB devices to the appropriate PC (OFE, OFE-A).

The projector will be an Epson L690U (OFE-A) which will be ceiling mounted. A DM-NVX-360 (OFE-A) will be connected to the projector's input via HDMI. A PTZOptics PT12X-SE-xx-G3 camera (OFE-A) will be mounted in the rear of the classroom. Its USB port will be connected to the USB port on the DM-NVX-360 (OFE-A). This will allow the signal to be routed as needed by the NVX system.

The Learning Space Axis optical zoom cameras (OFE) will be mounted as directed and approved by LSUHNO. The j5Creste 360 degree webcam will be mounted on the lectern as directed and approved by LSUHNO. The USB connection of this camera will be connected to the SFF Lectern PC (OFE).

Audio

The Biamp TesiraForte DAN VT4 (OFE-A) will be located in the lectern (OFE-A). The audio from the NVX system will be routed by Biamp (OFE-A) using AES67 audio routing. The Shure MXA920 microphone will be routed by the Biamp (OFE-A) using Dante audio; this microphone will be used only for conferencing and recording audio, not for sound reinforcement in the room.

The Shure lectern microphone (OFE-A) and the Samson wireless microphone (OFE-A) will be connected to two of the inputs on the Biamp (OFE-A) for sound reinforcement, conferencing, and recording. One output of the Biamp (OFE-A) will be connected to the Crestron amplifier (OFE-A) in the lectern (OFE-A) which will be wired to the ceiling speakers (OFE-A). Two other outputs of the Biamp (OFE-A) will be connected to the Learning Space audio network bridge. The USB connection of the Biamp (OFE-A) will be connected to the DM-NUX-R2 for routing via the NVX system to the PCs (OFE, OFE-A).

Recording

The Learning Space system (OFE) will use the Axis cameras (OFE), Audio Network Bridges (OFE), and Learning Space Capture devices (OFE) to create a recording within

the Learning Space system (OFE). This system (OFE) and its endpoints (OFE) will be configured by Elevate Health and LSUHNO; the hardware installation and field connections will be performed by the integrator as part of this project as directed and approved by LSUHNO.

Networking

The integrator will connect the NVX and other network endpoints to field jacks provided and configured by LSU A&M and LSUHNO. The switch will be configured and managed by the LSU A&M and LSUHNO Network Groups. Cabling for all network endpoints from the network closet to this room will be provided and installed by others. The integrator is responsible for all network patch cables at the field end which must adhere to LSU A&M and LSUHNO network specifications.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must** be **plenum** rated. All cables connected to Crestron devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Shared Classroom 1340

Control

This classroom is being shared with LSU A&M; this description will apply only to the LSUHNO portion of the system. All equipment specified as OFE-A, is being provided by LSU A&M as part of their portion of the project and will be installed and configured by another integrator. The installation of the LSUHNO equipment must be coordinated with the integrator responsible for installing the LSU A&M equipment. The entire system must be controlled with a Crestron CP4N (OFE-A) control system. The user interface with the control system will be a Crestron TS-1070-X-S touch panel (OFE-A). The user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Video Routing
- Hide Picture on/off
- Mute Microphone on/off
- Mute Volume on/off
- The ability to send an e-mail help request to the LSUHNO Support from the touch panel
- Crestron's X-Panel web-based control

Lectern

The lectern (OFE-A) used for this project will be provided by LSU A&M. The lectern (OFE-A) will house the following devices:

- Crestron DM-NVX-384 Encoder/Decoder (x2; 1 is OFE-A)
- Crestron DM-NVX-E30
- Crestron MD-NUX-R2 (OFE-A)
- Crestron HD-DA2-4KZ-E
- Dell SFF PC (OFE)
- Desktop PC (OFE-A)
- USB Hub
- Crestron TS-770 (OFE-A)
- Crestron CP4N (OFE-A)
- Crestron AMP-300 (OFE-A)
- Crestron PSU-MIDSPAN-USB-1-C (OFE-A)
- Crestron HD-RXC-4KZ-101
- Mediasite RL Standard Recorder
- Delcom USB record light
- Shure gooseneck microphone (OFE-A)
- j5Create 360 degree camera on mount
- Document camera (OFE-A)

- Furman M-8x2 power conditioner

Video

The Dell SFF PC (OFE) will be connected to the input of the DM-NVX-384. An HDMI cable will be connected to the HDMI input of the second DM-NVX-384 and the other end of that cable will be pulled through the cable management of the lectern (OFE) to the lectern top for users to connect a laptop (OFE). A Crestron DM-NVX-D30 will be located in the lectern. Its HDMI output will be connected to the input of the Crestron DA. One output of the DA will be connected to a lectern monitor (OFE-A) and the other to the Mediasite RL Standard Recorder. This will allow the lectern monitor to display a duplicate of whatever content is being displayed in the room at the time and allow the recorder to capture the same content. The USB connection of the DM-NVX-384 will be connected to the SFF Lectern PC (OFE) to provide routing of USB devices through the NVX system.

The Desktop PC (OFE-A) will be connected to one input of the DM-NVX-384 (OFE-A). The Crestron PSU-MIDSPAN-USB-1-C (OFE-A) will be connected to one of the USB-C inputs of the DM-NVX-384 (OFE-A) and the USB-C input of the Crestron PSU-MIDSPAN-USB-1-C (OFE-A) will have a USB-C cable connected to it and pulled to the lectern (OFE-A) top for a user provided laptop. The document camera's HDMI output will be connected to the second HDMI input of the DM-NVX-384 (OFE-A). The USB output of the document camera will be connected to one of the ports on the DM-NUX-R2. The USB connection of the DM-NVX-384 will be connected to the SFF Lectern PC (OFE) to provide routing of USB devices through the NVX system.

The touch panel interface will allow users to select either of the DM-NVX-384 units (OFE, OFE-A) to route to the displays and to route USB devices to the appropriate PC (OFE, OFE-A).

The projector will be an Epson L690U (OFE-A) which will be ceiling mounted. A DM-NVX-360 (OFE-A) will be connected to the projector's input via HDMI. A PTZOptics PT12X-SE-xx-G3 camera (OFE-A) will be mounted in the rear of the classroom. Its USB port will be connected to the USB port on the DM-NVX-360 (OFE-A). This will allow the signal to be routed as needed by the NVX system. The HDMI output of the camera will be connected to the Crestron HD-TXC-4KZ-101 transmitter. This device will be connected to the HD-RXC-4KZ-101 in the lectern via a Cat cable pulled by the integrator to provide video content to the Mediasite recorder via HDMI.

Audio

The Biamp TesiraForte DAN VT4 (OFE-A) will be located in the lectern (OFE-A). The audio from the NVX system will be routed by Biamp (OFE-A) using AES67 audio routing. The Shure MXA920 microphone will be routed by the Biamp (OFE-A) using

Dante audio; this microphone will be used only for conferencing and recording audio, not for sound reinforcement in the room.

The Shure lectern microphone (OFE-A) and the Samson wireless microphone (OFE-A) will be connected to two of the inputs on the Biamp (OFE-A) for sound reinforcement, conferencing, and recording. One output of the Biamp (OFE-A) will be connected to the Crestron amplifier (OFE-A) in the lectern (OFE-A) which will be wired to the ceiling speakers (OFE-A). Two other outputs of the Biamp (OFE-A) will be connected to the Mediasite recorder. The USB connection of the Biamp (OFE-A) will be connected to the DM-NUX-R2 for routing via the NVX system to the PCs (OFE, OFE-A).

Recording

The Mediasite RL Standard recorder mounted in the lectern (lectern is OFE-A) will receive audio and video signals as described in the sections above. The deck can record by scheduling through the Mediasite system or by using the Delcom USB button mounted on the OFE-A lectern and connected to the Mediasite deck via USB. The Mediasite deck will be configured by LSUHNO.

Networking

The integrator will connect the NVX and other network endpoints to field jacks provided and configured by LSU A&M and LSUHNO. The switch will be configured and managed by the LSU A&M and LSUHNO Network Groups. Cabling for all network endpoints from the network closet to this room will be provided and installed by others. The integrator is responsible for all network patch cables at the field end which must adhere to LSU A&M and LSUHNO network specifications.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must be plenum** rated. All cables connected to Crestron devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

Anatomy Lab

Control

The entire system must be controlled with a Crestron VC-4 control system. The integrator is responsible for providing one Room license per room and programming the system. The VC-4 server is OFE. The user interface with the control system will be a Crestron TS-770 touch panel. The user interface design must be coordinated with and approved by LSUHNO. The system shall take advantage of all functionality offered by the Crestron control system including but not limited to:

- Display Power Control
- Volume Control
- Source Switching
- Hide Picture on/off
- Mute Microphone on/off
- Mute Volume on/off
- The ability to send an e-mail help request to the LSUHNO Support from the touch panel
- Crestron's X-Panel web-based control

Instructor Station

The built in instructor station will house the following devices:

- Crestron DM-NVX-384 Encoder/Decoder
- Q-Sys Core 8 Flex
- Crestron AMP-X50MP
- Dell AIO PC (OFE)
- Monitor arm for Dell AIO PC, wall mount (PC is OFE)
- USB Hub
- Crestron TS-770

Video

The Dell AOI PC (OFE) will be connected to one input of the DM-NVX-384. HDMI will be connected to the HDMI input of the second DM-NVX-384 in the lectern. and the other end of that cable will be pulled to the station top for users to connect a laptop (OFE).

Around the room on the walls will be mounted a Sony Professional 65" monitor on the Chief mount as directed and approved by LSUHNO. Behind each display will be a Crestron DM-NVX-D30 with its output connected to the HDMI input of the display.

A Crestron DM-NVX-E30 will be installed in the ceiling and the output of the in-light camera (OFE) will be connected to the input of the NVX-E30. The camera will be routable to the monitors in the room as required.

Audio

The audio from the NVX system will be routed by the Core 8 Flex using AES67 audio routing. The microphone audio from the Sennheiser SL MCR 4 will be routed by the Core 8 Flex via Dante audio to provide local sound reinforcement. The Core 8 Flex will provide an analog output to the Crestron amplifier. The amplifier will power the JBL ceiling speakers at 70V.

Scheduling

The Crestron TSS-1070 will be mounted in the hallway outside of the room next to the door. The panel will be configured for 25Live by LSUHNO

Networking

The integrator will connect the NVX and other network endpoints to field jacks provided and configured by LSUHNO. The switch will be configured and managed by the LSUHNO Enterprise Network Group. Cabling for all network endpoints from the network closet to this room will be provided and installed by LSUHNO. The integrator is responsible for all network patch cables at the field end which must adhere to LSUHNO network specifications.

Conclusion

Included in the bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHNO Purchasing Department stating this and LSUHNO must accept this status. Acceptance will only

come from the LSUHNO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHNO's acceptance of the project.

Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period.

Once the installation is complete, a demo and installation review and any relevant training must be rendered to representatives chosen by LSUHNO.

All cables which run through ceiling spaces **must** be **plenum** rated. All cables connected to Crestron devices must be Crestron certified. All cables must include a minimum of a 10% service loop. No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the rack. LSUHNO is a Crestron A+ Partner and must receive pricing at or below the A+ Partner pricing.

BR OCIS				
Debrief B330				
Part Number	Manufacturer	Description	Quantity	
FW-75EZ20L	Sony	75" Professional display	1	
LTM1U	Chief	Extra large Fusion mount	1	
FCAV1U	Chief	Pull out accessory	1	
VC-4-ROOM	Creston	Virtual control license	1	
DM-NVX-360	Creston	Network AV endcoder/decoder	2	
TSW-770-X-S	Creston	7" Touch panel, wall mount (color TBD)	1	
TSS-1070-X-S	Creston	10" Scheduling panel	1	
MXA902	Shure	Ceiling array microphone with loudspeaker	1	
Core8Flex	Q-Sys	Audio DSP with Dante and analog	1	
CV605-U3	Marshall	USB PTZ camera	1	
M3086-V	Axis	Digital camera for LearningSpace (OFE)	1	
M5526-E	Axis	Optical camera for LearningSpace (OFE)	1	
D3110 Mk II	Axis	Audio network bridge (OFE)	1	
ZT-465E	Zenty	Digital capture unit (OFE)	1	
HD-DA2-4KZ-E	Creston	1:2 HDMI DA	1	
USB3-7HUB	Comprehensive	USB 3.0 hub	1	
Debrief B350				
Part Number	Manufacturer	Description	Quantity	
FW-75EZ20L	Sony	75" Professional display	1	
LTM1U	Chief	Extra large Fusion mount	1	
FCAV1U	Chief	Pull out accessory	1	
VC-4-ROOM	Creston	Virtual control license	1	
DM-NVX-360	Creston	Network AV endcoder/decoder	2	
TSW-770-X-S	Creston	7" Touch panel, wall mount (color TBD)	1	
TSS-1070-X-S	Creston	10" Scheduling panel	1	
MXA902	Shure	Ceiling array microphone with loudspeaker	1	
Core8Flex	Q-Sys	Audio DSP with Dante and analog	1	
CV605-U3	Marshall	USB PTZ camera	1	

M3086-V	Axis	Digital camera for LearningSpace (OFE)	1
M5526-E	Axis	Optical camera for LearningSpace (OFE)	1
D3110 Mk II	Axis	Audio network bridge (OFE)	1
ZT-465E	Zenty	Digital capture unit (OFE)	1
HD-DA2-4KZ-E	Crestron	1:2 HDMI DA	1
USB3-7HUB	Comprehensive	USB 3.0 hub	1
Skills Lab, B340			
Part Number	Manufacturer	Description	Quantity
FW-55EZ20L	Sony	55" Professional display	15
MTM1U	Chief	Medium Fusion mount	15
FCAV1U	Chief	Pull out accessory	15
VC-4-ROOM	Crestron	Virtual control license	1
DM-NVX-360	Crestron	Network AV endcoder/decoder	2
AM-3200-WF	Crestron	Wireless presentation gateway	1
DM-NVX-D30	Crestron	Network AV decoder	15
DM-NVX-E20-2G-X-T	Crestron	Network AV encoder wallplate, color TBD	15
TS-1070-X-S	Crestron	10" Touch panel, tabletop (color TBD)	1
TSS-1070-X-S	Crestron	10" Scheduling panel	1
MXA902	Shure	Ceiling array microphone with loudspeaker	4
Core 110f	Q-Sys	Audio processor with Dante	1
SLDAN-32-P	Q-Sys	Dante license for 32x32	1
SL_MCR 4 DW-4	Sennheiser	Four channel receiver for SpeechLine microphones	1
SL Bodypack - ME 2 Kit DV	Sennheiser	Bodypack kit with omni microphone	1
SL Handheld 865 DW-4-US	Sennheiser	Handheld transmitter with 865 capsule	1
MEG 14-40 B	Sennheiser	Gooseneck microphone	1
CHG 2	Sennheiser	Table top charger with power supply	1
BA 30	Sennheiser	Spare battery for bodypack	1
BA 10	Sennheiser	Spare battery for handheld	1
M3086-V	Axis	Digital camera for LearningSpace (OFE)	4
M5526-E	Axis	Optical camera for LearningSpace (OFE)	4
D3110 Mk II	Axis	Audio network bridge (OFE)	4
ZT-465E	Zenty	Digital capture unit (OFE)	4

