

**REQUEST FOR PROPOSALS**

**NKU-18-20**



**Campus Wide AV Services**

**February 5, 2020**

**ATTENTION: This is not an order. Read all instructions, terms and conditions carefully.**

**Proposal NO:** NKU-18-20  
**Issue Date:** February 5, 2020  
**Purchasing Officer:** Blaine Gilmore  
**Phone:** 859.572.6449

**RETURN ORIGINAL COPY OF PROPOSAL TO:**

**Northern Kentucky University  
 Procurement Services  
 1 Nunn Drive  
 617 Lucas Administrative Center  
 Highland Heights, KY 41099**

**IMPORTANT: BIDS MUST BE RECEIVED BY: 2/24/2020 BEFORE 2:00 P.M. HIGHLAND HEIGHTS, KY time.**

**NOTICE OF REQUIREMENTS**

1. The University's General Terms and Conditions and Instructions to Bidders, viewable at the [NKU Procurement Website](#), apply to this Request for Proposal.
2. Contracts resulting from this RFP must be governed by and in accordance with the laws of the Commonwealth of Kentucky.
3. Any agreement or collusion among Offerors or prospective Offerors, which restrains, tends to restrain, or is reasonably calculated to restrain competition by agreement to bid at a fixed price or to refrain from offering, or otherwise, is prohibited.
4. Any person who violates any provisions of KRS 45A.325 shall be guilty of a felony and shall be punished by a fine of not less than five thousand dollars nor more than ten thousand dollars, or be imprisoned not less than one year nor more than five years, or both such fine and imprisonment. Any firm, corporation, or association who violates any of the provisions of KRS 45A.325 shall, upon conviction, may be fined not less than ten thousand dollars or more than twenty thousand dollars.

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby swear (or affirm) under the penalty for false swearing as provided by KRS 523.040:

1. That I am the offeror (if the offeror is an individual), a partner, (if the offeror is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the offeror is a corporation);
2. That the attached proposal has been arrived at by the offeror independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other Contractor of materials, supplies, equipment or services described in the Request for Proposal, designed to limit independent bidding or competition;
3. That the contents of the proposal have not been communicated by the offeror or its employees or agents to any person not an employee or agent of the offeror or its surety on any bond furnished with the proposal and will not be communicated to any such person prior to the official closing of the RFP;
4. That the offeror is legally entitled to enter into contracts with the Northern Kentucky University and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 45A.330 to .340, 164.390, and
5. That the Offeror, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sale and use tax imposed by Chapter 139 to the extent required by Kentucky law and will remain registered for the duration of any contract award
6. That I have fully informed myself regarding the accuracy of the statement made above.

**SWORN STATEMENT OF COMPLIANCE WITH FINANCE LAWS**

In accordance with KRS 45A.110 (2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to a bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**CONTRACTOR REPORT OF PRIOR VIOLATIONS OF KRS CHAPTERS 136, 139, 141, 337, 338, 341 & 342**

The Contractor by signing and submitting a proposal agrees as required by 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 that have occurred in the previous five (5) years prior to the award of a contract and agrees to remain in continuous compliance with the provisions of the statutes during the duration of any contract that may be established. Final determinations of violations of these statutes must be provided to the University by the successful Contractor prior to the award of a contract.

**CERTIFICATION OF NON-SEGREGATED FACILITIES**

The Contractor, by submitting a proposal, certifies that he/she is in compliance with the Code of Federal Regulations, No. 41 CFR 60-1.8(b) that prohibits the maintaining of segregated facilities.

**RECIPROCAL PREFERENCE**

- (1) Prior to a contract being awarded to the lowest responsible and responsive bidder on a contract by a public agency, a resident bidder of the Commonwealth shall be given a preference against a nonresident bidder registered in any state that gives or requires a preference to bidders from that state. The preference shall be equal to the preference given or required by the state of the nonresident bidder.
- (2) A resident bidder is an individual, partnership, association, corporation, or other business entity that, on the date the contract is first advertised or announced as available for bidding:
  - (a) Is authorized to transact business in the Commonwealth; and
  - (b) Has for one (1) year prior to and through the date of the advertisement, filed Kentucky corporate income taxes, made payments to the Kentucky unemployment insurance fund established in KRS 341.490, and maintained a Kentucky workers' compensation policy in effect.
- (3) A nonresident bidder is an individual, partnership, association, corporation, or other business entity that does not meet the requirements of subsection (2) of this section.
- (4) If a procurement determination results in a tie between a resident bidder and a nonresident bidder, preference shall be given to the resident bidder.
- (5) This section shall apply to all contracts funded or controlled in whole or in part by a public agency.
- (6) The Finance and Administration Cabinet shall maintain a list of states that give to or require a preference for their own resident bidders, including details of the preference given to such bidders, to be used by public agencies in determining resident bidder preferences. The cabinet shall also promulgate administrative regulations in accordance with KRS Chapter 13A establishing the procedure by which the preferences required by this section shall be given.
- (7) The preference for resident bidders shall not be given if the preference conflicts with federal law.
- (8) Any public agency soliciting or advertising for bids for contracts shall make KRS 45A.490 to 45A.494 part of the solicitation or advertisement for bids

DEFINITIONS

As used in KRS 45A.490 to 45A.494: (1) "Contract" means any agreement of a public agency, including grants and orders, for the purchase or disposal of supplies, services, construction, or any other item; and  
(2) "Public agency" has the same meaning as in KRS 61.805.

**SIGNATURE REQUIRED:** This proposal cannot be considered valid unless signed and dated by an authorized agent of the offeror. Type or print the signatory's name, title, address, phone number and fax number in the spaces provided. Offers signed by an agent are to be accompanied by evidence of his/her authority unless such evidence has been previously furnished to the issuing office. Your signature is acceptance to the Terms and conditions above.

<b>DELIVERY TIME:</b>	<b>NAME OF COMPANY:</b>	<b>DUNS #</b>
<b>PROPOSAL FIRM THROUGH:</b>	<b>ADDRESS:</b>	<b>Phone/Fax:</b>
<b>PAYMENT TERMS:</b>	<b>CITY, STATE &amp; ZIP CODE:</b>	<b>E-MAIL:</b>
<b>SHIPPING TERMS: F.O.B. DESTINATION - PREPAID AND ALLOWED</b>	<b>FEDERAL EMPLOYER ID NO.:</b>	<b>WEB ADDRESS:</b>

**READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID or OFFER**

AUTHORIZED SIGNATURE: \_\_\_\_\_

NAME (Please Print Legibly): \_\_\_\_\_

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

\*\*\*\*\*

State of \_\_\_\_\_)

County of \_\_\_\_\_)

The foregoing statement was sworn to me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by  
\_\_\_\_\_.

\_\_\_\_\_

(Notary Public)

My Commission expires: \_\_\_\_\_

***THIS DOCUMENT MUST BE NOTORIZED***

## Table of Contents

1.0 DEFINITIONS .....	5
2.0 GENERAL OVERVIEW .....	6
2.1 Intent and Scope .....	6
2.2 University Information .....	6
3.0 PROPOSAL REQUIREMENTS .....	6
3.1 Key Event Dates .....	6
3.2 Offeror Communication .....	6
3.3 Pre-Proposal Conference .....	7
3.4 Offeror Presentations .....	7
3.5 Preparation of Offers .....	7
3.6 Proposal Submission and Deadline .....	7
3.7 Modification or Withdrawal of Offer .....	8
3.8 Acceptance or Rejection and Award of Proposal .....	8
3.9 Rejection .....	8
3.10 Addenda .....	9
3.11 Disclosure of Offeror's Response .....	9
3.12 Restrictions on Communications with University Staff .....	9
3.13 Cost of Preparing Proposal .....	9
3.14 Disposition of Proposals .....	9
3.15 Alternate Proposals .....	9
3.16 Questions .....	10
3.17 Section Titles in the RFP .....	10
3.18 No Contingent Fees .....	10
3.19 Proposal Addenda and Rules for Withdrawal .....	10
4.0 PROPOSAL FORMAT AND CONTENT .....	11
4.1 Proposal Information and Criteria .....	11
4.2 Signed Authentication of Proposal and Statements of Non-Collusion and Non-Conflict of Interest Form .....	11
4.3 Executive Summary and Proposal Overview .....	12
4.4 Project Scope .....	12
5.0 EVALUATION CRITERIA PROCESS .....	15
6.0 SPECIAL CONDITIONS .....	17

6.1	Contract Term .....	17
6.2	Effective Date .....	17
6.3	Competitive Negotiation .....	17
6.4	Appearance Before Committee .....	17
6.5	Additions, Deletions or Contract Changes .....	17
6.6	Contractor Cooperation in Related Efforts .....	18
6.7	Entire Agreement .....	18
6.8	Governing Law .....	18
6.9	Kentucky's Personal Information Security and Breach Investigation Procedures and Practices Act .....	18
6.10	Termination for Convenience.....	19
6.11	Termination for Non-Performance .....	19
6.12	Funding Out .....	20
6.13	Prime Contractor Responsibility.....	20
6.14	Assignment and Subcontracting .....	20
6.15	Permits, Licenses, Taxes.....	20
6.16	Attorneys' Fees .....	20
6.17	Royalties, Patents, Copyrights and Trademarks .....	21
6.18	Indemnification .....	21
6.19	Insurance and Bonding.....	21
6.20	Method of Award .....	22
6.21	Reciprocal Preference .....	22
6.22	Reports and Auditing .....	22
6.23	Confidentiality.....	23
6.24	Conflict of Interest .....	23
6.25	Extending Contract.....	23
6.26	Personal Service Contract Policies .....	23
APPENDIX A:	NETWORKING STANDARDS .....	25
APPENDIX B:	REFERENCES .....	26

## **1.0 DEFINITIONS**

The term "addenda" means written or graphic instructions issued by the Northern Kentucky University prior to the receipt of proposals that modify or interpret the RFP documents by additions, deletions, clarifications and/or corrections.