HD-DA2-4KZ-E	Crestron	1:2 HDMI DA		4
60-1892	Extron	Cable Cubby 500 with cable pass through (OFE)		1
USB3-7HUB	Comprehensive	USB 3.0 hub		1
JVCU360	j5Create	360 degree all around webcam		1
848-06	Panavise	Webcam mount		1
857548004768	HoverCam	Solo Spark II Document Camera		1
910-004984	Logitech	Spotlight remote presenter		1
LSU-MWSP-32	Marshall Furniture	Custom lectern		1
K1D120BXDL	Chief	Mounting arm for AOIPC		1
M-8x2	Furman	Power conditioner		1
Sim Control Room, B373				
Part Number	Manufacturer	Description		Quantity
VC-4-ROOM	Crestron	Virtual control license		1
DM-NVX-360	Crestron	Network AV encoder/decoder		4
TS-1070-X-S	Crestron	10" Touch panel, tabletop (color TBD)		2
AMP-X50MP	Crestron	Presentation amplifier 50W		1
Core110f	Q-Sys	Audio DSP with Dante and analog		1
SLDAN-32-P	Q-Sys	Dante license for 32x32		1
QIO-ML2x2	Q-Sys	Dante network audio expander		2
MEG 14-40	Sennheiser	Gooseneck microphone		2
MAT 133-S B	Sennheiser	Table top mic stand with mute button		2
104	JBL	Powered monitor speaker pair		2
HD 200 PRO	Sennheiser	Professional headphones		2
QuickTap	JK Audio	Telephone handset tap		2
D3110 Mk II	Axis	Audio network bridge (OFE)		2
RCS-1824	Middle Atlantic	18 RU rack (OFE)		1
UTR1-RP12	Middle Atlantic	Rack shelves for project, 12 pack		1
M-8x2	Furman	Power conditioner		1
Sim Control Room, B374				
Part Number	Manufacturer	Description		Quantity

VC-4-ROOM	Crestron	Virtual control license	1
DM-NVX-360	Crestron	Network AV encoder/decoder	4
TS-1070-X-S	Crestron	10" Touch panel, tabletop (color TBD)	2
AMP-X50MP	Crestron	Presentation amplifier 50W	1
Core110f	Q-Sys	Audio DSP with Dante and analog	1
SLDAN-32-P	Q-Sys	Dante license for 32x32	1
QIO-ML2x2	Q-Sys	Dante network audio expander	2
MEG 14-40	Sennheiser	Gooseneck microphone	2
MAT 133-S B	Sennheiser	Table top mic stand with mute button	2
104	JBL	Powered monitor speaker pair	2
HD 200 PRO	Sennheiser	Professional headphones	2
QuickTap	JK Audio	Telephone handset tap	2
D3110 Mk II	Axis	Audio network bridge (OFE)	2
RCS-1824	Middle Atlantic	18 RU rack (OFE)	1
M-8x2	Furman	Power conditioner	1
Sim Room B370			
Part Number	Manufacturer	Description	Quantity
FW-55EZ20L	Sony	55" Professional display	1
MTM1U	Chief	Medium Fusion mount	1
FCAV1U	Chief	Pull out accessory	1
MXA902	Shure	Ceiling array microphone with loudspeaker	1
DM-NVX-360	Crestron	Network AV encoder/decoder	3
HD-DA2-4KZ-E	Crestron	1:2 HDMI DA	1
M3086-V	Axis	Digital camera for LearningSpace (OFE)	1
M5526-E	Axis	Optical camera for LearningSpace (OFE)	2
ZT-465E	Zenty	Digital capture unit (OFE)	1
hAP ac	MicroTik	LearningSpace wireless bridge (OFE)	1
VXS1MLX	Yamaha	Mini speaker, color TBD	1
TSS-1070-X-S	Crestron	10" Scheduling panel	1
SV10-1100-0	Ergotron	Laptop cart	1

Sim Room B371		Manufacturer	Description	Quantity
Part Number	Manufacturer	Description	Quantity	Quantity
FW-55EZ20L	Sony	55" Professional display	1	1
MTM1U	Chief	Medium Fusion mount	1	1
FCAV1U	Chief	Pull out accessory	1	1
MXA902	Shure	Ceiling array microphone with loudspeaker	1	1
DM-NVX-360	Crestron	Network AV encoder/decoder	3	3
HD-DA2-4KZ-E	Crestron	1:2 HDMI DA	1	1
M3086-V	Axis	Digital camera for LearningSpace (OFE)	1	1
M5526-E	Axis	Optical camera for LearningSpace (OFE)	2	2
ZT-465E	Zenty	Digital capture unit (OFE)	1	1
hAP ac	MicroTik	LearningSpace wireless bridge (OFE)	1	1
VXS1MLX	Yamaha	Mini speaker, color TBD	1	1
TSS-1070-X-S	Crestron	10" Scheduling panel	1	1
SV10-1100-0	Ergotron	Laptop cart	1	1
Sim Room B377		Manufacturer	Description	Quantity
Part Number	Manufacturer	Description	Quantity	Quantity
FW-55EZ20L	Sony	55" Professional display	1	1
MTM1U	Chief	Medium Fusion mount	1	1
FCAV1U	Chief	Pull out accessory	1	1
MXA902	Shure	Ceiling array microphone with loudspeaker	1	1
DM-NVX-360	Crestron	Network AV encoder/decoder	3	3
HD-DA2-4KZ-E	Crestron	1:2 HDMI DA	1	1
M3086-V	Axis	Digital camera for LearningSpace (OFE)	1	1
M5526-E	Axis	Optical camera for LearningSpace (OFE)	2	2
ZT-465E	Zenty	Digital capture unit (OFE)	1	1
hAP ac	MicroTik	LearningSpace wireless bridge (OFE)	1	1
VXS1MLX	Yamaha	Mini speaker, color TBD	1	1
TSS-1070-X-S	Crestron	10" Scheduling panel	1	1
SV10-1100-0	Ergotron	Laptop cart	1	1

Sim Room B378			
Part Number	Manufacturer	Description	Quantity
FW-55EZ20L	Sony	55" Professional display	1
MTM1U	Chief	Medium Fusion mount	1
FCAV1U	Chief	Pull out accessory	1
MXA902	Shure	Ceiling array microphone with loudspeaker	1
DM-NVX-360	Crestron	Network AV encoder/decoder	3
HD-DA2-4KZ-E	Crestron	1:2 HDMI DA	1
M3086-V	Axis	Digital camera for LearningSpace (OFE)	1
M5526-E	Axis	Optical camera for LearningSpace (OFE)	2
ZT-465E	Zenty	Digital capture unit (OFE)	1
hAP ac	MicroTik	LearningSpace wireless bridge (OFE)	1
VXS1MLX	Yamaha	Mini speaker, color TBD	1
TSS-1070-X-S	Crestron	10" Scheduling panel	1
SV10-1100-0	Ergotron	Laptop cart	1
Shared Room 1340			
Part Number	Manufacturer	Description	Quantity
DM-NVX-384	Crestron	Network AV endcoder/decoder	1
DM-NVX-384	Crestron	Network AV endcoder/decoder (OFE-A)	1
DM-NVX-D30	Crestron	Network AV decoder	1
DM-NVX-360	Crestron	Network AV encoder/decoder (OFE-A)	1
DM-NUX-R2	Crestron	Network USB endpoint (OFE-A)	1
TSW-770	Crestron	7" Wall mounted touch panel (OFE-A)	1
CP4N	Crestron	Control processor (OFE-A)	1
AMP-300	Crestron	Amplifier (OFE-A)	1
PSU-MIDSPAN-USB-1-C	Crestron	Midspan power injector (OFE-A)	1
L690U	Epson	6000 Lumen projector (OFE-A)	1
HD-TXC-4KZ-101	Crestron	HDMI Tx	1
HD-RXC-4KZ-101	Crestron	HDMI Rx	1
MXA920X-S	Shure	Ceiling array microphone, color TBD	1
Standard Recorder	Sonic Foundry	Mediasite standard recorder	1
904006	Delcom	USB record light	1

LSU Health Sciences Center New Orleans (LSUHSC-NO) A/V Standards

This standard promulgates the A/V equipment brands that will be used on the LSU Health Sciences Center New Orleans campus when specifying and implementing Audio/Visual systems. Equipment brands rather than models are being specified in order to allow the flexibility to customize an A/V solution that best fits each project. For example, both the size and shape of a room will affect the model of projector, the screen size, audio requirements, and other attributes of the planned system.

1) Brand Standards:

- a) Established using statewide contracts that were bid by the Office of State purchasing
- b) Driven by major A/V installations and multiple smaller installations in every major building on campus
- c) Assure that LSUHSC-NO maximizes the consistency and interchangeability between installations
- d) Aid in providing the highest level of in-house expertise with a limited set of resources

2) "High-End" Installation:

- a) A system within a room, hall or auditorium that incorporates an image processor allowing for more flexibility in displaying content.
- b) An auditorium or space that is used by multiple departments and seats a large number of people.
- c) Only certain brands are allowed in "high-end" installations
 - i) These brands may also be used in other applications, but must be used in "high-end" projects in favor of any other brands listed.

3) Projectors:

- a) Installed Projectors:
 - i) Christie Digital projectors are specified for most installations; in specific cases, NEC projectors may be used with approval from LSUHSC-NO.
- b) Portable Equipment:
 - i) Christie and NEC are specified.

4) Screens:

- a) Mounted Projection Screens:
 - i) Fixed screens are preferred in any room where they are possible
 - ii) If a fixed screen cannot be used (i.e. due to room size or configuration) motorized or manual pull-down screens may be used
 - iii) The fabric will be high-contrast grey or white

- iv) Motorized screens must use a low-voltage motor controller
- v) Manufacturers:
 - (1) Draper and Da-lite for standard size screens
 - (2) Stewart Filmscreens for large, seamless custom sizes
- b) Portable Projection Screens:
 - i) Da-Lite and Draper are preferred if the size and aspect ratio needed are available
- 5) Microphones:**
 - a) Shure, Sennheiser, and Behringer
 - b) USB microphones:
 - i) Blue, Shure, Vaddio, HuddleCamHD, Anker
 - c) Analog Audio to USB Interfaces:
 - i) Shure, Behinger, Vaddio
 - d) "High-end" installations:
 - i) Wireless – Shure or Sennheiser
 - ii) Wired – Shure or Sennheiser
 - iii) Ceiling - Shure or Sennheiser
- 6) Speakers:**
 - a) JBL, Behringer, Crestron, or Extron
 - b) Networked speakers: Shure or Q-Sys
 - c) "High-end" installations:
 - i) JBL for standard, Shure or Q-Sys for networked speakers
- 7) Audio Processors/Mixers:**
 - a) QSC, Crestron, Behringer, Shure, and Extron
 - b) "High-end" installations:
 - i) QSC, Crestron, Shure
- 8) Audio Amplifiers:**
 - a) Crown, QSC, Lea, Behringer, Crestron, JBL, or Extron
 - b) "High-end" installations:
 - i) Crown, QSC, Lea
- 9) Document Cameras:**
 - a) Hovercam (for USB), WolfVision, or AverMedia
 - b) "High-end" installations:
 - i) Hovercam (for USB), WolfVision, AverMedia
- 10) Flat Panel Monitors and Televisions, Touch and Non-Touch:**
 - a) Sharp, Samsung, Christie, Dell, Sony, and LG
 - b) All monitors and televisions must be professional or commercial grade:

- i) This specification also applies to all touch screen, large format monitors, and televisions
- ii) Professional or commercial grade monitors and televisions are required due to their robust construction and design which allows them to operate in a less-forgiving environment
- iii) As a general rule, consumer monitors and televisions are not designed to be used in a public or commercial environment and their warranties are considered void if used in such a manner
- c) Monitors must have the ability to accept control from third party controllers via RS-232 or IP

11) Direct LED Walls:

- a) NanoLumens, Christie, or Samsung

12) Image Processor:

- a) Crestron

13) Interactive Displays:

- a) PC monitor based or flat panel based
 - i) Sharp, AVer, Dell, or Samsung
- b) Projection Interactive Whiteboard Systems:
 - i) SMART, Promethean, or Hitachi

14) Control Systems:

- a) Crestron

15) Touch Panel Interfaces:

- a) Crestron

16) A/V over IP:

- a) Crestron DM-NVX, NAX, and NUX series

17) Classroom Capture:

- a) SonicFoundry Mediasite

18) A/V Furniture:

- a) Lecterns, credenzas, etc.
 - i) Marshall Furniture, Middle Atlantic, or Spectrum Industries
- b) "High-End" installations:
 - i) Marshall custom lecterns or Middle Atlantic

19) Racks, Mounts and Carts:

- a) Middle Atlantic or Chief:
 - i) This does not apply to lecterns and credenzas (see A/V Furniture above).
- b) Ceiling mounts for projectors:
 - i) Use the Chief Universal Mount for projectors unless it is impossible in the room configuration.
- c) All wall mounted monitors will be mounted on Chief pull out mounts or Chief Fusion mounts with a pull out accessory.
- d) A/V carts, including their mounts:
 - i) Chief, Middle Atlantic, or Spectrum Industries

20) PTZ Video Cameras:

- a) Vaddio, AVer, Marshall, and Panasonic
- b) "High-End" installations:
 - i) Vaddio and AVer

21) DVD, DVD/VHS Combo Units, Blu-ray decks:

- a) Sony or LG

22) Videoconferencing Endpoints:

- i) LSUHSC no longer uses hardware endpoints; only Webconferencing is used
- ii) LSUHSC's current standards for Webconferencing are Zoom and Microsoft Teams, but all Webconferencing equipment must be Webconferencing platform agnostic

23) Power Conditioners/UPS Units:

- a) Furman, APC, SurgeX, or Tripp-Lite

24) Cables:

- a) Any cables connected to any Crestron device must be certified by Crestron if such a cable exists; if Crestron does not certify a cable that must be connected to a Crestron device, the cable must be approved by LSUHSC-NO.
- b) Cables for other purposes can be purchased from any manufacturer, although Crestron, Monoprice, Comprehensive, Extron, and Kramer are generally preferred.

25) Digital Signs:

- a) LSUHSC-NO uses FourWinds Interactive (FWi) for digital signs
- b) The hardware for these signs must be a professional display
 - i) Touch capability may be required and may be integrated into the monitor or effected by the use of an overlay
 - ii) The monitor must adhere to the guidelines for monitors listed in this document

26) Accessories and Components:

a) If something is required that is not in the standards listed above, or if the manufacturer in the above standard does not produce a product with the specifications required for the project, the first vendors that should be used, in no particular order, are:

- i) Crestron, Extron, Vaddio, JBL, Shure, Behringer, QSC, Dell, and Kramer.
- ii) If these manufacturers do not produce the needed component, the selected component must be approved by LSUHSC-NO

LSU Health New Orleans (LSUHSC-NO) A/V Installation Best Practices

To provide consistent installation standards as well as ease of support, the following best practices will be used:

- All finishes/colors must be coordinated with and approved by LSUHSC-NO.
- All installation must be performed following the manufacturer's specifications.
- To whatever degree possible or practical, signal conversion (e.g.: HDMI to VGA, analog to digital) is to be avoided since it introduces noise into the signal. Maintaining a signal's original format is to be done whenever possible. If signal conversion is required to achieve the system goals, it will be limited to as few conversions as required.
- All infrastructure must be as flexible as possible, allowing for future upgrades without the requirement of installing new infrastructure.
- LSUHSC-NO prefers customizable touch panel interfaces over button panels in most cases due to the flexibility that they offer.
- Included in any bid must be a one-year warranty on equipment and installation and a one-year contract for service and support. Once the integrator reaches substantial completion, the integrator must send a notice in writing to the LSUHSC-NO Purchasing Department stating this and LSUHSC-NO must accept this status. Acceptance will only come from the LSUHSC-NO Purchasing Department in writing to the integrator. The one-year agreements must start from LSUHSC-NO's acceptance of the project.
- Upon acceptance of the project, the vendor will turn over all information related to the project including but not limited to all as-built drawings, uncompiled Crestron code, programs, equipment user IDs and passwords, manuals, remotes, cases, software, warranty information, IP addresses, and spare hardware as well as keys and any special tools included for the equipment. Also, updated code and one line drawings must be provided as changes are made throughout the one-year support period. At the end of the warranty period, the integrator must ensure that current system programming and as-built drawings are delivered to LSUHSC-NO.
- All cables which run through ceiling spaces **must** be **plenum** rated.
- All cables connected to Crestron devices must be Crestron certified (see above).
- All cables must include a minimum of a 10% service loop.

- No permanent wire ties must be used; only releasable wire ties, clips, etc. or hook and loop straps are allowed within the lectern, credenza, or rack.

LSU Health

NEW ORLEANS

Department of Information Technology

433 Bolivar Street · New Orleans, LA 70112 · Phone 504-568-6130

Structured Cabling System: Design & Installation Standards

Table of Contents

Article I. Revision History 5

Article II. Definitions, Acronyms and Units of Measure..... 7

 Section 2.01 Definitions 7

 Section 2.02 Acronyms 8

 Section 2.03 Units of Measure 8

Article III. Design and Installation Standards Overview 9

 Section 3.01 Purpose 9

 Section 3.02 Caveats 9

 Section 3.03 Scope 9

 Section 3.04 Contractor/Installer Requirements 9

 Section 3.05 Coordination of Work..... 9

Article IV. Applicable Standards 10

 Section 4.01 Caveats 10

 Section 4.02 State of Louisiana Standards..... 10

 Section 4.03 BICSI Standards 10

 Section 4.04 ISO Standards 10

 Section 4.05 ITU Standards..... 10

 Section 4.06 NFPA Standards 10

 Section 4.07 TIA/EIA Standards 10

Article V. Underground Excavation 11

Article VI. Building Entrance Facilities 11

Article VII. Cross-Connect Design 11

 Section 7.01 General 11

 Section 7.02 Caveats 11

 Section 7.03 Asbestos Safety..... 11

 Section 7.04 Fire Protection 12

 Section 7.05 Entry Door..... 12

 Section 7.06 Access Controls 12

 Section 7.07 Location..... 12

 Section 7.08 Sizing..... 12

 Section 7.09 Ceiling 13

 Section 7.10 Walls..... 13

 Section 7.11 Flooring 13

 Section 7.12 Lighting 13

 Section 7.13 Floor Loading 13

 Section 7.14 Penetrations 13

 Section 7.15 HVAC..... 13

 Section 7.16 Electrical..... 14

Section 7.17	Electrical Emergency Disconnect	14
Section 7.18	Grounding.....	14
Article VIII.	Cross-Connect Build-out	14
Section 8.01	General	14
Section 8.02	Caveats	14
Section 8.03	Racks	14
Section 8.04	Vertical Cable Management	15
Section 8.05	Cable Runway Installation.....	15
Section 8.06	Cable Runway Drops.....	15
Article IX.	Rack Layout	21
Section 9.01	General	21
Section 9.02	Caveats	21
Section 9.03	Fiber Optic Enclosures	21
Section 9.04	Patch Panels.....	21
Section 9.05	Patch Panel Usage	22
(a)	Data Patch Panels	22
(b)	Special Use Patch Panels.....	Error! Bookmark not defined.
(c)	Telephony Cross-Connect Patch Panels	22
Section 9.06	Horizontal Cable Managements.....	22
Article X.	Cable Pathways	25
Section 10.01	General	25
Section 10.02	Caveats	25
Section 10.03	Abandoned Cables.....	25
Section 10.04	Cable Trays.....	25
Section 10.05	Cable Supports.....	25
Section 10.06	Conduits and Innerduct.....	26
Article XI.	Fiber Optic Cabling	27
Section 11.01	General	27
Section 11.02	Caveats	27
Section 11.03	Splice Points	27
Section 11.04	Installation Techniques.....	27
Section 11.05	Fiber Optic Service Loops	27
Section 11.06	Inter-building.....	27
Section 11.07	Intra-building.....	27
Section 11.08	Termination	27
Section 11.09	Testing	28
Section 11.10	Labeling.....	28
Article XII.	UTP Cabling.....	28
Section 12.01	General	28
Section 12.02	Caveats	28

Section 12.03	Penetrations	29
Section 12.04	Horizontal UTP Cables.....	29
Section 12.05	Horizontal UTP Cable Service Loops.....	29
Section 12.06	Modular Connectors	29
Section 12.07	Patch Cables	29
Section 12.08	Faceplates	29
Section 12.09	Cable Bindings	30
Section 12.10	Terminations.....	30
Section 12.11	Testing	31
Section 12.12	Documentation	31
Section 12.13	Standard Drop.....	31
Section 12.14	Non-Standard Drop.....	31
Section 12.15	Special Purpose Drops.....	32
(a)	AP Drop	32
(b)	Digital Sign Drop	32
(c)	HVAC, Access Control, and Security Appliance Drops.....	33
Article XIII.	Preferred Parts List	33
Section 13.01	Cable Management.....	34
Section 13.02	Cable Runway	34
Section 13.03	Cable Wraps	34
Section 13.04	Cable Tray and Support.....	35
Section 13.05	Faceplates	35
Section 13.06	Fiber Optics	35
Section 13.07	Grounding Busbar.....	36
Section 13.08	Labels	36
Section 13.09	Modular Jacks.....	36
Section 13.10	Patch Cables	36
Section 13.11	Patch Panels.....	37
Section 13.12	Standard Rack.....	37
Section 13.13	Surface Mount Raceway.....	37
Section 13.14	UTP Cabling.....	38
Section 13.15	Wireless Access Point Enclosures	38
Section 13.16	Wireless Access Point Wall Mounting Bracket	38

Article I. Revision History

Date	Area of Change	Scope of Change
1/21/2011	Document	Modified document verbiage to specify strict compliance with all LSUHSC requirements.
1/21/2011	Document	Reorganized document to cover all facets of wiring build-outs.
1/21/2011	Article III, Section 3.04	Added "Contractor/Installer Requirements" section to document.
1/21/2011	Article III, Section 3.05	Added "Coordination of Work" section to document.
1/21/2011	Article IV	Revised list of applicable industry standards
1/21/2011	Article V	Added "Preferred Part Number" section to document.
1/21/2011	Article VI	Added "Before you Dig" section to document.
1/21/2011	Article VII	Added "Building Entrance Facilities" section to document.
1/21/2011	Article VIII, Section 8.06	Added "Access Controls" section to document.
1/21/2011	Article VIII, Section 8.07	Added stipulation for no 1 st Floor HCs in multi-story buildings due to flooding concerns.
1/21/2011	Article VIII, Section 8.17	Added "Electrical Emergency Disconnect" section to document.
1/21/2011	Article VIII, Section 8.19	Added labeling requirements for conduits and innerduct.
1/21/2011	Article VIII, Section 8.19	Added caveats to prevent electrolysis.
1/21/2011	Article IX, Section 9.02	Removed 6" wide vertical cable management at end of racks.
		Increased vertical cable management between racks to 10" wide.
		Specified that all racks must be grounded.
1/21/2011	Article X, Section 10.04	Added "Special Use Patch Panels" section to document.
1/21/2011	Article X, Section 10.05	Modified layout of data patch panels in racks to better utilize vertical management.
1/21/2011	Article X, Section 10.06	Modified layout of voice patch panels in racks to better utilize vertical management.
1/21/2011	Article X, Section 10.07	Modified layout of telephony patch panels in racks to better utilize vertical management.
1/21/2011	Article XI, Section 11.01	Added installation caveat regarding building infrastructure shall not be used to support horizontal cabling.
1/21/2011	Article XI, Section 11.02	Specified that cable trays must be grounded.
1/21/2011	Article XII, Section 12.02	Added "Splice Points" section to document.
1/21/2011	Article XII, Section 12.03	Added "Service Loops" section to document.
1/21/2011	Article XII, Section 12.05	Specified that intra-building fiber must use 50 micron laser optimized fiber (OM4)
1/21/2011	Article XII, Section 12.07	Added labeling requirements for fiber optics.
1/21/2011	Article XII, Section 12.08	Specified that fiber optic terminations must use fusion splices.
1/21/2011	Article XIII, Section 13.02	Updated data/voice cable colors. Data is blue, Voice is Ivory.
1/21/2011	Article XIII, Section 13.02	Added special purpose cable colors. Purple is networking. Orange is building systems.
1/21/2011	Article XIII, Section 13.05	Added labeling requirements for special purpose cabling.
1/21/2011	Article XIII, Section 13.08	Added "Special Purpose Drops" section to document.
1/25/2011	Article I	Added "Revision History" section to document.
1/26/2011	Article XII, Section 12.01	Added caveat about pulling tension and bend radius.
1/26/2011	Article XIII, Section 13.01	Added caveat about pulling tension and bend radius.
1/31/2011	Article X, Section 10.02	Added caveat regarding patch panel placement in racks.
2/23/2011	Article III, Section 3.06	Added "Removal of Abandoned Cables" section to document
2/23/2011	Article XIII, Section 13.02	Added requirement for spacing between electrical and data outlets.
4/6/2011	Document	Rewrite to comply with R.S 38:2290

7/16/2012	Article XIII, Section 12.06	Added requirement for contractor to provide "special purpose" patch cables in cross-connect.
7/1/2016	Article III, Section 3.06	Added verbiage that contractor shall check with Network/Facilities prior to removal of abandoned cables.
8/9/2016	Article XII, Section 12.10	Added verbiage about marginal passing test results.
5/30/2017	Document	Revised document due to change in definition of a "Standard Drop"
8/7/2019	Article XII, Section 12.06	Added "Green" for Passive Poe Systems
12/11/20	Article XII, Section 12.02	Added caveat regarding cable splicing.
08/24/22	Document	Revised document including <ul style="list-style-type: none"> • General document clean-up and format changes • Industry Standards to reference latest standards • Intra-building fiber from laser optimized OM-4 to single-mode fiber. • Rack positioning with minimum clearance. • UTP cabling service loops
3/6/23	Article XIII	Added Preferred Parts List
3/6/23	Article XII, Section 12.15	Added wireless access point enclosure
9/27/23	Article XII, Sections 12.01, 12.07, & 12.15	Updated cabling standard, revised Patch Cables for Yellow to include "AV", and updated keystone module for access point drops
9/27/23	Article XIII	Removed Cat6+ cabling from wiring specs
9/27/23	Article IX, Section 9.06	Revised MC and HC Rack Layout diagrams
9/30/23	Article VIII	Updated MC and HC sample drawings
9/30/23	Article XIII	Added Keystone module for AP drops to preferred parts list
10/9/23	Document	Minor technical changes in various subsections.
12/12/24	Article XI, Section 11.07	Updated Intra-building fiber language to include both single mode and OM4 multimode fiber.

Article II. Definitions, Acronyms and Units of Measure

Section 2.01 Definitions

Abandoned Cable: As defined in paragraph 800.2 of the National Electric Code, any communication cable that is not terminated on both ends at a connector or other equipment and not identified for "For Future Use" with a tag.

Backbone: A facility (e.g., pathway, cable, or conductors) between telecommunications rooms, or floor distribution terminals, the entrance facilities and the equipment rooms within or between buildings.

Cable Run: A length of installed media which may include other components along its path.

Drop: An outlet that can support data, voice, or video applications.

Faceplate: The covering for a cable outlet usually flush mounted into a wall or a termination box mounted to the surface of a wall or floor. Faceplates typically have openings or insert positions for modular jacks.

Horizontal Cabling: The cabling between and including the telecommunications outlet/connector and the horizontal cross-connect.

Horizontal Cross-connect (HC): A cross-connect of horizontal cabling to other cabling, e.g., horizontal, backbone, equipment.

Main Cross-Connect (MC): A cross-connect for first level backbone cables, entrance cables and equipment cables.

Modular Jack: An 8 position 8 conductor (8P8C) connector commonly used to terminate twisted pair cabling. An 8P8C modular connector has two paired components: the male plug and the female jack.

Pathway: A facility for the placement of telecommunications cable.

Standard Drop: A drop in a work area consisting of two color-coded ports and two color-coded wires. Generally, one drop is used to support VoIP phone and workstation and one drop is available for spare.

Structured Cabling System: A complete system of cabling and associated hardware, which provides a comprehensive telecommunications infrastructure. Installations typically include entrance facilities, equipment rooms, backbone cabling, telecommunication rooms, horizontal cabling, and work areas.