The term "competitive negotiations" means the method authorized in the Kentucky Revised Statutes, Chapter 45A.085.

The terms "offer" or "proposal" mean the offeror's/offers' response to this RFP.

The term "offeror" means the entity or contractor group submitting the proposal.

The term "contractor" means the entity receiving a contract award.

The term "purchasing agent" means Northern Kentucky University appointed contracting representative.

The term "responsible offeror" means a person, company or corporation that has the capability in all respects to perform fully the contract requirements and the integrity and reliability that will assure good faith performance. In determining whether an offeror is responsible, the University may evaluate various factors including (but not limited to): financial resources; experience; organization; technical qualifications; available resources; record of performance; integrity; judgment; ability to perform successfully under the terms and conditions of the contract; adversarial relationship between the offeror and the University that is so serious and compelling that it may negatively impact the work performed under this RFP; or any other cause determined to be so serious and compelling as to affect the responsibility of the offeror.

The term "solicitation" means RFP.

The term "University" means Northern Kentucky University.

## **2.0 GENERAL OVERVIEW**

### **2.1 Intent and Scope**

The purpose of this RFP is to establish price contract(s) for Audio/Video/Presentation Technology requirements for Northern Kentucky University. The contract(s) resulting from this RFP will not be limited to classrooms, nor to basic configurations described throughout the campus. It is the intent of NKU to establish contracts with multiple vendors in effort to seek best pricing opportunities for the university. There is no commitment to equal shares of equipment or labor procurement from Northern Kentucky University. The maximum value for any singular project to not exceed \$40,000. Any singular project valued over \$40,000 will need to go out for public RFP/bid as per Commonwealth of Kentucky requirements.

### **2.2 University Information**

Additional information regarding Northern Kentucky University can be found at <https://inside.nku.edu/>

## **3.0 PROPOSAL REQUIREMENTS**

### **3.1 Key Event Dates**

Release of RFP	2/6/2020
Deadline for Written Questions	Noon Eastern Time on 02/14/2020
Deadline for NKU Responses to Written Questions	02/19/2020
RFP Proposals Due	2 p.m. Eastern Time on 02/24/2020
Contract Award*	02/28/2020

\*projected dates

### **3.2 Offeror Communication**

To ensure that RFP documentation and subsequent information (modifications, clarifications, addenda, Written Questions and Answers, etc.) are directed to the appropriate persons within the offeror's firm, each offeror who intends to participate in this RFP is to provide the following information to the purchasing officer. Prompt, thorough compliance is in the best interest of the offeror. Failure to comply may result in incomplete or delayed communication of addenda or other vital information. Contact information is the responsibility of the offeror. Without the prompt information, any communication shortfall shall reside with the offeror.

- Name of primary contact
- Mailing address of primary contact
- Telephone number of primary contact
- Fax number of primary contact
- E-mail address of primary contact

- Additional contact persons with same information provided as primary contact

This information shall be transmitted via fax or e-mail to:

Ryan Straus  
Coordinator  
Northern Kentucky University  
617 Lucas Administrative Center  
Highland Heights, KY 41099  
Phone: 859-572-6605  
Fax: 859-572-6995  
E-mail: [strausr2@nku.edu](mailto:strausr2@nku.edu)

All communication with the University regarding this RFP shall only be directed to the purchasing agent listed above.

### **3.3 Pre-Proposal Conference**

No pre-proposal conference will be held for this RFP.

### **3.4 Offeror Presentations**

All offerors whose proposals are judged acceptable for award may be asked to make a presentation to the evaluation committee.

### **3.5 Preparation of Offers**

The offeror is expected to follow all specifications, terms, conditions and instructions in this RFP.

The offeror will furnish all information required by this solicitation.

Proposals should be prepared simply and economically, providing a description of the offeror's capabilities to satisfy the requirements of the solicitation. Emphasis should be on completeness and clarity of content. All documentation submitted with the proposal should be bound in the single volume except as otherwise specified.

An electronic version of the RFP, in .PDF format only, is available through Northern Kentucky University's Plan Room at <https://www.nkupanroom.com/purchasing/View/Login>.

### **3.6 Proposal Submission and Deadline**

Submit one (1) copy on an electronic storage device (CD or USB) clearly marked with the proposal number and name, firm name and what is included (Proposal) and one (1) printed original copy of the proposal in a single package and addressed to:

**Blaine Gilmore**  
**Director, Procurement Services**



**Lucas Administrative Center, Suite 617  
1 Nunn Drive  
Northern Kentucky University  
Highland Heights, KY 41099**

**Note: Proposals received after the closing date and time will not be considered. In addition, proposals received via fax or e-mail are not acceptable.**

**Northern Kentucky University accepts deliveries of RFPs Monday through Friday from 8 a.m. to 4:30 p.m. Eastern Standard time. However, RFPs must be received by 2 p.m. Eastern Standard time on the date specified on the RFP in order to be considered.**

Proposals shall be enclosed in sealed envelopes to the above referenced address and shall show on the face of the envelope: the closing time and date specified, the solicitation number and the name and address of the offeror.

Note: In accordance with the Kentucky Revised Statute 45A.085, there will be no public opening.

### **3.7 Modification or Withdrawal of Offer**

An offer and/or modification of offer received at the office designated in the solicitation after the exact hour and date specified for receipt will not be considered.

An offer may be modified or withdrawn by written notice before the exact hour and date specified for receipt of offers. An offer also may be withdrawn in person by an offeror or an authorized representative, provided the identity of the person is made known and the person signs a receipt for the offer, but only if the withdrawal is made prior to the exact hour and date set for receipt of offers.

### **3.8 Acceptance or Rejection and Award of Proposal**

The University reserves the right to accept or reject any or all proposals (or parts of proposals), to waive any informalities or technicalities, to clarify any ambiguities in proposals and (unless otherwise specified) to accept any item in the proposal. In case of error in extension or prices or other errors in calculation, the unit price shall govern. Further, the University reserves the right to make a single award, split awards, multiple awards or no award, whichever is in the best interest of the University.

### **3.9 Rejection**

Grounds for the rejection of proposals include (but shall not be limited to):

- Failure of a proposal to conform to the essential requirements of the RFP.
- Imposition of conditions that would significantly modify the terms and conditions of the solicitation or limit the offeror's liability to the University on the contract awarded on the basis of such solicitation.
- Failure of the offeror to sign the University RFP. This includes the Authentication of Proposal and Statement of Non-Collusion and Non-Conflict of Interest statements.

- Receipt of proposal after the closing date and time specified in the RFP.

**3.10 Addenda**

Any addenda or instructions issued by the purchasing agent prior to the time for receiving proposals shall become a part of this RFP. Such addenda shall be acknowledged in the proposal. No instructions or changes shall be binding unless documented by a proper and duly issued addendum.

**3.11 Disclosure of Offeror's Response**

The RFP specifies the format, required information and general content of proposals submitted in response to this RFP. The purchasing agent will not disclose any portions of the proposals prior to contract award to anyone outside the Office of Procurement Services, the University's administrative staff, representatives of the state or federal government (if required) and the members of the committee evaluating the proposals. After a contract is awarded in whole or in part, the University shall have the right to duplicate, use or disclose all proposal data submitted by offerors in response to this RFP as a matter of public record.

Any submitted proposal shall remain valid for 90 days after the proposal due date.

**3.12 Restrictions on Communications with University Staff**

From the issue date of this RFP until a contractor is selected and a contract award is made, offerors are not allowed to communicate about the subject of the RFP with any University administrator, faculty, staff or members of the board of regents except: the purchasing agent representative, any University purchasing official representing the University administration, others authorized in writing by the Office of Procurement Services and University representatives during offeror presentations. If violation of this provision occurs, the University reserves the right to reject the offeror's proposal.

**3.13 Cost of Preparing Proposal**

Costs for developing the proposals and any subsequent activities prior to contract award are solely the responsibility of the offerors. The University will provide no reimbursement for such costs.

**3.14 Disposition of Proposals**

All proposals become the property of the University. The successful proposal will be incorporated into the resulting contract by reference.

**3.15 Alternate Proposals**

Not Applicable

**3.16 Questions**

All questions should be submitted by either fax or e-mail to the purchasing agent listed in Section 3.2 no later than the date listed in Section 3.1.

**3.17 Section Titles in the RFP**

Section titles used herein are for the purpose of facilitating ease of reference only and shall not be construed to infer the construction of contractual language.

**3.18 No Contingent Fees**

No person or selling agency shall be employed or retained or given anything of monetary value to solicit or secure this contract, except bona fide employees of the offeror or bona fide established commercial or selling agencies maintained by the offeror for the purpose of securing business. For breach or violation of this provision, the University shall have the right to reject the proposal, annul the contract without liability, or, at its discretion, deduct from the contract price or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee or other benefit.