Work Area: A building space where the occupants typically interact with computer equipment.

Section 2.02 Acronyms

ACR-F	Attenuation Crosstalk Ratio Far End
ACR-N	Attenuation Crosstalk Ratio Near End
ANSI	American National Standards Institute
AWG	American Wire Gauge
BICSI	Building Industry Consulting Service International
EMI	Electromagnetic interference
EMT	Electrical Metal Tubing
HC	Horizontal Cross-Connect
HVAC	Heating, Ventilation and Air Conditioning
IP	Internet Protocol
ISO/IEC	International Organization for Standards/ International Electrotechnical Commission
ITU	International Telecommunications Union
LSUHSC	LSU Health Sciences Center New Orleans
MC	Main Cross-Connect
NEXT	Near-end Crosstalk
NFPA	National Fire Protection Association
OS1	Optical Single-mode 1
OSI	Open Systems Interconnection
OTDR	Optical Time Domain Reflectometer
PVC	Polyvinyl Chloride
RCDD	Registered Communications Distribution Designers
RU	Rack Units
SC	Subscriber Connector
TGB	Telecommunications Grounding Busbar
TIA/EIA	Telecommunications Industry Association / Electronic Industries Association
UTP	Unshielded Twisted Pair
VoIP	Voice over IP

Section 2.03 Units of Measure

µm	Micrometer or micron
A	Ampere
dB	Decibel
ft or '	Foot
in or "	Inch
kPa	KiloPascal
lx	Lux
V	Volt

Article III. Design and Installation Standards Overview

Section 3.01 Purpose

This document is intended to provide a basic framework for the design specifications and requirements for all structured cabling system installations.

All campus renovations projects to existing work areas and new building construction shall include drawings for each structured cabling system sub-system (if applicable).

This document details the minimum performance criteria for all components which comprise a structured cabling system, including product specifications, design considerations and installation guidelines.

Section 3.02 Caveats

An authorized representative of the LSUHSC Department of Information Technology must approve all deviations from these standards in writing prior to implementation of the deviation.

All structured cabling system installations must be coordinated through the LSUHSC Department of Information Technology.

All construction projects must be approved by and coordinated through the LSUHSC Department of Property and Facilities Management.

The contractor is responsible for ensuring that all products selected are mated to interoperate such that the overall performance capability and usefulness of the structured cabling system is not degraded.

Section 3.03 Scope

This document applies to all LSUHSC facilities including all new construction and renovations to existing facilities or work areas.

These standards shall apply to all work performed by LSUHSC staff, contractors, sub-contractors and technicians.

Section 3.04 Contractor/Installer Requirements

This document is subject to revisions and modifications as necessary to maintain support and compatibility with changing construction techniques and technological developments.

The contractor/installer shall:

- Verify compliance with the most recent revision of this document and all applicable standards.
- Adhere to all applicable building, fire, and/or life safety codes, State laws and industry standards.
- Furnish all labor, supervision, tooling, miscellaneous mounting hardware and consumables for each cabling system installed.
- Remove all trash and debris daily.
- Submit all documentation that is necessary for a manufacturer provided warranty and/or a contractor/installer provided warranty. The warranty terms and conditions and coverage period shall be clearly stated.

Section 3.05 Coordination of Work

Serving as both an Academic Medical Center and a Healthcare Provider, it is often necessary that installations must be scheduled around daily business activities, such as classes and/or clinics.

Therefore, the contractor shall coordinate with the LSUHSC Department of Information Technology so that all necessary work will be accomplished in an orderly and timely manner with a minimal amount of disruption.

Article IV. Applicable Standards

Section 4.01 Caveats

In general, the following standards are to be used as minimum standards.

Compliance with the latest revision and all addenda for each of the applicable standards listed below is required.

In the event of ambiguities regarding requirements, the more stringent standard shall be adhered to. The LSUHSC Department of Information Technology will determine the more stringent standard that shall be adhered to.

Section 4.02 State of Louisiana Standards

State of Louisiana, Division of Administration: Facility, Planning & Control, Guideline Requirements, Specifications and Wiring Diagrams for Communications Cable/Wire and Related Building Facilities

Section 4.03 BICSI Standards

Telecommunications Distribution Methods Manual

Section 4.04 ISO Standards

ISO 9001: Quality Management Systems - Requirements

Section 4.05 ITU Standards

ITU-T G.652.D: Characteristics of a single-mode optical fibre cable

ITU-T G.651: Characteristics of a 50/125 mm multimode graded index optical fibre cable

Section 4.06 NFPA Standards

NFPA 70: National Electric Code

NFPA 75: Standard for the Protection of Information Technology Equipment

NFPA 101: Life Safety Code

Section 4.07 TIA/EIA Standards

TIA/EIA-526: Standard Test Procedures for Fiber Optic Systems

TIA/EIA-568: Commercial Building Telecommunications Wiring Standard

TIA/EIA-569: Telecommunications Pathways and Spaces

TIA/EIA-598: Optical Fiber Cable Color Coding

TIA/EIA-606: Administration Standard for the Telecommunications

TIA/EIA-607: Generic Telecommunications Bonding and Grounding for Customer Premises

TIA/EIA-758: Customer-Owned Outside Plant Telecommunications Infrastructure Standard

TIA/EIA-942: Telecommunication Infrastructure Standard for Data Centers

TIA/EIA-1179: Healthcare Facility Telecommunications Infrastructure Standard

Article V. Underground Excavation

All underground excavations shall adhere to Louisiana Revised Statute (RS) 40:1749.11 to 1749.27.

The contractor shall be responsible for contacting the regional notification centers prior to excavations so that utility providers in the area are properly notified and have adequate time to identify services.

All damages caused by the contractor shall be repaired at contractor's expense.

Article VI. Building Entrance Facilities

Every building should be constructed to allow for diverse entrance paths for telecommunication providers and/or inter-building fiber optic connectivity.

Telecommunication provider paths shall consist of a minimum of two 4" rigid metallic conduit pathways, fully populated with innerducts and pull-strings, from a hand-hole located on the property line into the building telecommunications room.

Hand-holes shall be a minimum of 24" wide x 36" length x 24" deep.

All non-rated copper or optical cables (i.e. outdoor cable plant) must transition to indoor rated cables within 50' of building entrance unless they are encapsulated in EMT or rigid conduit.

Pull strings shall be ¼" 500 lb strength pull rope.

No section of conduit shall be longer than 100' or contain more than two 90° bends between pull points or pull boxes.

The telecommunications room must have 4' x 8' x ¾" fire-rated plywood installed on the wall near the 4" conduit penetrations.

A TGB with #6 AWG ground wire to the main power ground for the building must be installed.

The actual point of entrance for all cable paths into LSUHSC facilities must be approved by the LSUHSC Department of Property and Facilities Management.

Article VII. Cross-Connect Design

Section 7.01 General

The Cross-Connect is the room where the horizontal and/or backbone cabling is terminated, and network electronics are installed. Depending on function, a cross-connect may serve as a MC, as an HC, or as both.

TIA/EIA-569 provides a standard for the design and construction of the cross-connect.

Section 7.02 Caveats

All applicable local, state, and federal codes shall be observed for the design of the cross-connect.

The cross-connect shall be dedicated to the telecommunications function and related support facilities.

The cross-connect shall not be shared with electrical installations other than those for telecommunications. Equipment not related to the support of the cross-connect (e.g., piping, ductwork, pneumatic tubing, plumbing, etc.) shall not be installed in, pass through, or enter the cross-connect.

Section 7.03 Asbestos Safety

A review of the current location, extent and condition of asbestos will be required. The construction of the cross-connect shall be such that the safety of the occupants of the building is not jeopardized before, during, or after construction.

If asbestos is determined to exist within the open areas of the cross-connect, sufficient notification shall be prominently displayed so that all people entering the room are informed of the risks of doing so.

Section 7.04 Fire Protection

Fire protection of the cross-connect shall be provided as per applicable code. All sprinkler heads shall be provided with wire cages to prevent accidental operation.

Section 7.05 Entry Door

The entry door shall be a minimum of 36" wide and 80" high, without a doorsill and fitted with a lock.

Code permitting, doors shall swing outward. Otherwise, inward door swing will be determined by the door placement such that the swing of the door opens into the nearest wall.

Section 7.06 Access Controls

Access to each cross-connect shall be tightly controlled and each room shall at a minimum be secured with a high security lock.

If additional security is deemed necessary by the LSUHSC Department of Information Technology, then the installation of proximity readers, electronic door strikes, and request-to-exit motion sensors or similar components shall be required.

Section 7.07 Location

The cross-connect shall be in an accessible area on each floor and shall be located as close as possible to the center of the building or the area being serviced. In multi-story buildings, if possible, there should not be a cross-connect located on the 1st floor to limit exposure from flooding.

All cross-connects within multi-story buildings shall be vertically stacked.

The cross-connect shall not be located adjacent to any electrical, mechanical, or other areas that are likely to emit EMI.

Section 7.08 Sizing

TIA/EIA-568 provides a standard for the sizing of cross-connects in commercial buildings. TIA/EIA-1179 provides a standard for the sizing of cross-connects in Healthcare Facilities.

Cross-connect sizing is generally based on the square footage of the area being serviced. Additional requirements such as density of drops in the service area or additional equipment that must be in the cross-connect may however require additional space.

Refer to table 1 below for the TIA/EIA minimum cross-connect size requirements.

Serving Area (Ft ²)	Minimum Cross-Connect Size
10000	10' x 11'
8000	10' x 9'
5000	10' x 7'
For support of additional services such as AV or Building MC services	10' x 16' or larger
Healthcare	10' x 13' or larger

Table 1: TIA/EIA Minimum Cross-Connect Sizing

If the floor size to be serviced exceeds 10,000 ft² or if distances between the cross-connect and work area exceeds 295', additional cross-connects will be required.

Section 7.09 Ceiling

For maximum flexibility, a false ceiling shall not be installed. The structural ceiling shall be painted white.

Section 7.10 Walls

A minimum of three walls shall be covered with rigidly fixed $\frac{3}{4}$ " A-C plywood, preferably void free, 8' high, capable of supporting attached equipment.

Plywood shall be either fire-rated and/or covered with two coats of fire-retardant paint and shall be installed in a horizontal orientation beginning 4' from the floor.

All walls shall be painted white to enhance room lighting.

Section 7.11 Flooring

Flooring shall consist of vinyl composition tile, off-white in color.

Section 7.12 Lighting

Fluorescent lighting shall be a minimum of 500 lx (50-foot candles) mounted a minimum of 9' above finished floor.

Lighting fixtures should not be powered from the same electrical distribution panel as the network electronics installed in the cross-connect.

Dimmer switches shall not be used.

To prevent EMI, lighting fixtures shall be kept a minimum of 18" away from cable pathways.

Emergency lighting and signs shall be properly placed such that an absence of light will not hamper emergency exit.

Section 7.13 Floor Loading

The cross-connect shall be located on floor areas designed with a minimum floor loading of 2.4 kPa (50 lb f/ft²).

Contractor shall verify that concentrations of proposed equipment do not exceed the floor loading limit.

If unusually heavy equipment is anticipated, these specifications may have to be increased.

Section 7.14 Penetrations

Penetrations through fire or smoke rated barriers shall be sealed with a fire stopping compound complying with NFPA and State Fire Marshal requirements.

There shall be a minimum of four 4" slab penetrations per cross-connect in order to reach cross-connects on lower floors. In buildings without a cross-connect on the 1st floor, additional penetrations may be required in the 2nd floor cross-connect to accommodate drops from the 1st floor.

Penetrations shall be placed such that:

- Where a slot is used, it shall have a minimum 1" curb around the top of the slot.
- Where a sleeve is used, it shall extend 1" – 3" above the floor.

Penetrations must be free of sharp edges so that cables will not be damaged.

Penetrations shall be sufficient to allow access to the main horizontal distribution pathway.

Section 7.15 HVAC

Planning for continuous HVAC (24 hours per day and 365 days per year) shall be included in the initial design.

HVAC shall be designed to maintain the cross-connects temperature the same as the adjacent office area. Ambient room temperature should be between 68° – 72° F.

A positive pressure shall be maintained with a minimum of one air change per hour, or as required by applicable code. When active devices (heat producing equipment) are present, enough air changes should be provided to dissipate the heat. The LSUHSC Department of Information Technology will provide the necessary heat dissipation information for all electronics that will be installed in the cross-connect to determine cooling requirements.

If a standby power source is available in the building, the HVAC system serving the cross-connect should be connected to the standby supply.

Section 7.16 Electrical

As electrical requirements vary by installation, the LSUHSC Department of Information Technology will provide the electrical circuit requirements including receptacle types and locations within each cross-connect prior to construction.

If standby power will be available, automatic transfer switchover of power should be provided.

Outlet faceplates to designate emergency power shall be red in color.

Outlet faceplates to designate building power shall be gray in color.

Section 7.17 Electrical Emergency Disconnect

Each cross-connect shall have a properly sized non-fusible safety switch disconnect installed, configured such that all outlets within the room are isolated when switched off.

The electrical emergency disconnect shall be mounted on the wall immediately inside of the door such that it is reachable without entering the cross-connect.

Section 7.18 Grounding

Refer to Article XIII for preferred parts list.

As per TIA/EIA-607, each cross-connect shall contain a TGB.

TGBs shall be located inside the cross-connect and be insulated from its support; a 2" separation is recommended.

TGBs shall be located to provide the greatest flexibility and accessibility for telecommunications system grounding. Multiple TGBs may be installed within the same closet to aid in minimizing bonding conductor lengths and terminating space.

Article VIII. Cross-Connect Build-out

Section 8.01 General

The specifications detailed in the following section are the "general" design requirements for each cross-connect.

Refer to figures 1 through 5 for an overhead, front, and side view showing an example of a typical MC or HC build-out.

Section 8.02 Caveats

Typical designs may need to be modified due to the room orientation, room dimensions, cable entrances facilities, drop density and/or voice and video requirements.

Section 8.03 Racks

Racks shall be at least 7' in height. Racks greater than 7' may be needed in areas where higher port density requirements exist.

Racks shall support 19" rack-mount widths.

RU should be clearly marked on the racks.

A minimum of three racks shall be installed in each HC.

A minimum of four racks shall be installed in the MC.

Racks shall be installed and secured as per the manufacturer's installation instructions.

Racks shall be positioned within the cross-connect to allow access to both the front and rear of all racks. A minimum of 48" of clearance shall exist between the front of the rack and the wall and the rear of the rack and the wall.

Racks shall be positioned within the cross-connect to allow the entry door to be fully opened.

Racks shall be properly grounded.

Section 8.04 Vertical Cable Management

Refer to Article XIII for preferred parts list.

Vertical cable management shall be a minimum of 10" wide.

Vertical cable management shall be double-sided to allow routing of cables from both front and rear.

Vertical cable management shall include hinged doors to hide cables.

Vertical cable management shall be installed between each rack in the cross-connect.

Vertical cable management shall be installed and secured as per the manufacturer's installation instructions.

Section 8.05 Cable Runway Installation

Refer to Article XIII for preferred parts list.

Cable runways shall be a minimum of 18" wide and black in color.

Cable runways shall be installed and secured as per the manufacturer's installation instructions.

Cable runways crossing above racks shall be secured to and supported above each rack using a cable runway standoff support.

Cable runways shall be properly grounded.

Section 8.06 Cable Runway Drops

Refer to Article XIII for preferred parts list.

Cable runway drops shall be installed to accommodate the cable bend radius to transition cable routing from horizontal cable runways and into each of the vertical cable managements.

Cable runway drops shall be mated for 18" cable runway.

Cable runway drops shall be installed and secured as per the manufacturer's installation instructions.

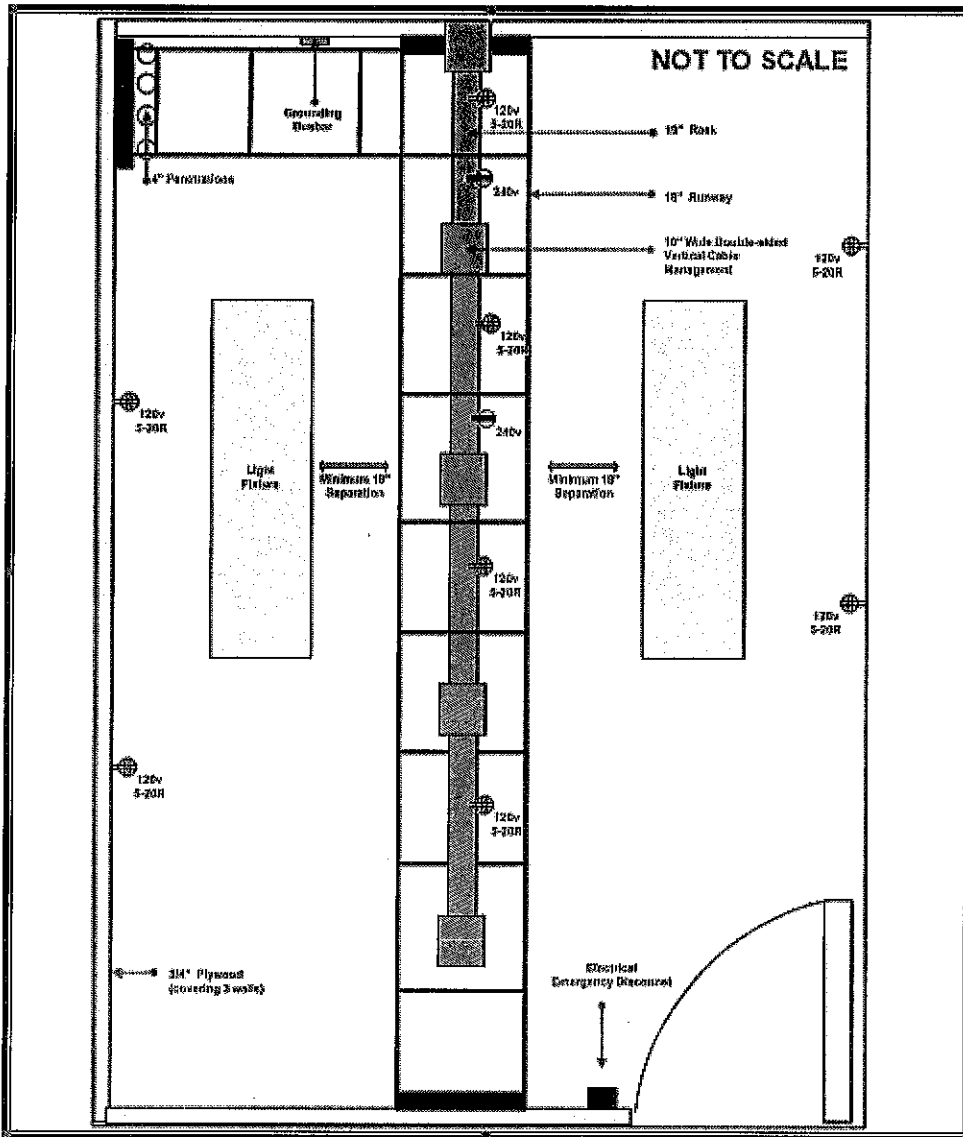


Figure 1: Main Cross-Connect Overhead View

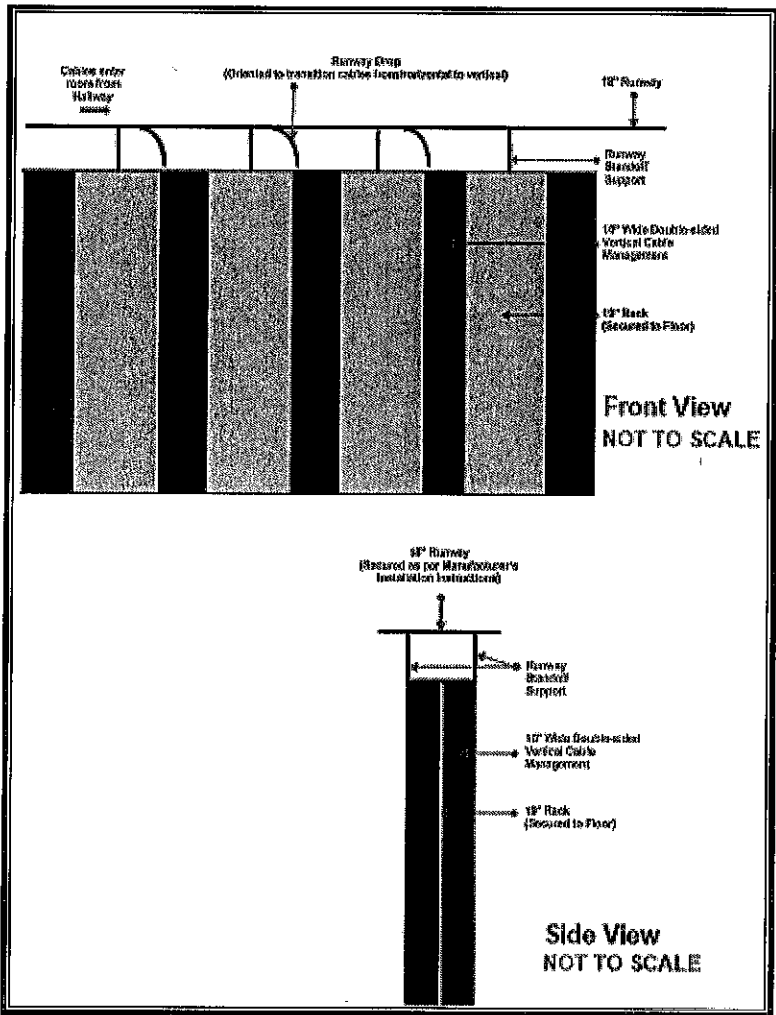


Figure 2: Main Cross-Connect Front and Side View

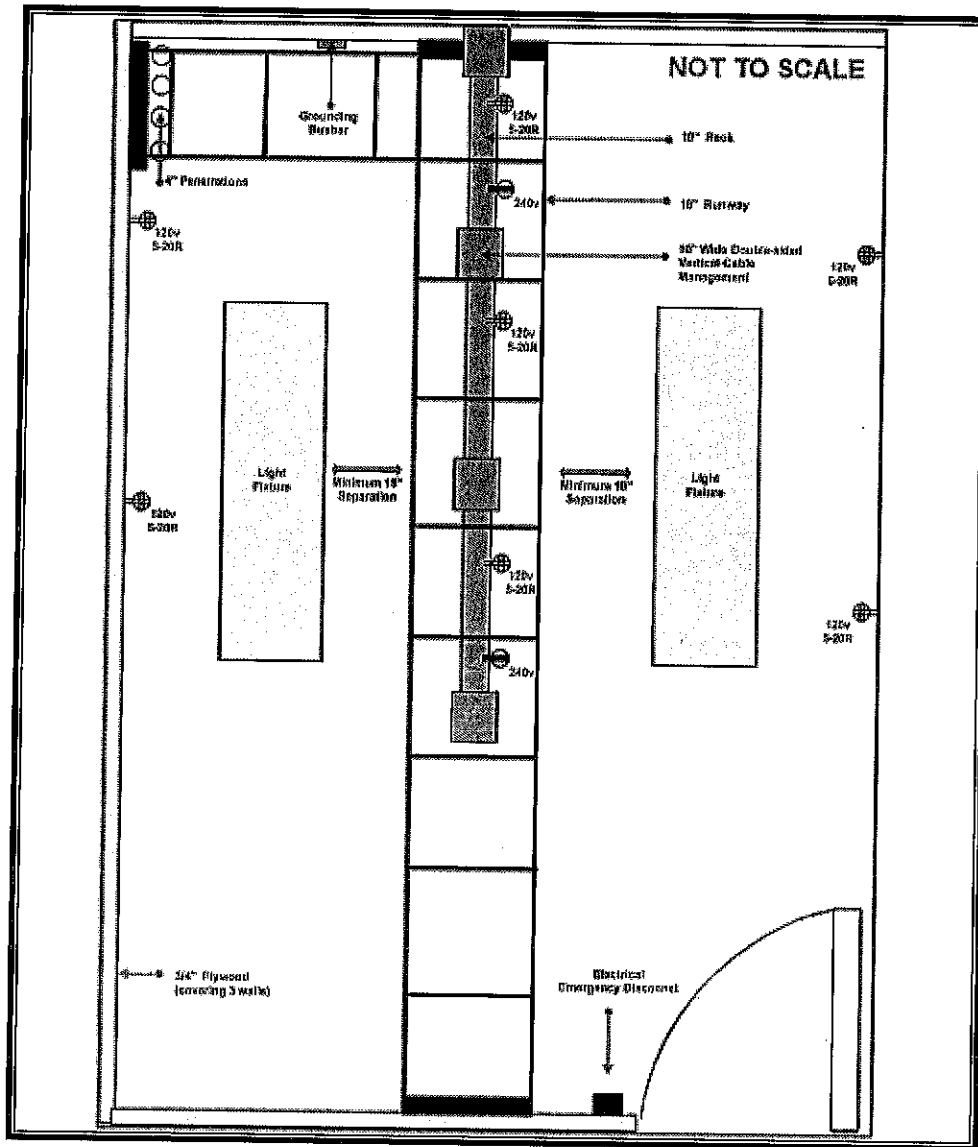


Figure 3: Horizontal Cross-Connect Overhead View

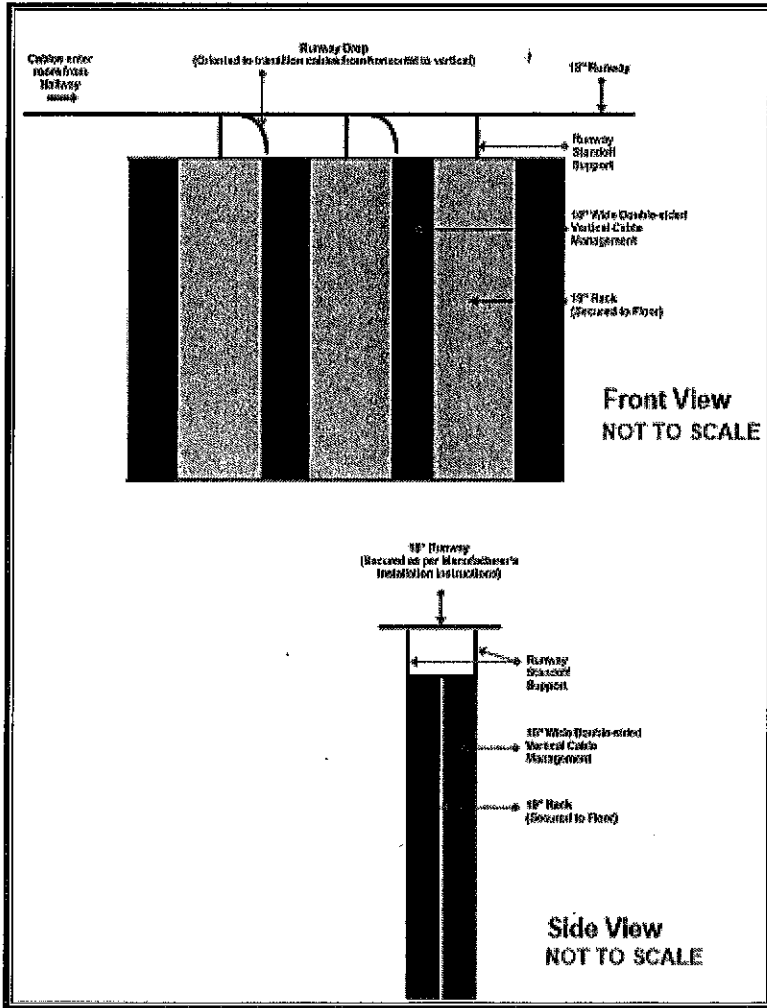


Figure 4: Horizontal Cross-Connect Front and Side View Rack Layout

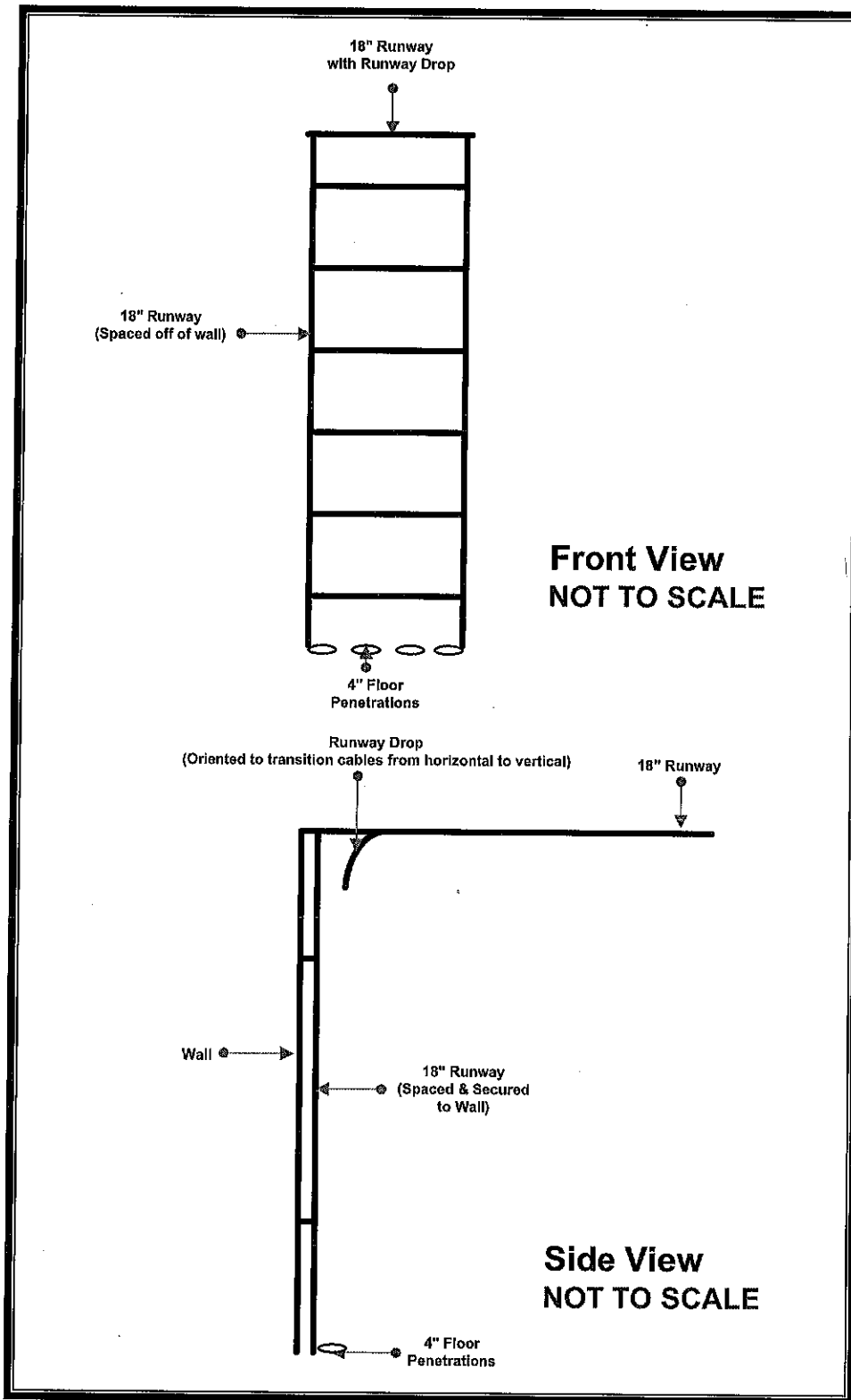


Figure 5: Vertical Cable Management

Article IX. Rack Layout

Section 9.01 General

Each HC build-out consists of a three-rack system.

When facing the front of the racks,

- The left most rack is designated as Data Rack 1.
- The middle rack is designated as Data Rack 2.
- The right most rack is designated as Data Rack 3.

In addition to the HC racks, the MC shall have an additional rack positioned left of the HC racks that will be designated as the Core Network Rack.

Refer to figure 6 for a typical MC rack layout and to figure 7 for a typical HC rack layout.

Section 9.02 Caveats

Typical rack layouts may need to be modified due to the drop types and density. The LSUHSC Department of Information Technology will provide the necessary guidance to installers for the rack layout.

Section 9.03 Fiber Optic Enclosures

Refer to Article XIII for preferred parts list.

Fiber optic enclosures shall be 19" rack mountable and shall accommodate fiber optic termination capacity for a minimum of 24 strands of fiber optics.

Fiber optic enclosures shall be black in color.

In the HC, install a fiber optic enclosure for the intra-building fiber optics at the top of Data Rack 2.

In the MC, install fiber optic enclosures for inter-building and intra-building fiber optics beginning at the top of the Core Network Rack. Inter-building fiber optics shall be housed in a separate enclosure from Intra-building fiber optics.

If multiple fiber optic enclosures are utilized in the MC for intra-building fiber, fiber optic enclosures should be arranged such that room numbers appear in a descending order from top to bottom.

Fiber optic enclosures shall be labeled with a machine etched hard plastic label.

Fiber optic enclosures labels supporting intra-building fiber shall specify at a minimum the remote room number where the fiber optics terminates.

Fiber optic enclosures labels supporting inter-building fiber shall specify at a minimum the remote building name and room number where the fiber optics terminate.

Section 9.04 Patch Panels

Refer to Article XIII for preferred parts list.