**3.19 Proposal Addenda and Rules for Withdrawal**

Prior to the date specified for receipt of offers, a submitted proposal may be withdrawn by submitting a written request for its withdrawal to the University purchasing office, signed by the offeror. Unless requested by the University, the University will not accept revisions or alterations to proposals after the proposal due date.

## **4.0 PROPOSAL FORMAT AND CONTENT**

### **4.1 Proposal Information and Criteria**

The following list specifies the items to be addressed in the proposal. Offerors should read it carefully and address it completely and in the order listed to facilitate the University's review of the proposal.

Proposals shall be organized into the sections identified below. The content of each section is detailed in the following pages. It is strongly suggested that offerors use the same numbers for the following content that are used in the RFP.

- Table of Contents
- Signed Authentication of Proposal and Statement of Non-Collusion and Non-Conflict of Interest Form
- Executive Summary and Proposal Overview
- Proposal:
  - Cover letter explaining the Vendor's understanding of the Project(s)
  - Detail of how the Vendor shall achieve Northern Kentucky University's requirements of the Project
  - Specific listing of prior experience in Audio/Video/Presentation technology installations in higher education complete with references.
  - Detailed listing of additional experience and capabilities.
  - Description of vendor's design/engineering capabilities.
  - Description of vendor's installation capabilities.
  - Crestron Programmer Certifications: Please include qualifications of Crestron Programmer's on staff. System programmers must be employed by the vendor and have Crestron Programming Certification
  - Listing of a minimum of three (3) references for which you have completed projects similar in scope and complexity. Address and phone number of Client's representative for each project. Note: It is preferred that references listed are for projects similar in scope to requirements listed herein.
  - Cost considerations: Complete and submit costs sheets contained in this RFP and attach additional pricing pages or quoted discounts for similar or related products and services (e.g.: monitoring systems, security options, etc.) that the university may consider for future projects. Please enclose information relating to any federal (GSA), state, local, or cooperative price contracts that would be made available.
- Addenda Acknowledgement (if applicable)

### **4.2 Signed Authentication of Proposal and Statements of Non-Collusion and Non-Conflict of Interest Form**

The Offeror will sign and return the proposal cover sheet and print or type their name, firm, address, telephone number and date. The person signing the offer must initial erasures or other changes. An offer signed by an agent is to be accompanied by evidence of their authority unless such evidence has been previously furnished to the purchasing agency. The signer shall further certify that the proposal is made without collusion with any other person, persons, company or parties submitting a

proposal; that it is in all respects fair and in good faith without collusion or fraud; and that the signer is authorized to bind the principal offeror.

Non-Collusion and Non-Conflict of Interest form is attached to this RFP.

#### **4.3 Executive Summary and Proposal Overview**

The Executive Summary and Proposal Overview shall condense and highlight the contents of the technical proposal in such a way as to provide the evaluation committee with a broad understanding of the entire proposal.

#### **4.4 Project Scope**

1. Vendors may submit proposals only for equal or better quality on items specified with make and model if the specified item is no longer available from the manufacturer. Specified items not available from the manufacturer will require supplier to quote the direct replacement item from the specified manufacturer and will require approval from Northern Kentucky University's Office of Information Technology. On those items not specified, please supply catalogue pages with all specifications and indicate the make and model of your suggested replacement.
2. Quotes/proposals should be itemized as listed below.
3. Quotes should be submitted assuming one room per configuration, then detailing additional discounts of pricing adjustments for multiple rooms of the same configuration.
4. Computers will be supplied by the university. Systems will consist of Dell or equivalent desktop units with 17" – 23" LCD flat panel monitors running a Microsoft Windows based operating system, or Apple Mac computer with 17" – 23" monitors running the latest Mac OS.
5. Northern Kentucky University will supply power and data outlets as needed for the installation. Costs of any equipment cords, network cables, or patch cords should be included in the basic package costs proposed by the vendor.

**SYSTEM PACKAGES:** System equipment must be housed and rack mounted in the specified Spectrum Link Lectern (Current Preferred Model: Director Lectern 55213-Black). Crestron control system components to include the specified control processor, connectivity and the ability to provide integrated control of at least one wall mounted monitor, four (4) ceiling speakers, one specified Blu-ray DVD unit, two HDMI inputs for main computer and laptop and two additional source devices (e.g digital document camera/HDMI, VGA device). Vendor must provide all required manufacturer power supplies (including power outlets for NKU provided equipment and additional outlets for laptop power), cables, rack kits, expansion and wall plates (metal expansion and/or wall plates require the use of insulated plenum cabling), sensors and controls. A pre-terminate (20') Twenty feet umbilical cord wrapped in braided TechFlex should be installed to connect equipment rack to wall plate. Cabling in walls and ceiling must be plenum rated. Lengths for cabling from wall plate to projector and speakers will vary per room but will not exceed (50') fifty feet.

Vendors may submit proposals only for equal or better quality items specified with make and model if the specified item is no longer available from the manufacturer. Specified items not available from the manufacturer will require the vendor to quote the direct replacement item from the specified manufacture and will require approval from Northern Kentucky University's Office of Information Technology. On those items not specified, please supply catalogue pages with all specifications and indicate the make and model of any suggested items.

Programming of Crestron Control System should also include the Crestron Fusion and X-Panel modules. Programming Code (compiled and uncompiled) for Crestron Control Systems must be submitted to the Northern Kentucky University's Office of Information Technology upon project completion. All programming will become property of Northern Kentucky University.

**PREFERRED PRODUCTS & SPECIFICATIONS:** The following list specifies acceptable models of equipment and is typical of a standard classroom or conference room, which at this date are preferred by the Northern Kentucky University's Office of Information Technology for the consistency and ease of support. Substitutions for discontinued items must be of the same manufacturer and be the current replacement for that model.

**BASE ROOM MODEL (for bidding purposes only):**

Device	Manufacturer	Model	Notes
Monitor	Planar	QE8650	RS-232 for control
Video Processor	Crestron	DMPS3-4k-350-C	AirMedia to be enabled.
Video Scaler	Crestron	RMC-4KZ-100-C	
Touch Panel	Crestron	TSW-760-B-S	Table top mount included
Mount	Chief	XTM1U	
Speakers	QSC	AD-C6T	4 total
Amp	QSC	CX302V	
Blu-Ray Player	Denon	DN-500BD MKII	
Audio Processing	Biamp	FORTE DAN CI	Audio
Video Camera	Sony	SRG-360SHE	SDI to be feed to capture card. HDMI feed to DMPS
Capture Card	Magwell	USB Capture SDI 4K Plus	Direct feed from Camera, and from output of Biamp
Audio	Shure	MXA910	
Network Switch	Cisco	C3650-CX	
USB Extender	Vaddio	999-1005-032	Used to connect computer to Planar monitor
Lectern	Spectrum	Director 55213-Black	Accessories: 2@ 55539 2@ 55384 2@ 99051 1@ 99058

**SYSTEM WARRANTY:** The vendors shall include a statement of warranty on the entire system, which shall begin on the date of the system acceptance and end no less than one year later. These dates shall be recorded as the start of the system warranty at the completion of system acceptance.

**ADDITIONAL HARDWARE REQUIREMENTS:** Additional requirements include extension cables from podium interior (equipment location) to podium surface to allow convenient plug-in of

additional equipment; cable-pack to include HDMI connections for desktop PC and laptop, audio (for desktop PC and laptop).

Connector plates, plugs, 20' cables, other required hardware, and installation to allow podium to be moved around the front of the room (i.e. "umbilical cord" with plugs at both ends, to connect podium equipment to wall for power, network, projector, and speakers. Cabling, connectors, programming, installation, and all required components and labor necessary for complete installation.

COST TO PROVIDE EQUIPMENT AND INSTALL FOR A SINGLE BASE ROOM \$ \_\_\_\_\_  
 DISCOUNT TO ABOVE PRICE FOR 3-5 ROOM COMMITMENT \$ \_\_\_\_\_  
 DISCOUNT TO ABOVE PRICE FOR 6-10 ROOM COMMITMENT \$ \_\_\_\_\_  
 DISCOUNT TO ABOVE PRICE FOR 11 OR MORE ROOMS \$ \_\_\_\_\_

**ADDITIONAL PURCHASE AND INSTALL OPTIONS:**

- **BOX SALES (No Labor)**
  - Purchase of equipment and necessary accessories as described in the Base Room Model above or other related audio/visual/presentation equipment as needed by the university
- **PRODUCT and LABOR SALES**
  - Based on the needs of the university, partial rooms, non-base model rooms, any equipment and/or necessary accessories or install labor only may be requested.
- **LABOR ONLY**
  - Based on the needs of the university, NKU may request services regarding demolition, installation, programming or maintenance of rooms with or without purchasing equipment direct through vendor.

**LABOR RATES:**

Hourly Crestron Programming Cost \$ \_\_\_\_\_

Hourly labor rate for service\* of rooms if NKU commits to 20-39 hours a month \$ \_\_\_\_\_

Hourly labor rate for service\* of rooms if NKU commits to 40 or more hours a month \$ \_\_\_\_\_

Hourly labor rate for service\* of rooms if NKU work will occur on nights or weekends \$ \_\_\_\_\_

\*includes diagnosing and fixing problems, installation of new screens, projector mounts, projectors, wiring and other standard package equipment.