Patch panels shall be 19" rack mountable.

Patch panels shall have a 24 or 48-port capacity and support modular jacks. Jacks shall be populated in a left to right fashion. Angled patch panels should be utilized unless under the direction of LSUHSC Department of Information Technology.

When possible, cables should be installed in the patch panels in sequence number order to simplify locating specific ports.

Patch panels shall have machine printed labels with plastic label covers. Labeling shall be identical to the respective faceplate in the work area.

Section 9.05 Patch Panel Usage

The LSUHSC Department of Information Technology will specify the organization of the modular jacks across the various patch panels listed below:

(a) Data Patch Panels

Data patch panels shall be positioned beginning in the upper portion of data rack 1 and only installed in data rack 3 if more than (8) 48 port angled patch panels are used in the closet. If more than (16) 48 port patch panels are planned to be installed in a closet, please coordinate with the LSUHSC Department of Information Technology regarding their location. Angled patch panels should be utilized unless otherwise directed by the LSUHSC Department of Information Technology.

(b) Telephony Cross-Connect Patch Panels

A minimum of one 48-port patch panel to support the Analog telephone infrastructure will be installed in the data rack 2 below the fiber optic enclosure.

Details for cross-connect instructions to connect to the telephone infrastructure is outside the scope of this document. Consult the LSUHSC Department of Information Technology Telephony Standards for details on the installation and labeling requirements.

Section 9.06 Horizontal Cable Managements

Refer to Article XIII for preferred parts list.

Horizontal cable managements shall be 19" rack mountable.

Horizontal cable managements for the purpose of managing patch cable shall have hinged covers.

Horizontal cable managements for horizontal cable shall utilize D rings.

Horizontal cable managements shall be properly sized for the number of cables to be managed.

Horizontal cable managements are not required if utilizing angled patch panels.

Horizontal cable managements shall be installed between all flat patch panels.

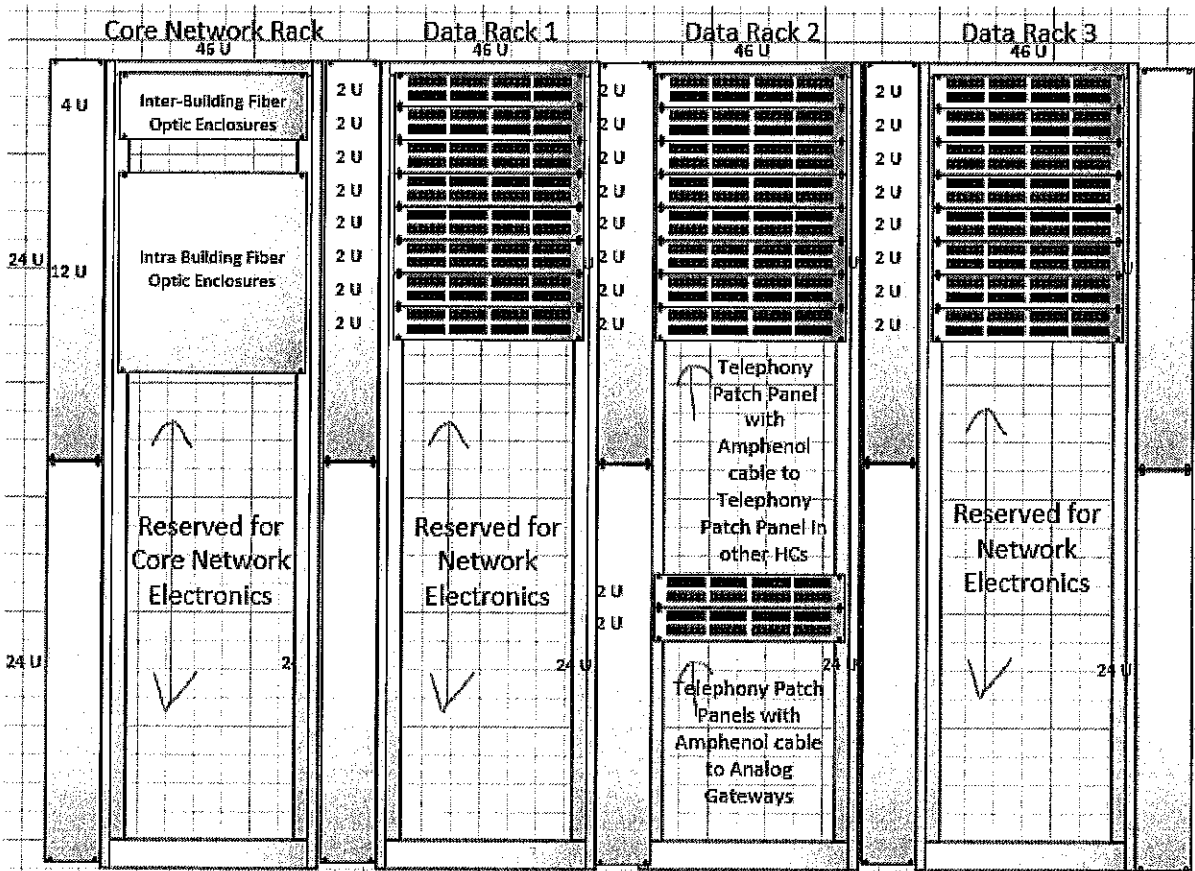


Figure 6: Sample MC Rack Layout

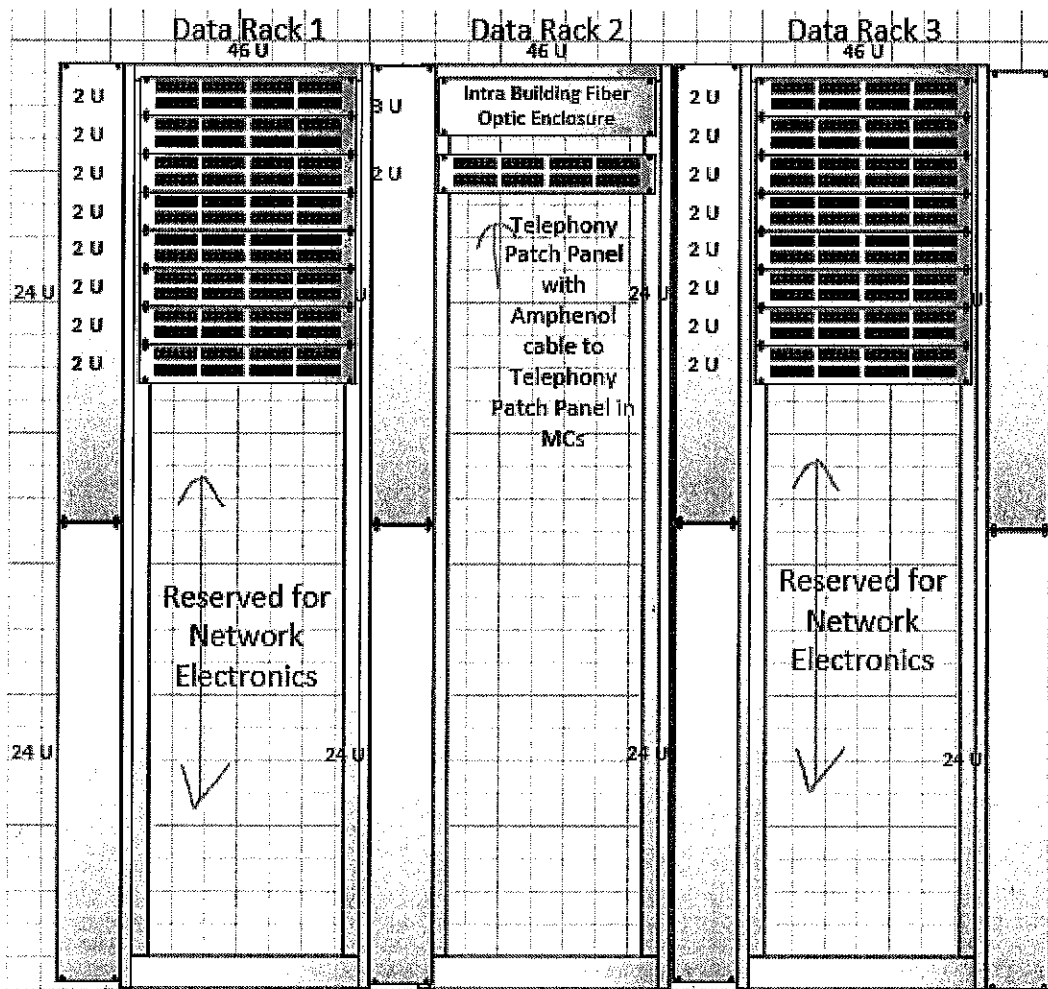


Figure 7: Sample HC Rack Layout

Article X. Cable Pathways

Section 10.01 General

Cable pathways and spaces must comply with TIA/EIA-568 and TIA/EIA-569.

Cable paths shall consist of a primary path above the main hallways of the building with individual drops exiting the main pathways at right angles and suspended by J-hooks towards the top of the wall above the intended drop/faceplate location.

In areas with suspended ceiling tiles, all cabling and support structures should be installed above the ceiling tiles in such a way that will not interfere with the moving or removal of ceiling tiles.

Specific attention should be paid to issues such as:

- Distance requirements for separation from EMI emitting devices and electrical equipment such as fluorescent lighting and power supplies.
- Proper supporting of cables within cable paths to prevent the weight of cables from damaging cable or other equipment.
- Proper conditioning of floor and wall penetrations to prevent damage to cable jackets while installing the cable and throughout the cable life.
- Segregation and separation of cabling in cable trays by media type and then by color of jackets for like media.

Section 10.02 Caveats

All penetrations through fire or smoke rated barriers shall be sealed with a fire stopping compound complying with all NFPA and State Fire Marshal requirements.

In no cases shall any cabling be permitted to utilize building infrastructure for support or to aid in the cable's suspension. Only systems installed specifically for the purpose of routing and managing cabling shall be utilized.