NOTE: Installations typically occurs between Spring Break (March) through the summer months with multiple room upgrades performed each year. Evening and weekend installation may be necessary depending on class schedules and availability.

**CONDITIONS:**

- The vendor is expected to be pro-active in advising Northern Kentucky University's Office of Information Technology representatives of improvements in relevant AV technology and pricing in a timely manner, and to provide demonstration samples for testing and evaluation in actual use.
- **EQUIPMENT:** Shall be new, of current design and consist of standard products with established manufacturers, carrying valid manufacturer's standard USA warranties.
- **CONTROLS:** The controls shall be designed to provide optimum usability for all controllable equipment. They shall imitate the design and functionality type user interface for the University's existing systems.



- **CABLING STANDARDS:** The vendor must meet all current NKU label, connector and color coding standard. Vendor must seek the most updated list of standards before starting or creating build lists for any applicable projects.
- **TIME OF COMPLETION:** Vendors must adhere to timetables for installation and completion of electronic classroom systems. Timetables will be mutually agreed upon as part of the award of each project or group of projects. Failure to achieve system acceptance by the deadline specified, may result in cancellation of the contract. Vendors and Northern Kentucky University representatives must perform a final walkthrough and shall perform and document systematic comprehensive testing that will be performed before acceptance of installed systems. The purpose of these tests is to demonstrate that systems meet all performance, installation and training specifications according to the representatives of Northern Kentucky University.

## 5.0 EVALUATION CRITERIA PROCESS

**AV Vendor Scoring Matrix**

Category	Points
Proposed cost & fee structure	30
Specific experience installing "smart" classroom technology at NKU or other universities	20
Specific experience installing related audio/visual presentation systems	10
Warranty Support – Ability to provide timely support	10
References	15
Vendor's physical proximity to NKU – Drive time to NKU	15
<b>Total</b>	<b>100</b>

A committee of University officials will evaluate proposals and make a recommendation to the purchasing agent. The evaluation will be based upon the information provided in the proposal, additional information requested by the University for clarification, information obtained from references and independent sources and oral presentations (if requested).

Proposals will be evaluated strictly in accordance with the requirements set forth in this solicitation, including any addenda that are issued. The University will award the contract to the responsible offeror whose proposal is determined to be the most advantageous to the University, taking into consideration the evaluation factors set forth in this RFP.

The evaluation of proposals will include consideration of responses to the list of criteria in Section 4.0. Offerors must specifically address all criteria in their response.

The University will evaluate proposals as submitted and may not notify offerors of deficiencies in their responses.

A proposal may be rejected if it is conditional or incomplete in the judgment of the University.

### **Other Pertinent Information & Suggestions for Proposal Submittal:**

1. Provide a **brief** firm profile indicating location, years in business, and firm's expertise in providing audio visual equipment and services.



2. Provide relevant experience in providing audio visual equipment and services in an educational environment, and specific NKU and/or other university project experience.

## **6.0 SPECIAL CONDITIONS**

### **6.1 Contract Term**

The contract resulting from this RFP shall be effective through September 30, 2021, and is renewable for up to 2 additional one-year renewal periods with the written agreement of both parties.

### **6.2 Effective Date**

The effective date of the contract shall be the date upon which the parties execute it and all appropriate approvals, including that of the Commonwealth of Kentucky Government Contracts Review Committee, have been received.

### **6.3 Competitive Negotiation**

It is the intent of the RFP to enter into competitive negotiation as authorized by KRS 45A.085.

The University will review all proposals properly submitted. However, the University reserves the right to request necessary modifications, reject all proposals, reject any proposal that does not meet mandatory requirement(s) or cancel this RFP, according to the best interests of the University.

Offeror(s) selected to participate in negotiations may be given an opportunity to submit a Best and Final Offer to the purchasing agent. All information-received prior to the cut-off time will be considered part of the offeror's Best and Final Offer.

The University also reserves the right to waive minor technicalities or irregularities in proposals providing such action is in the best interest of the University. Such waiver shall in no way modify the RFP requirements or excuse the offeror from full compliance with the RFP specifications and other contract requirements if the offeror is awarded the contract.

### **6.4 Appearance Before Committee**

Any, all or no offerors may be requested to appear before the evaluation committee to explain their proposal and/or to respond to questions from the committee concerning the proposal. Offerors are prohibited from electronically recording these meetings. The committee reserves the right to request additional information.

### **6.5 Additions, Deletions or Contract Changes**

The University reserves the right to add, delete, or change related items or services to the contract established from this RFP. No modification or change of any provision in the resulting contract shall be made unless such modification is mutually agreed to in writing by the contractor and the Purchasing agent and incorporated as a written modification to the contract. Memoranda of understanding and correspondence shall not be interpreted as a modification to the contract.

**6.6 Contractor Cooperation in Related Efforts**

The University reserves the right to undertake or award other contracts for additional or related work to other entities. The contractor shall fully cooperate with such other contractors and University employees and carefully fit its work to such additional work. The contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or by University employees. This clause shall be included in the contracts of all contractors with whom this contractor will be required to cooperate. The University shall equitably enforce this clause to all contractors to prevent the imposition of unreasonable burdens on any contractor.

**6.7 Entire Agreement**

The RFP shall be incorporated into any resulting contract. The resulting contract, including the RFP and those portions of the offeror's response accepted by the University, shall be the entire agreement between the parties.

**6.8 Governing Law**

The contractor shall conform to and observe all laws, ordinances, rules and regulations of the United States of America, Commonwealth of Kentucky and all other local governments, public authorities, boards or offices relating to the property or the improvements upon same (or the use thereof) and will not permit the same to be used for any illegal or immoral purposes, business or occupation. The resulting contract shall be governed by Kentucky law and any claim relating to this contract shall only be brought in the Franklin Circuit Court in accordance with KRS 45A.245.

**6.9 Kentucky's Personal Information Security and Breach Investigation Procedures and Practices Act**

To the extent Company receives Personal Information as defined by and in accordance with Kentucky's Personal Information Security and Breach Investigation Procedures and Practices Act, KRS 61.931, 61.932 and 61.933 (the "Act"), Company shall secure and protect the Personal Information by, without limitation: (i) complying with all requirements applicable to non-affiliated third parties set forth in the Act; (ii) utilizing security and breach investigation procedures that are appropriate to the nature of the Personal Information disclosed, at least as stringent as University's and reasonably designed to protect the Personal Information from unauthorized access, use, modification, disclosure, manipulation, or destruction; (iii) notifying University of a security breach relating to Personal Information in the possession of Company or its agents or subcontractors within seventy-two (72) hours of discovery of an actual or suspected breach unless the exception set forth in KRS 61.932(2)(b)2 applies and Company abides by the requirements set forth in that exception; (iv) cooperating with University in complying with the response, mitigation, correction, investigation, and notification requirements of the Act, (v) paying all costs of notification, investigation and mitigation in the event of a security breach of Personal Information suffered by Company; and (vi) at University's discretion and direction, handling all administrative functions associated with notification, investigation and mitigation.

## **6.10 Termination for Convenience**

Northern Kentucky University, Office of Procurement Services, reserves the right to terminate the resulting contract without cause with a thirty (30) day written notice. Upon receipt by the contractor of a "notice of termination," the contractor shall discontinue all services with respect to the applicable contract. The cost of any agreed upon services provided by the contractor will be calculated at the agreed upon rate prior to a "notice of termination" and a fixed fee contract will be pro-rated (as appropriate).

## **6.11 Termination for Non-Performance**

### Default

The University may terminate the resulting contract for non-performance, as determined by the University, for such causes as:

- Failing to provide satisfactory quality of service, including, failure to maintain adequate personnel, whether arising from labor disputes, or otherwise any substantial change in ownership or proprietorship of the Contractor, which in the opinion of the University is not in its best interest, or failure to comply with the terms of this contract;
- Failing to keep or perform, within the time period set forth herein, or violation of, any of the covenants, conditions, provisions or agreements herein contained;
- Adjudicating as a voluntarily bankrupt, making a transfer in fraud of its creditors, filing a petition under any section from time to time, or under any similar law or statute of the United States or any state thereof, or if an order for relief shall be entered against the Contractor in any proceeding filed by or against contractor thereunder. In the event of any such involuntary bankruptcy proceeding being instituted against the Contractor, the fact of such an involuntary petition being filed shall not be considered an event of default until sixty (60) days after filing of said petition in order that Contractor might during that sixty (60) day period have the opportunity to seek dismissal of the involuntary petition or otherwise cure said potential default; or
- Making a general assignment for the benefit of its creditors, or taking the benefit of any insolvency act, or if a permanent receiver or trustee in bankruptcy shall be appointed for the Contractor.

### Demand for Assurances

In the event the University has reason to believe Contractor will be unable to perform under the Contract, it may make a demand for reasonable assurances that Contractor will be able to timely perform all obligations under the Contract. If Contractor is unable to provide such adequate assurances, then such failure shall be an event of default and grounds for termination of the Contract.

### Notification

The University will provide ten (10) calendar days written notice of default. Unless arrangements are made to correct the non-performance issues to the University's satisfaction within ten (10) calendar days, the University may terminate the contract by giving forty-five (45) days notice, by registered or certified mail, of its intent to cancel this contract.

### **6.12 Funding Out**

The University may terminate this contract if funds are not appropriated or are not otherwise available for the purpose of making payments without incurring any obligation for payment after the date of termination, regardless of the terms of the contract. The University shall provide the contractor thirty (30) calendar days' written notice of termination under this provision.

### **6.13 Prime Contractor Responsibility**

Any contracts that may result from the RFP shall specify that the contractor(s) is/are solely responsible for fulfillment of the contract with the University.

### **6.14 Assignment and Subcontracting**

The Contractor(s) may not assign or delegate its rights and obligations under any contract in whole or in part without the prior written consent of the University. Any attempted assignment or subcontracting shall be void.

### **6.15 Permits, Licenses, Taxes**

The contractor shall procure all necessary permits and licenses and abide by all applicable laws, regulations and ordinances of all federal, state and local governments in which work under this contract is performed.

The contractor must furnish certification of authority to conduct business in the Commonwealth of Kentucky as a condition of contract award. Such registration is obtained from the Secretary of State, who will also provide the certification thereof. However, the contractor need not be registered as a prerequisite for responding to the RFP.

The contractor shall pay any sales, use, personal property and other tax arising out of this contract and the transaction contemplated hereby. Any other taxes levied upon this contract, the transaction or the equipment or services delivered pursuant hereto shall be the responsibility of the contractor.

The contractor will be required to accept liability for payment of all payroll taxes or deductions required by local and federal law including (but not limited to) old age pension, social security or annuities.

### **6.16 Attorneys' Fees**

In the event that either party deems it necessary to take legal action to enforce any provision of the contract and in the event that the University prevails, the contractor agrees to pay all expenses of such action including attorneys' fees and costs at all stages of litigation.

#### **6.17 Royalties, Patents, Copyrights and Trademarks**

The Contractor shall pay all applicable royalties and license fees. If a particular process, products or device is specified in the contract documents and it is known to be subject to patent rights or copyrights, the existence of such rights shall be disclosed in the contract documents and the Contractor is responsible for payment of all associated royalties. To the fullest extent permitted by law the Contractor shall indemnify, hold the University harmless, and defend all suits, claims, losses, damages or liability resulting from any infringement of patent, copyright, and trademark rights resulting from the incorporation in the Work or device specified in the Contract Documents.

Unless provided otherwise in the contract, the Contractor shall not use the University's name nor any of its trademarks or copyrights, although it may state that it has a Contract with the University.

#### **6.18 Indemnification**

The contractor shall indemnify, hold and save harmless the University, its affiliates and subsidiaries and their officers, agents and employees from losses, claims, suits, actions, expenses, damages, costs (including court costs and attorneys' fees of the University's attorneys), all liability of any nature or kind arising out of or relating to the Contractor's response to this RFP or its performance or failure to perform under the contract awarded from this RFP. This clause shall survive termination for as long as necessary to protect the University.

#### **6.19 Insurance and Bonding**

If awarded, bidder / proposer must provide NKU with an insurance certificate listing NKU as a certificate holder and additionally insured.

**Northern Kentucky University  
617 Lucas Administrative Center  
1 Nunn Drive  
Highland Heights, KY 41099**

The Contractor shall furnish the University the Certificates of Insurance and guarantee the maintenance of such coverage during the term of the contract. The Contractor shall provide an original policy endorsement of its CGL insurance naming Northern Kentucky University and the directors, officers, trustees, and employees of the University as additional insured on a primary and non-contributory basis as their interest appears. Additionally, the Contractor shall provide an original policy endorsement for Waiver of subrogation in favor of the Northern Kentucky University its directors, officers, trustees, and employees as additional insured.

#### **Our basic insurance requirements are:**

Workers' Compensation insurance with Kentucky's statutory limits and Employers' Liability insurance with at least \$100,000 limits of liability.

Comprehensive General Liability (CGL) Insurance the limits of liability shall not be less than \$500,000 each occurrence for bodily injury and \$250,000 property damage.

Comprehensive Automobile Liability Insurance: To cover all owned, hired, leased or non-owned vehicles used on the Project. Coverage shall be for all vehicles including off the road tractors, cranes and rigging equipment and include pollution liability from vehicle upset or overturn. Policy limits shall not be less than \$500,000 for bodily injury and \$100,000 for property damage.

Excess liability insurance in an umbrella form for excess coverages shall have a minimum of \$1,000,000 combined single limits for bodily injury and property damage for each.

***If accessing NKU Student, Employee, or other personal records, vendor needs Security and Privacy Liability Insurance with limits no less than \$1,000,000.***

***If accessing NKU Student, Employee, or other personal records, vendor needs Evidence Breach Response Services coverage with limits no less than \$5,000,000.***

## **6.20 Method of Award**

It is the intent of the University to award a contract to the qualified offeror whose offer, conforming to the conditions and requirements of the RFP, is determined to be the most advantageous to the University, cost and other factors considered.

Notwithstanding the above, this RFP does not commit the University to award a contract from this solicitation. The University reserves the right to reject any or all offers and to waive formalities and minor irregularities in the proposal received.

## **6.21 Reciprocal Preference**

In accordance with KRS 45A.494, a resident offeror of the Commonwealth of Kentucky shall be given a preference against a nonresident offeror. In evaluating proposals, the University will apply a reciprocal preference against an offeror submitting a proposal from a state that grants residency preference equal to the preference given by the state of the nonresident offeror. Residency and non-residency shall be defined in accordance with KRS 45A.494(2) and 45A.494(3), respectively. Any offeror claiming Kentucky residency status shall submit with its proposal a notarized affidavit affirming that it meets the criteria as set forth in the above reference statute.

An affidavit is provided and attached, for your convenience to this RFP.

## **6.22 Reports and Auditing**

The University, or its duly authorized representatives, shall have access to any books, documents, papers, records or other evidence which are directly pertinent to this contract for the purpose of financial audit or program review.

**6.23 Confidentiality**

The University recognizes an offeror's possible interest in preserving selected information and data included in the proposal; however, the University must treat such information and data as required by the Kentucky Open Records Act, KRS 61.870, et seq.

If the offeror declares information provided in their response to be proprietary in nature and not available for public disclosure, the offeror shall declare in their response the inclusion of proprietary information and shall noticeably label as confidential or proprietary each sheet containing such information. Proposals containing information declared by the offeror to be proprietary or confidential, either wholly or in part, not excluded by the Kentucky Open Records Act, KRS 61.870 may be deemed non-responsive and may be rejected.

The University's General Counsel shall review each offeror's information claimed to be confidential and, in consultation with the offeror (if needed), make a final determination as to whether or not the confidential or proprietary nature of the information or data complies with the Kentucky Open Records Act.

**6.24 Conflict of Interest**

When submitting and signing a proposal, an offeror is certifying that no actual, apparent or potential conflict of interest exists between the interests of the University and the interests of the offeror. A conflict of interest (whether contractual, financial, organizational or otherwise) exists when any individual, contractor or subcontractor has a direct or indirect interest because of a financial or pecuniary interest, gift or other activities or relationships with other persons (including business, familial or household relationships) and is thus unable to render or is impeded from rendering impartial assistance or advice, has impaired objectivity in performing the proposed work or has an unfair competitive advantage.

Questions concerning this section or interpretation of this section should be directed to the University purchasing agent identified in this RFP.

**6.25 Extending Contract**

The offeror's response to this RFP must state whether or not the offeror will permit the use of this contract by other Universities, state agencies, public and private institutions in the Commonwealth of Kentucky. An answer to this issue must be submitted within the response.

**6.26 Personal Service Contract Policies**

This RFP is for consulting or other personal services. Kentucky law requires a Personal Services Contract to be signed by the vendor and filed with the Legislative Research Commission in Frankfort prior to any work beginning. [KRS 45A.690](#) defines a Personal Service Contract as "an agreement whereby an individual, firm, partnership, or corporation is to perform certain services requiring professional skill or professional judgment for a specified period of time at a price agreed upon."



After Determination but prior to award, a Personal Services Contract will be sent to the winning offeror for signature. Please be sure to sign and return the **original** contract promptly to Northern Kentucky University. A Notice of Award will not be issued until the signed Personal Services Contract has been received by Procurement Services and filed with the Legislative Research Commission in Frankfort, KY.

**REGARDING PERSONAL SERVICE CONTRACT INVOICING**

House Bill 387 has now amended Kentucky Revised Statute 45A.695(10)(A) with the following language, "No payment shall be made on any personal service contract unless the individual, firm, partnership, or corporation awarded the personal service contract submits its invoice for payment on a form established by the committee". The Personal Service Contract Invoice Form shall be used for this purpose and for your convenience we have added fields so that it can be filled in online and printed. This form can be located on NKU's Procurement Services website at: [www.lrc.ky.gov/statcomm/contracts/PSC%20INVOICE%20form.pdf](http://www.lrc.ky.gov/statcomm/contracts/PSC%20INVOICE%20form.pdf)

**APPENDIX A: NETWORKING STANDARDS**

**APPENDIX B: REFERENCES**

**Bidder Qualifications:** The bidder is required to submit a list of completed projects where he has performed similar work to that specified herein.