Section 10.03 Abandoned Cables

Abandoned cables increase fire loading unnecessarily and if installed in plenums, can affect airflow. Therefore, the accessible portion of all abandoned communication cables shall be removed.

Prior to removal of any cables, the contractor shall obtain approval from the LSUHSC Department of Information Technology and from the LSUHSC Department of Property and Facilities Management.

Section 10.04 Cable Trays

Refer to Article XIII for preferred parts list.

Cable tray shall be installed in all primary pathways (i.e., hallways).

Cable trays shall be of a wire mesh construction and be a minimum of 4" deep and 12" wide. Fill rates should not exceed 60%.

Cable trays shall be properly grounded.

Cable trays shall be installed and secured as per the manufacturer's installation instructions.

No component of the cable tray system or support structure should be mounted to the suspended ceiling support wires.

Section 10.05 Cable Supports

J-hooks shall be installed in areas where the installation of cable trays is not possible or to support cables between cable trays and user work areas.

The minimum J-hook size shall be 2". Larger sizes, if necessary, shall be determined based on manufacturer's recommendations for the number of cables to be supported.

All J-hooks shall have cable retaining clips installed.

In main hallways, where possible, J-hooks shall be mounted to the wall and spaced every 4'. The distance between J-hooks in overhead areas shall not exceed 5'.

All J-hooks shall be installed and secured as per the manufacturer's installation instructions.

Section 10.06 Conduits and Innerduct

For conduit and innerduct installations, the following best practices should be adhered to:

- Innerduct should be cut and securely fastened at all conduit junction boxes
- All conduits shall use sweeping bends for directional changes
- All conduits, tubings and innerducts shall be securely terminated on both ends with appropriate termination hardware and junction boxes
- Transitions between different types of tubing, conduit and innerduct shall be made with a junction box unless a special adapter designed for such purpose is available
- All empty innerducts and unfilled conduits shall contain pull strings to assist with future cable installations
- Conduit shall have a maximum fill capacity of 50%
- Innerduct may be filled to any capacity that can be achieved with a single pull without damaging the integrity of the cables being installed
- Conduit and tubing shall terminate in junction boxes appropriately sized for the type and quantity of cable being installed
- When using conduit greater than 2" inner diameter, innerduct shall be used within the entire length of the conduit unless a shielded cable is used
- When 4" conduit is installed, it should be completely filled with innerduct

Conduits and innerducts shall be clearly labeled on the exterior surface, at least every 50'.

Conduits and innerduct labels shall include a unique identification that identifies the origination and destination, such as RCB719-LEC230-1 signifying the 1st conduit originating in the Resource Center Building, room 719, and terminating in room 230 in the Lions Eye Center.

Labeling shall consist of black letters, at least 1.5" – 2" high, on a white or yellow background.

Labels should be self-adhesive labels suitable for indoor and outdoor installations.

Conduit sizing shall be based on cable capacity as per the manufacturer's recommendations.

Conduit installations in areas where the presence of an electrolyte, such as water or moisture containing small amounts of acid are likely to be present, appropriate measures shall be taken to ensure that dissimilar metals do not come in contact with one another in order to prevent corrosion of metals.

Refer to the table 2 below regarding metals that corrode when in the presence of an electrolytic and in contact with another metal.

The Galvanic Series			
1	Aluminum	7	Tin
2	Zinc	8	Lead
3	Steel	9	Brass
4	Iron	10	Copper
5	Nickel	11	Bronze
6	Stainless Steel 400 Series	12	Stainless Steel 300 Series

Table 2: The Galvanic Series

Article XI. Fiber Optic Cabling

Section 11.01 General

All fiber optic backbone cabling shall be installed in a star (hub-and-spoke) topology in compliance with TIA/EIA-568.

Section 11.02 Caveats

All fiber optic cables must be installed, handled, routed and terminated as per the manufacturer's installation instructions. Special attention shall be paid to the pulling tension and bend radius limitations for each cable.

Section 11.03 Splice Points

The LSUHSC Department of Information Technology has established two splice points on the downtown campus, each having available single-mode fiber optics, to the Resource Center Building which acts as the hub in the downtown campus star topology.

Splice points are established in the following locations:

- Walk-to-Wellness (East end of walkway in ceiling area of Entergy Garage)
- Walk-to-Wellness (West end in Seton Building Elevator / Mechanical closet)

All new building construction on the downtown campus shall attempt to utilize these existing resources.

Section 11.04 Installation Techniques

Fiber optic cabling must be completely encapsulated for the entire length of the cable run. Acceptable encapsulation types are aluminum armor cladding, innerduct, rigid metallic conduit, electrical metallic tubing, flexible metallic tubing, or other suitable enclosure that meets the requirements of the installation.

Different types of encapsulation materials may be required in different areas to accommodate intra-building, inter-building, or plenum space requirements.

Grounding requirements shall be adhered to for each applicable encapsulation type.

Section 11.05 Fiber Optic Service Loops

Fiber optic cables shall be provided with a 25' long service loop per end for a total of 50' per fiber optic cable.

Fiber optic service loops shall be securely mounted to the wall in the cross-connects.

Section 11.06 Inter-building

Inter-building backbone cabling shall consist of a minimum of 24-strands of single-mode fiber optic cabling.

Inter-building fiber shall be indoor/outdoor rated fiber.

Depending upon the geographic location of the building being served, as well as its logical relationship to the campus environment, the number and type of strands may be increased.

Section 11.07 Intra-building

Intra-building riser cabling shall consist of a minimum of 24-strands of fiber optic cabling broken down as 12-strands of single mode (SMF) and 12-strands of multimode (OM4 MMF) fiber, preferably in a hybrid armor. Depending upon equipment in the closets and geographic location of the switches, more strands of fiber may be required to be installed. The LSUHSC Department of Information Technology shall be consulted prior to any fiber installation and purchase.

Section 11.08 Termination

All single-mode and multimode terminations shall have SC connectors.

Section 11.09 Testing

Each fiber strand shall be tested with an OTDR to verify installed cable length and all points of dB loss.

OTDR must have been calibrated within past year by accredited lab or by the original equipment manufacturer. Certification of last calibration date shall be made available upon request.

Fusion splice loss shall not exceed 0.2 dB and connector loss shall not exceed 0.5 dB.

Testing shall be performed in both directions on each strand.

Section 11.10 Labeling

All fiber optic cables shall have a self-laminating plastic tag affixed with tie wraps (plenum or non-plenum as necessary) every 50' unless it the cable is encapsulated in a conduit or innerduct.

All fiber optic cables shall have a cable tag affixed before the cable enters any conduit or innerduct and within any pull box, junction box, or hand-hole where the fiber is exposed.

Fiber optic cable tags shall include a unique identifier neatly printed in a permanent marker.

This unique identifier shall be constructed in such a way as to easily identify the type of fiber optic cable, strand count and origination cross-connect and destination cross-connect. Refer to Figure 8 for a sample fiber optic identifier.

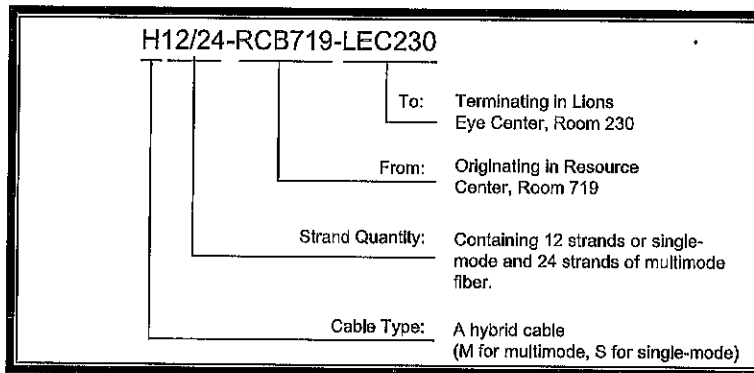


Figure 8: Fiber Optic Identifier

Article XII. UTP Cabling

Section 12.01 General

Refer to Article XIII for preferred parts list.

At a minimum, all UTP cabling components, including cables, connectors, and patch cables, must exceed the ANSI/TIA-568.2-D Category 6A standard. The LSUHSC Department of Information Technology shall be consulted to verify the UTP cabling component requirements for each installation.

TIA/EIA 1179 recommends that healthcare facilities install Category 6A.

Standard colors for UTP cabling have been adopted to easily identify cable usage.

Section 12.02 Caveats

UTP cables must be installed, handled, routed, and terminated as per the manufacturer's installation instructions. Special attention shall be paid to the pulling tension and bend radius limitations for each cable.

UTP cables shall not be painted (oil or water based) or be installed in the presence of water.

UTP cables shall not be spliced.

Section 12.03 Penetrations

All penetrations through fire or smoke rated barriers shall be sealed with a fire stopping compound complying with NFPA and State Fire Marshal requirements.

If conduit is not provided to the outlet box location, all penetrations through office wall top plates should have a collar or similar device installed to prevent damage to the UTP cable jacket.

Section 12.04 Horizontal UTP Cables

The maximum length of a horizontal UTP cable, between the faceplate in the work area and patch panel in the HC, shall not exceed 295'.

UTP cables shall terminate at a patch panel in the cross-connect and at a faceplate on the same floor as the work area being served. UTP cables that terminate in floor boxes and which route through the slab may be terminated on the floor below to avoid distance limitations.

UTP cables shall be colored to easily identify usage as specified in Table 3.

Section 12.05 Horizontal UTP Cable Service Loops

No service loops shall be installed.

Section 12.06 Modular Connectors

Refer to Article XIII for preferred parts list.

Modular connectors shall (as close as possible) match the color of the UTP cable as specified in Table 3.

Section 12.07 Patch Cables

Refer to Article XIII for preferred parts list.

The maximum length of a patch cable in the work area shall not exceed 16'.

The Contractor shall provide appropriately sized patch cable for all cross-connect drops. Patch cables shall be sized to minimize excess cable length in the vertical managements.

The patch cables shall (as close as possible) match the color of the modular connector as specified in Table 3.

UTP Cable / Modular Connector / Patch Cable	Usage
Blue / Blue / Blue	Primary Data
Blue / Blue / Blue	Spare Data
Violet / Violet / Violet	Special Purpose – Networking
Orange / Orange / Orange	Special Purpose – Building Systems
Green / Green / Green	Special Purpose – Passive PoE
Yellow / Yellow / Yellow	Special Purpose – AV

Table 3: UTP Cable / Modular Connector and Patch Cable Color Code

Section 12.08 Faceplates

Refer to Article XIII for preferred parts list.

The color of the faceplates shall match wall colors and shall support a minimum of four modular jacks.

Faceplates mounted on walls shall utilize recessed insert and non-shuttered jacks, installed in a downward facing orientation to prevent the accumulations of dust and debris within the modular jack and on the pin contacts. Installations shall be such that the bottom of the faceplate is parallel to the floor surface and the sides of the faceplate are perpendicular to the floor surface.

All unused faceplate ports shall have blank inserts installed.

Faceplates mounted on horizontal surfaces shall include shuttered modular jacks to prevent the accumulation of dust and debris within the jack and on the pin contacts.

Faceplates shall be separated from Electrical outlets by a minimum of 6".

Faceplates shall have machine printed labels and plastic label covers. Labels shall be in compliance with TIA/EIA-606.

Faceplates in work areas shall be labeled with the room number, jack number, and the jack position. Refer to Figure 9 for jack positions. If multiple faceplates exist within the same room, faceplates jack numbers shall be sequentially numbered in a clockwise manner. This should begin with the first faceplate to the left of the main doorway as you enter the room. The main doorway is the one that provides access to a common area, such as a hallway or lobby.

Faceplate labels in office work areas shall be white with black lettering. Faceplate labels in public areas (i.e. auditoriums, conference rooms, etc) shall be green with black lettering. LSUHSC Department of Information Technology shall determine areas that are to be considered public areas for the purpose of labeling.

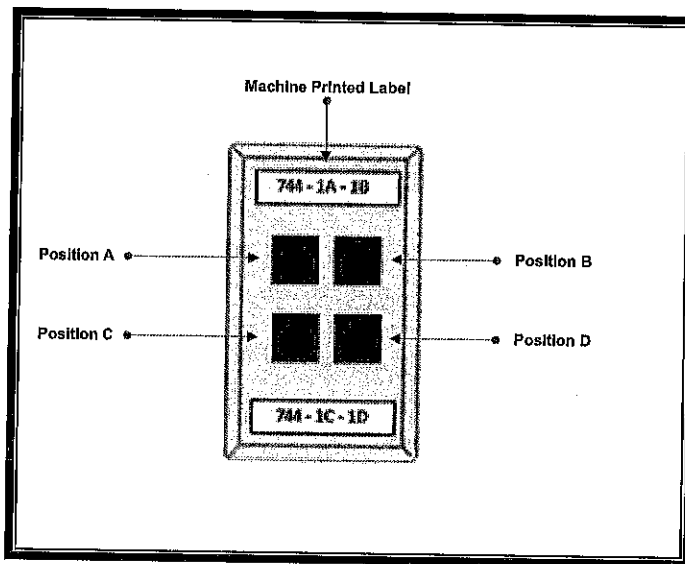


Figure 9: Faceplate Jack Positions

Faceplates for Special Systems shall be labeled with the room number, system code and jack number. Refer to Table 4 for defined system codes

Name of System	Abbreviation
Access Points	AP
Digital Signs	DS
Environmental Monitoring Systems	ENV
Access Controls	AC
Security Systems (Cameras, NVRs, etc.)	SEC

Table 4: System Codes

Section 12.09 Cable Bindings

Cable bindings (straps, tie wraps, etc) should be irregularly spaced and should be loosely fitted (easily moveable).

Section 12.10 Terminations

UTP cable runs should be terminated using modular connectors on both ends.

Eight position jack pin/pair assignments will comply with T568B termination standards.

Section 12.11 Testing

All testing shall be in compliance with TIA/EIA-568.

UTP cables shall be tested at the appropriate frequency for the cable type and tests shall provide at a minimum, wire mapping, cable length, insertion loss, return loss, propagation delay, NEXT, power sum NEXT, ACR-F, power sum ARC-F, ARC-N, and power sum ARC-N.

UTP cable test result shall "PASS". Any "MARGINAL PASS" test result shall not be acceptable and shall require re-termination.

Certification of last date and time of calibration to manufacturer's requirements for all test instruments shall be made available upon request.

Any test instrument utilized must be compliant and shall not allow marginal results to be hidden.

Test results shall be saved and submitted electronically to the building owner and LSUHSC Department of Information Technology upon completion of the installation. Format for electronic submission of test results shall be in a file format mutually agreed to by the contractor and LSUHSC Department of Information Technology.