**Organization:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Date Work Completed:** \_\_\_\_\_ **Value of Contract:** \_\_\_\_\_

**Project Manager assigned to this project:** \_\_\_\_\_

**Brief Project Description:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Organization:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Date Work Completed:** \_\_\_\_\_ **Value of Contract:** \_\_\_\_\_

**Project Manager assigned to this project:** \_\_\_\_\_

**Brief Project Description:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Organization:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Date Work Completed:** \_\_\_\_\_ **Value of Contract:** \_\_\_\_\_

**Project Manager assigned to this project:** \_\_\_\_\_

**Brief Project Description:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



## **Technology Infrastructure:**

### **Category 6A & SM Fiber to the Desktop Cabling Standards**

**Revision 8 - 1/7/2019**

#### **1.0 GENERAL**

##### **1.0. A.**

Northern Kentucky University follows all current ANSI/TIA/EIA 568, 569, 570, 607 and 758 standards, National Electrical Code, National Electrical Safety Code, and all local jurisdiction codes.

#### **1.1 STANDARDS**

##### **1.1. A.**

Building structured cabling systems shall meet Northern Kentucky University's Office of Information Technology cabling conventions to include adherence to the most currently available **BICSI** Building Industry Consulting Service International TDM Telecommunications Distribution Methods Manual, TIA/EIA Telecommunications Building cabling Standards, NFPA National Electrical Code manuals (ANSI/TIA/EIA) and also meet a minimum of **25 year warranty** standards of the manufacturer. This includes addendums to TIA standards such as 568-B.2 addendums 1, 2, 3, and 4. Contractors shall be fully acquainted with the above referenced standards and be fully qualified, as outlined in the NKU Technology Infrastructure contractor qualifications. Contractors shall have demonstrated qualifications to install and test a 10-Gigabit intra/inter-building backbone. All station and riser cabling shall be tested and certified by the contractor to support 10-Gigabit technology. Additionally, the contractor will be required to meet NKU conventions and standards. The following specified Technology Infrastructure Cabling Standards are to be used as a minimum requirement.

#### **1.2 COMMUNICATION CABLING SYSTEM CONTRACTOR QUALIFICATIONS**

##### **1.2. A.**

The NKU Office of Information Technology requires that only qualified and experienced communication cabling system contractors perform project management and installation services in the construction or remodel of University buildings. Pursuant to this, NKU's Office of Information Technology wants to ensure that successful contractors have the capabilities, qualifications, financial stability, resources, equipment and experience to complete communication cabling system installations using common industry practices (i.e. Current BICSI TDM, ANSI/TIA/EIA 568, 569, 570, 607 and 758 standards, National Electrical Code, National Electrical Safety Code, and all local jurisdiction codes, etc.), while meeting all NKU Office of Information Technology guidelines.

##### **1.2. B.**

Contractor (prime and any sub-contractors) must meet the requirement of having continuously performed communication cabling system installation work for a

minimum of **5 years**. Contractor must provide manufacturer technician certification information, customer references, and documentation supporting this requirement. Contractor shall provide at least 2 references from similar installations. One within the last 6 months and one within the last 2 years.

**1.2. C.**

Communication cabling contractor, at all times during performance and until work is completed and accepted, should have onsite a competent supervisor, satisfactory to NKU's Office of Information Technology. He should have the authority to act for the communication cabling system contractor regarding work schedules and any changes to the scope of work. The supervisor must be a BICSI certified Technician and a BICSI member in good standing.

**1.2. D.**

Contractor and their installers must be a local, **Legrand Ortronics CIP / General Cable** certified installer, able to obtain a minimum 25 year warranty. Any exceptions to this qualification must be approved in writing by Legrand / Ortronics PRIOR to any bid submittal from contractor.

**1.2. E.**

Communication cabling system contractor must have a current **BICSI certified RCDD** (Registered Communication Distribution Designer) on staff as a full-time employee. A copy of the RCDD certificate and BICSI member number must be provided with bid documents.

**1.2. F.**

Communication cabling system contractor must provide at least one project manager or lead technician on a project who is a BICSI certified Technician and a BICSI member in good standing. A copy of their certificate and BICSI member number must be provided with bid documents.

**1.2. G.**

Communication cabling system contractor must be skilled and proficient in both inside cable plant (copper and fiber) design, installation, as well as outside cable plant (copper and fiber) design, installation, termination, splicing, and testing. Communication cabling system contractor must provide a list of equipment owned (i.e. fusion splicer, OTDR, excavation equipment, cable testers, etc.).

**1.3 PROGRESS MEETINGS**

**1.3. A.**

The contractor will be required to meet with and coordinate with a representative of the NKU Office of Information Technology prior to work beginning and weekly during the installation process. Weekly meetings will include a site inspection to ensure compliance with established standards. The successful electrical and communication cabling system contractor will follow appropriate installation guidelines, as contained in the most currently available BICSI TDM, ANSI/TIA/EIA Wiring Standards, and NFPA National Electrical Code manuals. Additionally, contractor will work with NKU's Office of Information Technology to ensure proper placement, routing, labeling and documentation of cable and support hardware.

## 1.4 DOCUMENTATION

### 1.4. A.

Prior to system acceptance, the contractor shall submit to the owner fully documented and scaled drawings of the entire fiber optic and copper distribution system. Documentation shall be provided in both a **hard copy** binder and an **electronic copy** on a USB drive capable of being viewed and edited in Visio Professional. This will include building and floor layouts with workstation information outlet locations and labeling, MDF (Main Distribution Frame room), IDF (Intermediate Distribution Frame room), cable routes, interconnect locations, intermediate and main distribution frame locations, riser locations and all other information pertinent to the installation.

### 1.4. B.

The contractor will be responsible for accurately labeling and identifying all relevant components of the cabling system, including, but not limited to: Workstation outlet faceplate labeling; workstation cable labeling; patch panel and port labeling; telecom block labeling; riser cable labeling; backbone cable labeling at entrance to MDF or IDF; fiber optic patch panel labeling and strand labeling. The contractor will consult with NKU's Office of Information Technology representative in regards to labeling and identification. The labeling nomenclature is as follows:

All Voice and data cabling for the university will follow one simple **labeling plan: room # - Outlet# - Jack #**. Data and voice ports will be distinguished in the second integer where data ports will use a number and voice ports will use a letter (A, B, C).

Other list of possible extensions to be included:

Security Camera = C

Crestron Panel = CR

Elevator = E

Fire Panel = F

Projector = P

Wireless Access = W

EXAMPLE: 208-1-1 = room #208, data outlet # 1, jack # 1

EXAMPLE: 549-A-1 = room #549, voice outlet # A, jack # 1

EXAMPLE: 128-3-3 = room #128, data outlet # 3 and jack # 3 in that room

EXAMPLE: 745-C-3 = room #745, voice outlet # C and jack # 3 in that room

EXAMPLE: 609-P-1 = room #609, projector outlet # 1 and jack #1 for projector

EXAMPLE 332-W-1 = room #332, wireless access outlet # 1 and jack #1 for wireless access point

**The jack colors on workstation side should be Blue.**

Outlets will be numbered from the primary entrance into a room in a clockwise fashion, left to right. Numbering the wall outlets first, floor outlets second and the ceiling outlets last.

This simple nomenclature denotes three integers for all voice and data labeling where the first integer is the room number and the second integer is either voice, data, projector or other (denoted by a number or letter) in the room and the third integer is the jack # in the outlet.

Northern Kentucky University also requires that each individual cable be labeled at both ends with the same numbering plan explained above, per BICSI standards. All labels must be machine printed and permanent.

Contractor should consult with NKU for proper labeling standards prior to installation.

**1.4. C**

The contractor will be responsible for attaching cable tags on all cables that are installed through the NKU manhole, hand-hole and Arial pole systems. These cable tags will be attached to each cable in each manhole and clearly state the: To & from locations, pair counts, strand count, cable type and use.

Examples:

BC > SU -12ST-SM-D = BC building to Student Union, 12 strand, single mode, data.

SC > LA -400PR-CP-V = Science Center to Landrum, 400 pair, Copper, Voice.

**1.5 MATERIALS LIST**

Items cannot be substituted. Contractors should present quotes based on the material list provided by NKU **(see approved material list document)**.

**1.5. A.**

**Workstation Outlet:**

**Ortronics is the standard.**

NKU prefers to utilize modular faceplates that allow for a variety of modules such as fiber, copper, USB, and audio/visual connections in angled configurations.

Ortronics Single Gang Series II Angled Wall Plate, (holds 4 jacks) Fog White - Ortronics PN: OR-40300158 plus (2) OR-40300656.

RJ45 Jack, 10 Gigabit, RJ45, T568A/B, Snap-In Module, Blue - Ortronics PN: OR-TJ6A-36 used for data outlets

Blank Module, Fog White, TracJack Blank: PN OR-42100002; Series II Blank: PN OR-40300023

Please consult NKU IT for non-faceplate installation (furniture or surface mount box)

### 1.5. A.1.

#### Copper Patch Cords:

**Ortronics is the standard.**

Color is **BLACK** for 6A patch cords

Maximum length of Category patch cords is 7 feet. As such, design and implementations shall consider same by ensuring outlet locations are no more than 7 ft. from devices to be network connected.

Ortronics Cat6A Black Patch Cords:

PN: OR-MC6A03-00 (3 foot); PN OR-MC6A05-00 (5 foot); PN: OR-MC6A07-00 (7 foot)

#### Fiber Patch Cords:

**Ortronics is the standard.**

Single Mode: Utilized in backbone & workstation applications

All Fiber jumpers will be SM LC to LC in 1, 2 or 3 meter lengths.

Ortronics PN: OR-P1DC2IRSZSZ001M (1 meter); OR-P1DC2IRSZSZ002M (2 meter); OR-P1DC2IRSZSZ003 (3 meter)

### 1.5. B.

#### Horizontal 6A Cable:

**General Cable is the standard.**

Category 6A, 4 twisted pairs, 23 AWG, small diameter, MTP, CMP Plenum, Blue Station Wire for Data. General Cable PN: 7141849

### 1.5. C.

#### Fiber Cable:

**Corning fiber is the standard.**

Fiber to the desk cable, 6 strand armored plenum indoor single mode with Corning Glass. Corning PN: 006E88-31131-A3

Indoor fiber optic installations will utilize singlemode, 12 strand, plenum-rated, premise distribution cable Corning PN: 012E88-33131-29

Indoor/outdoor fiber optic installations will utilize singlemode, 12 strand, plenum-rated, armored, indoor/outdoor cable Corning PN: 012E8P-31131-A3

Outside plant fiber optic installations will utilize singlemode, 12 strand, armored, outside plant cable Corning PN: 012ZUC-T4F22D20

Fiber optic cable construction, glass type and manufacturer should remain constant through any variation of fiber optic strand count.

Strand count will vary.



**1.5. D.**

**MDF/IDF Data station cable termination and equipment:**

**Ortronics is the standard.**

All data cabling media should be terminated in Ortronics MM20 equipment racks with adequately sized cable management. Minimum 10" vertical wire management is required between racks and 6" vertical wire management on the ends. The goal is to not exceed a 40% fill rate at installation.

NKU utilizes modular "panel jack" patch panels. The modular "panel jack" panels will be angled to eliminate the need for multiple horizontal cable managers and should support up to 24 ports in 1RU. Each patch panel port should be 100% tested to ensure NEXT and RL performance. A single 4U horizontal manager shall be used in each rack as a channel for cords to go from one side of the rack to the other.

Unloaded Patch Panel, Angled, 24-port, Ortronics PN: OR-PHAPJU24

Blue Panel Jacks, Category 6A for unloaded panels, Ortronics PN: OR-PJ6A-36

2 post rack; MM20, 7ft, 19" mounting, 30" channel depth for horizontal cable mgt. Ortronics PN: OR-MM20730-B; Used in IDFs

Adjustable 4 post rack MM20, 7ft, 19" mounting, Ortronics PN: OR-MM2042ADJ12-B; used in MDFs

Wire Management as specified in section 1.5.H.

**1.5. E.**

**MDF/IDF Voice station cable & Voice riser cable termination and equipment:**

**Ortronics is the standard.**

By default, all voice cabling media should be terminated on wall mounted backboards. Category 6 96-pair 110 IDC type punch down blocks with mounting legs. Ortronics PN: OR-110ABC6100

Ortronics MM20 7ft Cable Management Rack w/ 6 in deep channels, PN: OR-MM20706-B

Ortronics Mighty Mo Wall-Mount Cable Management Cabinet, 19U x 24w x 26D PN OR-MMW192426P-B

Ortronics Wall-Mount Relay Rack, PN: OR-604045450

**1.5. F.**

**MDF/IDF, Fiber Optic entrance cable, Copper entrance cable termination and equipment:**

**Corning fiber is the standard.**

Indoor fiber optic installations will utilize single mode, 12 strand, plenum-rated, armored premise distribution cable Corning PN: 012E88-33131-A3

Indoor/outdoor fiber optic installations will utilize singlemode, 12 strand, plenum-rated, armored, indoor/outdoor cable Corning PN: 012E8P-31131-A3

Outside plant fiber optic installations will utilize singlemode, 12 strand, armored, outside plant cable Corning PN: 012ZUC-T4F22D20

Fiber optic cable construction, glass type, and manufacturer should remain constant through any variation of fiber optic strand count.

**Ortronics fiber connectivity is the standard:**

Fiber Distribution Center termination cabinet, 4 rack units with capacity of 12 adapter panels (Ortronics PN: OR-INFC04U-M4)

Fiber Distribution Center termination cabinet, 2 rack units with capacity of 6 adapter panels (Ortronics PN: OR-INFC02U-M4)

Fiber Distribution Center termination cabinet, 1 rack unit with capacity of 3 adapter panels (Ortronics PN: OR-INFC01U-M4)

Single mode LC connector 12 strand (6 duplex) pre-loaded panel (Ortronics PN: OR-HDFP-LCD12AC)

Fiber Connectors should be Singlemode LC:

LC individual splice on connector (6 Pack) Ortronics PN: OR-205KNF9SA-09

Fan out Kit (6 fiber) - Ortronics PN: OR-61500858

Fan out Kit (12 fiber) - Ortronics PN: OR-61500868

Circa BET Building Entrance terminal - (110 type) 100 pair increments. Circa PN: 1880ECA1-100.

Circa 5-pin plug in protector units, Digital/Solid State. Circa PN: 4B1FS-240.

**1.5. G.**

**Grounding and Bonding:**

**Ortronics is the standard.**

All grounding must be on an independent, standalone system ground.

Telecommunications Main Grounding Busbars (TMGB) Ortronics PN: OR-GB4X12TMGB

Telecommunications Grounding Busbars (TGB) Ortronics PN: OR-GB2X12TGB

**1.5. H.**

**Wire management:**

**Ortronics is the standard.**

For use with Ortronics 2 and 4 post MM20 racks.

For end racks, Vertical Cable Management 84"H x 6"W x 8"D w/Door. Ortronics PN: OR-MM20VMD706-B

For adjoining racks, Vertical Cable Management 84"H x 10"W x 13"D w/Door. Ortronics PN: OR-MM20VMD710-B

For MM Horizontal management - a single 4U horizontal manager shall be used as a channel to pass patch cords from one side of the rack to the other.

Ortronics PN: OR-MM6HMF4RU

**1.5. J.****Firestopping:****STI is the standard.**

EZ Path Fire rated cable pathway devices shall be used in fire-rated construction for ALL low-voltage, video, data and voice cabling, optical fiber raceways and certain high-voltage cabling where frequent cable moves, adds and changes may occur. Pathways required for high voltage cabling will be detailed on the prints. Such devices shall:

Meet the hourly fire-rating of fire rated wall and or floor penetrated.

Be tested for the surrounding construction and cable types involved.

Have UL Systems permitting cable loads from; "Zero to 100% Visual Fill." This requirement eliminates need for fill-ratio calculations to be made by cable technicians to ensure cable load is within maximum allowed by UL System.

Not have inner fabric liner that tightens around and compresses cables tightly together encouraging potential cable damage or interference.

Be "Zero-Maintenance", zero-maintenance is defined as; No action required by cabling technician to open and/or close pathway for cable moves, adds or changes, such as, but not limited to: opening or closing of doors; spinning rings to open or close fabric liner; removal and or replacement of any material such as, but not limited to, firestop caulk, putty, pillows, bags, foam muffins, foam, foam plugs, foam blocks, or foam closures of any sort.

Pathways shall be engineered such that two or more devices may be ganged together for larger cable capacities.

Pathways shall be engineered to be re-enterable so they can be retrofitted and removed from around existing cables without cutting and re-splicing them.

Affix adhesive wall label immediately adjacent to devices to communicate to future cable technicians, authorities having jurisdiction and others the manufacturer of the device and the corresponding UL System number installed.

Cable tray shall terminate at each barrier (wall) and resume on the other side such that cables pass independently through devices. Cable tray shall be properly supported on each side of the barrier (wall). Cable tray shall NOT pass through the barrier (wall).

Substituted material is not allowed.

## Acceptable Products from STI:

Part Number / Series	Description
EZD22	2" EZ Path Firestop Device
EZD33FWS	3" EZ Path Firestop Device
EZDP133CWK	3" EZ Path Firestop Device Kit (for 4" conduit)
EZDP33FWS	3" EZ Path Firestop Device Kit (square mount)
EZP433W	3" Ganging Accessory (Qty 4) for 3" EZ Paths
EZD44S	6" EZ Path Firestop Device

EZDP44S	6" EZ Path Firestop Device Kit (square or round mount)
EZP544W	Ganging Accessory (Qty1-5) for 6" EZ Paths
EZGxxxxx	Grid for riser applications
RFG2	Individual Cable EZ firestop grommet (10 pack)

### 1.5. H

#### Pathways and Penetrations:

##### Cable Trays:

**Cablofil is the standard.**

All cable trays shall be designed to accommodate all types of cabling. Note that installation shall be in non-return air plenum space only. All telecommunications pathways (Caddy J-hooks, basket tray or Legrand/Wiremold raceways) shall be used for communications medium (voice, data and fiber optic cabling) only.