Section 12.12 Documentation

Documentation shall be submitted in mutually compatible electronic format and must include:

- As-built drawings depicting the path of all backbone and vertical cabling as well as the primary path cable trays for horizontal cabling.
- As-built documentation of all floor plans for HCs including physical location of racks, trays, and penetrations.
- A logical representation of each patch panel including the corresponding labeling.
- Test results for every fiber optic and UTP cable installed. The test results shall be submitted in a mutually agreeable electronic format.

Section 12.13 Standard Drop

A standard drop shall consist of two blue cables. Corresponding faceplate shall have two blue modular jacks oriented as follows:

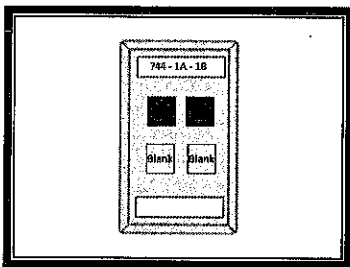


Figure 10: Standard Drop

Section 12.14 Non-Standard Drop

A non-standard drop in a typical office area may consist of one or as many as four blue cables. Corresponding faceplates shall have the corresponding number of blue modular jacks oriented as follows:

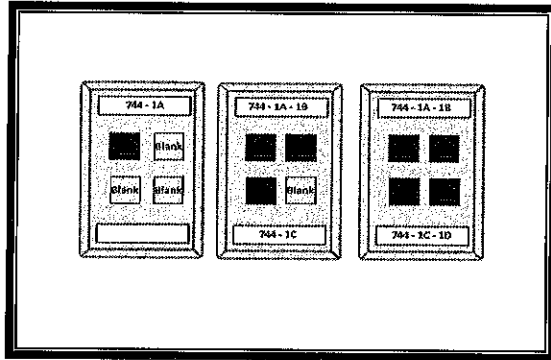


Figure 11: Non-Standard Drop Options

Section 12.15 Special Purpose Drops

The following special purpose drops have been identified:

(a) AP Drop

An AP drop shall consist of one purple cable. Corresponding keystone modules will have one purple modular jack color oriented as follows with the updated label directly applied to the module:

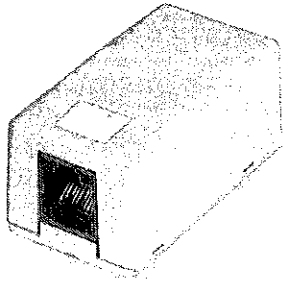
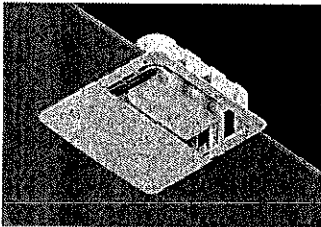


Figure 12: AP Drop

On grid/drop ceilings, AP Drop should be located above the ceiling with ceiling tile or grid marked with location of AP Drop. On non-grid/drop ceilings, AP Drop should be located inside a wireless access point enclosure which is installed and sitting recessed in the ceiling. Refer to Article XIII for preferred parts list.



(b) Digital Sign Drop

A Digital Sign drop shall consist of one blue and two yellow cables. Corresponding faceplates will have one blue and two yellow modular jacks oriented as follows:

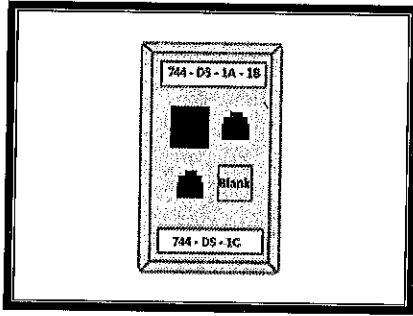


Figure 13: Digital Sign Drop

(c) AV/NVX Project Drops

Any drops labeled as AV or NVX in plans shall be run with yellow ethernet cable. Any changes to this should be discussed with the Department of Information Technology prior to any cable being installed.

(d) HVAC, Access Control, and Security Appliance Drops

All HVAC environment monitoring, access control, and security drops shall consist of a minimum of one orange cable. Corresponding faceplates will have one orange modular jack oriented as follows:

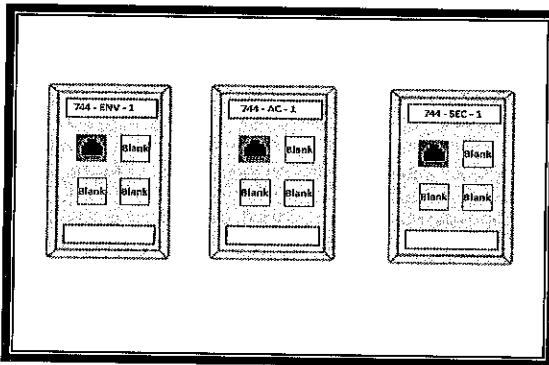


Figure 16: HVAC, Access Control and Security Appliance Drops

Keystone modules or FlexPlugs may be used in place of faceplates where appropriate and where approved by the Department of Information Technology.

Article XIII. Preferred Parts List

Brand Name Disclaimer: The cable plant constitutes the lowest layer of the OSI network model - the physical layer. As such, it is the foundation of the network, used to transport all data, voice, video, access control and environmental monitoring systems to their destinations.

As more and more systems traverse this physical layer, reliability becomes key. And to ensure this reliability, we need to ensure compatibility between products which comprise this system so that we can avoid any interoperability issues.

Within this document, many components are specified by Manufacturer, Part Number and/or Brand Name. These are the parts that have been adopted by LSUHSC not only due to interoperability but also because they exceed all ANSI TIA/EIA specifications. The LSUHSC "in-house" wiring group has been trained to install and support these products.

To deviate from using these parts would require significant investment for additional training, tools and a separate spares inventory to support the new products. It is highly recommended that all installations utilize these specific brands to maintain compatibility and interoperability with the existing installed systems.

To help maintain reliability at the physical layer, all deviations from the LSUHSC preferred brands should conform to the minimum product specifications outlined within this document.

Section 13.01 Cable Management

Part Number	Manufacturer	Item Description
30163-703	Chatsworth	CCS, Double-Sided for 3"D Racks, 7 x 10 x 12.24 (2.1 x 250 x 310)
30530-719	Chatsworth	UHCM, Double-Sided, 2U x 19 x 11.73 (297)

Section 13.02 Cable Runway

Part Number	Manufacturer	Item Description
10250-718	Chatsworth	18" Universal Cable Runway
10487-701	Chatsworth	Butt-Swivel Splice Kit
10488-701	Chatsworth	Junction Swivel Splice Kit
10489-701	Chatsworth	Vertical Swivel Splice Kit
10506-706	Chatsworth	Elevation Kit
10595-718	Chatsworth	Rack-to-Runway Mounting Kit
10642-001	Chatsworth	Protective End Caps For Runway
11301-701	Chatsworth	Butt-Splice Kit
11302-701	Chatsworth	Junction-Splice Kit
11303-000	Chatsworth	J-Bolt Kit
11310-001	Chatsworth	Threaded Ceiling Kit
11421-718	Chatsworth	Wall Angle Support Kit
11746-718	Chatsworth	Triangular Support Bracket, Steel
11959-715	Chatsworth	Cable Runway Corner Bracket
12100-718	Chatsworth	Cable Runway Radius Drop

Section 13.03 Cable Wraps

Part Number	Manufacturer	Item Description
AX100783	Belden	Velcro Cable Ties, 25 per Roll, 8"
AX100784	Belden	Velcro Cable Ties, 25 per Roll, 12"

Section 13.04 Cable Tray and Support

Part Number	Manufacturer	Item Description
Caddy CAT32	Erico	J-Hook
CF 105/300EZ	Cablofil	Cable Tray
PRECLICK	Cablofil	Preclick Splice
SWK	Cablofil	Splice Washer Kit
FASPCH 450	Cablofil	Support - Hanging

Section 13.05 Faceplates

Part Number	Manufacturer	Item Description
AX106629	Belden	Faceplates – 2 port, Angled, Single-gang Gray
AX106630	Belden	Faceplates – 2 port, Angled, Single-gang Almond
AX104483	Belden	Faceplates – 2-port, Angled inserts, Gray
AX102412	Belden	Faceplates – 2-port, Angled inserts, Almond
AX107026	Belden	Faceplate Blank Module, Gray
AX102261	Belden	Faceplate Blank Module, Almond
AX104133	Belden	KeyConnect Side Entry Box with Shutter Door 2-Port
RVAFFPUBK18-S1	Belden	REVConnect FlexPlug 10GX, 18in, UTP, Black
4108W-OSP	Leviton	QuickPort Telephone Wall Jack, stainless steel

Section 13.06 Fiber Optics

Part Number	Manufacturer	Item Description
024E81-33131-A1	Corning	Indoor Fiber Optics (Riser) – Single-mode
024E88-33131-A3	Corning	Indoor Fiber Optics (Plenum) – Single-mode
024E8F-31131-A1	Corning	Indoor/Outdoor Fiber (Riser) - Single-mode
024E8P-31131-A3	Corning	Indoor/Outdoor Fiber (Plenum) - Single-mode
024T81-33190-A1	Corning	Indoor Fiber Optics (Riser) – Multimode
024T88-33190-A3	Corning	Indoor Fiber Optics (Plenum) – Multimode
95-051-41-SP-X	Corning	Anaerobic Connector, SC, Multimode
95-201-41-SP	Corning	Anaerobic Connector, SC, Single-mode
CCH-01U	Corning	Closet Connector Housings - 1U
CCH-02U	Corning	Closet Connector Housings - 2U

CCH-03U	Corning	Closet Connector Housings - 3U
CCH-04U	Corning	Closet Connector Housings - 4U
CCH-CP12-59	Corning	Connector Panel, SC Single-mode
CCH-CP12-59-P03RH	Corning	Pigtailed Panel, SC Single-mode
CCH-CP12-E7	Corning	Connector Panel, SC Multimode
CCH-CP12-E7-P03SH	Corning	Pigtailed Panel, SC Multimode
CCH-UCC-KIT	Corning	Cable Clamp for Housing (Strain Relief for 3U & 4U)
CPP-UCC-KIT	Corning	Cable Clamp for Housing (Strain Relief for 1U & 2U)
HDWR-GRND-KIT	Corning	Hardware Grounding Kit for Armored Cables

Section 13.07 Grounding Busbar

Part Number	Manufacturer	Item Description
13622-012	Chatsworth	12" TGB Pattern
40153-012	Chatsworth	12" TMGB Pattern
40162-901	Chatsworth	#6 AWG Two-Hole Compression Lug
40162-957	Chatsworth	#2 AWG Two-Hole Compression Lug

Section 13.08 Labels

Part Number	Manufacturer	Item Description
PST-FO	Panduit	Self-Laminating Fiber Optic Cable Marker Tag
PST-FOBLNK	Panduit	Self-Laminating Fiber Optic Cable Marker Tag

Section 13.09 Modular Jacks

Part Number	Manufacturer	Item Description
RVAMJKUBL-S1	Belden	Category 6A Jack (Blue)
RVAMJKUIV-S1	Belden	Category 6A Jack (Ivory)
RVAMJKUPR-S1	Belden	Category 6A Jack (Violet)
RVAMJKUOR-S1	Belden	Category 6A Jack (Orange)
RVAMJKUYL-S1	Belden	Category 6A Jack (Yellow)

Section 13.10 Patch Cables

Part Number	Manufacturer	Item Description
CA21106007	Belden	Category 6A Modular Patch Cords 7" Blue
CA21109007	Belden	Category 6A Modular Patch Cords 7" White
CA21103007	Belden	Category 6A Modular Patch Cords 7" Orange
CA21107007	Belden	Category 6A Modular Patch Cords 7" Purple

CA21104007	Belden	Category 6A Modular Patch Cords 7" Yellow
------------	--------	---

Section 13.11 Patch Panels

Part Number	Manufacturer	Item Description
808004389	Ortronics	Telephony Patch Panel - 24 ports
AX104601	Belden	KeyConnect Angled Patch Panel, 48-port, 2U
AX103114	Belden	KeyConnect Modular Patch Panel, 24-port, 1U
AX103115	Belden	KeyConnect Modular Patch Panel, 48-port, 2U

Section 13.12 Standard Rack

Part Number	Manufacturer	Item Description
55053-703	Chatsworth	3" Deep Standard Rack, 7 (2.1) x 19", 45U

Section 13.13 Surface Mount Raceway

Part Number	Manufacturer	Item Description
LD10EI8-A	Panduit	8' Low Voltage 1-piece Single Channel Raceway, .38 in ² , (Electric Ivory)
LD10IG8-A	Panduit	8' Low Voltage 1-piece Single Channel Raceway, .38 in ² , (International Gray)
LD5EI8-A	Panduit	8' Low Voltage 1-piece Single Channel Raceway, 1.00 in ² , (Electric Ivory)
LD5IG8-A	Panduit	8' Low Voltage 1-piece Single Channel Raceway, 1.00 in ² , (International Gray)
DCF10EI-X	Panduit	Drop ceiling fitting for use with LD10 raceway (Electric Ivory)
DCF10IG-X	Panduit	Drop ceiling fitting for use with LD10 raceway (International Gray)
DCF5EI-X	Panduit	Drop ceiling fitting for use with LD5 raceway (Electric Ivory)
DCF5IG-X	Panduit	Drop ceiling fitting for use with LD5 raceway (International Gray)
JBX3510EI-A	Panduit	Low Voltage Surface Mount Outlet Boxes (Electric Ivory)

Section 13.14 UTP Cabling

Part Number	Manufacturer	Item Description
10GX13 D151000	Belden	CAT6A 10GX, 4pr, UTP, LS-PVC Jkt, CMP (Blue)
10GX13 0031000	Belden	CAT6A 10GX, 4pr, UTP, LS-PVC Jkt, CMP (Orange)
10GX13 0071000	Belden	CAT6A 10GX, 4pr, UTP, LS-PVC Jkt, CMP (Purple)
10GXS13 0041000	Belden	CAT6A 10GX, 4pr, UTP, LS-PVC Jkt, CMP (Yellow)
10GXW13 0071001	Belden	CAT6A 10GX, 4pr, UTP, LS-PVC Jkt, CMP (White)

Section 13.15 Wireless Access Point Enclosures

Part Number	Manufacturer	Item Description
1019-RM	Oberon	Wireless Access Point Enclosure (White)

Section 13.16 Wireless Access Point Wall Mounting Bracket

Part Number	Manufacturer	Item Description
ENBRKT	Tripp Lite	Universal Wall Bracket for Wireless access point mounting, right angle, steel, white