The minimum dimensions for a cable tray shall be 12 inches wide and 4 inches deep. The tray must consist of continuous, rigid, welded steel or stainless steel wire mesh cable management system. The cable tray systems are defined to include, but are not limited to, straight sections, supports and accessories. Wire mesh cable tray will have continuous Safe-T-Edge T-welded top side wire to protect cable insulation and installers. Basket tray shall be spliced using EDRNs on the sides as well as an SWK washer/nut in the bottom of the tray.

Contract documents should show cross section of the communication wire way or cable tray. The drawing must show reference to other utilities in the building. All sections of the cable tray must be bonded together with approved bonding methods and devices. For installation of other types of "approved" low voltage cables in the cable tray, a separate tray or at minimum a divider in the basket tray to prevent interference from unshielded cables is required.

Supports for cable trays larger than 12 inches in width are to be installed according to the manufacturer specifications. A single support is not acceptable. All supports are to be fastened to the building structure above. If the cable tray will be of a wall mount type, it must be installed properly to provide proper permanent support at trays maximum capacity.

Radius Drop outs shall be used whenever multiple cables are exiting the tray.

Cable trays must maintain a minimum of 6-inch clearance from obstructions above the tray and a minimum of 8 feet AFF. Trays are to provide access via the most direct path to all communications outlets on the floor.

Install sweeping factory 90's for all turns. Use end-of tray terminations where wire drops down to walls to prevent abrasions and cuts from metal tray edges. Use a trapeze supported cable tray mounting method suspended by manufacturer recommended size all-thread. Fasten all-thread to ceiling anchors, allowing no bends in all-thread. Support the cable tray in this manner at every section-to-section junction and at 5 feet to 6 feet intervals (mid span) between joints. Whenever possible, the tray should be no closer than 6 inches from the structural ceiling, ducts or pipes, considering all other possible

obstructions. A minimum of 5 inches distance from lighting, especially fluorescent lighting, is desired.

Coordinate layout and installation of cable tray with other trades. Revise locations and elevations from those indicated as required to suit field conditions and as approved by the Architect. Basket tray installation in the TRs shall be installed as depicted on the drawings by the Telecommunications Contractor. The basket tray that is to be installed for the horizontal and backbone distribution will be provided and installed by the electrical contractor.

Storage and Handling: Avoid breakage, denting and scoring finishes. Damaged products will not be installed. Store cable trays and accessories in original cartons and in clean dry space; protect from weather and construction traffic. Wet materials will be unpacked and dried before storage.

Refer to the drawings for the size and location of the tray to be installed.

Ground cable trays at end of continuous run. Ground continuous cable tray runs every 60 feet. Cable trays that are not UL Classified will be grounded per NEC requirements and manufacturer recommendations.

Ground cable trays against fault current, noise, lightning, and electromagnetic interference by mounting grounding wire to each 10' cable tray section with grounding clamp.

#### **Open Top Cable Supports (J-hooks):**

**Erico/Caddy HP series is the standard.**

All open top cable supports (J-hooks) must be suspended from or attached to the structural ceiling or walls with hardware or other installation aids from Caddy specifically designed to support their weight. When used, Caddy J hooks shall be located on 48 to 60 inch centers to adequately support and distribute the cables weight. These types of supports may typically hold up to fifty 0.25-inch diameter cables.

No other cables shall be run in the same j-hooks along with the voice and data cables. A separate painted (white, red, blue, green) Caddy j-hook system must be provided to facilitate the installation of other low voltage cabling. For larger quantities of cables that convene at the Telecommunications Closet, provide Cablofil cable trays or other special ERICO/CADDY supports that are specifically designed to support the required cable weight and volume. No plastic j-hooks will be allowed.

#### **Floor Mounted Assemblies (Floor Boxes and Poke-Thru Devices)**

All Floor Mounted Assemblies including floor boxes, poke thru devices, floor outlets, floor mounted whips, tombstones, etc. shall be sized using industry standard guidelines for telecommunications distribution methods; specifically relating to cable fill ratios and limitations. Guidelines can be found in the Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual and/or through individual cabling manufacturers' installation guidelines.

#### **Floor boxes:**

**Wiremold Evolution series is the standard.**

Specifically, be of the "Evolution" series from Wiremold be used in concrete, raised floor and wood floor applications and are fully adjustable both pre and post concrete pour, have removable dividers and a tunnel feature that allows all compartments to be connected, have removable modules through the top or back of the floor box. The floor box hinge must be able to open to a full 180 degrees and lie flat on the floor surface providing easy access to interior modules. Cable egress doors lock in position when open and will automatically close around wires to protect cabling and avoid tripping hazards. They accept single, double or triple wall plates as well as accommodate power, communications and A/V devices. Designed to maintain up to a 2 hour fire rating.

Acceptable part numbers for various sizes are as follows:

6 Gang: EFBS6

8 Gang: EFBS8

10 Gang: EFBS10

2 gang (furniture feed) EFBFF

Cover style for floor boxes shall be brass, unless approved by NKU IT

Poke thru devices shall be Wiremold EVOLUTION series style provide the interface between power, communication and audio/ visual (A/V) cabling in an above grade concrete floor and the workstation or activation location where power communication and/or A/V device outlets are required. Provide recessed device outlets that will not obstruct the floor area. The poke-thru device shall be compatible with the complete line of workstation connectivity outlets and modular inserts. Permit all wiring to be completed at floor level. The 6AT, and 6ATCFF units shall mount in a 6" [152mm] cored hole, actual 6 1/16" [154mm] core hole.

The 8AT units shall mount in an 8" [203mm] cored hole, actual 8 1/16" [205mm] core hole. Use is defined by the UL Fire Resistance Directory as a minimum spacing of "2 ft. [610mm] on center and not more than one device per each 65 sq. ft. [6m2] of floor area in each span."

Cover plates for poke-thru devices shall be brass, unless approved by NKU IT

**Wall Boxes (A/V, Power, Data behind flat screens):****Wiremold Evolution series is the standard.****Wall Boxes:**

Should be used for TVs, Monitors, & Digital Signage for use in new construction and renovation construction projects. Should be compatible with complete line of workstation connectivity outlets and modular inserts, and most audio/video manufacturers' products. Should provide the interface between power, communication and audio/video (A/V) cabling new construction and renovation location where power and communication and/or A/V device outlets are required. Should provide recessed device outlets that will not obstruct the wall area. Should permit all wiring to be completed at box level.

**Ladder Rack & Accessories:**

**Ortronics is the standard.**

Ortronics Tubular Runway 18"W Black. Ortronics PN: OR-TRT10-18B  
 Ortronics Triangle Support Bracket 18"W Black. Ortronics PN: OR-P139540HB  
 Ortronics Wall Angle Support Bracket 18"W Black. Ortronics PN: OR-P128440HB  
 Ortronics Cable Runway to rack mounting brackets. Ortronics PN: OR-MM6CRB16  
 Ortronics Ladder Rack Splice Kit. Ortronics PN: OR-P820127H  
 Ortronics Rack Elevation Kit. Ortronics PN: OR-REK-4-6  
 Ortronics overhead runway cable drop out. Ortronics PN: Or-TRP11-CM

A separate spreadsheet summarizes the entire list of NKU approved materials. This is to be requested from NKU IT.

## **2.0 CABLE PLANT**

### **2.1 TELECOMMUNICATIONS ROOM REQUIREMENTS:**

#### **2.1. A.**

Each MDF/IDF should be a (stand-alone wiring room) located such that no single UTP (Unshielded Twisted Pair) horizontal cable run shall exceed **90 meters** in total length including service loops. MCRs must be located on the lowest floor of the building. Every floor must have an IDF or MDF to serve outlets on that same floor. All such rooms must be vertically stacked. Telecommunication Rooms shall not be co-located in custodial, mechanical or other shared space where damage to critical electronics may occur. Each room shall be sized according to use, and meet the below listed criteria. Coordinate with a representative of NKU's Office of Information Technology prior to the installation of backboards, grounding systems, bonding systems, and electrical service.

Floor Size: MDF Rooms 12' x 15' minimum or ANSI/TIA/EIA 569 specification.

Floor Size: IDF Rooms 12' x 12' minimum or ANSI/TIA/EIA 569 specification.

Floor Surface: Treated / sealed concrete.

Floor loading: 50 lb. per ft. minimum or as required by applicable codes.

Riser sleeves/conduits between floors shall be a minimum of 6 inches and provide pulls strings.

Prefer no false / drop ceiling be installed. If drop ceiling must be installed, Ceiling Height: Minimum of 8.5ft. clear height above finished floor.

Door Size: 3' wide and 6.7' tall w/180 swing out.

Wall Lining (backboard): AC-grade 3/4" x 4' x 8' sheets plywood, with no voids, covered on all sides, with two coats white fire retardant paint, cut outs to allow access to any wall boxes for communications or power.

Lighting: Minimum 500 lux measured at 3' above finished floor throughout the room.

Overhead fluorescent light fixtures must be installed at minimum nine (9) feet above finished floor or at least two (2) feet away from copper cable pathways, rack tops, and overhead cable runways.

Power: Provide dedicated, isolated, non-switched, 4-way, 120Vac 20Amp, circuits, installed every four (4) feet around room walls. On the bay of data

racks provide two (2) each 220Vac, 20 AMP, twist lock, dedicated circuits on standard building electrical power. Also, provide two (2) each 220Vac, 20 AMP, twist lock, dedicated circuits on UPS power.

UPS Power: UPS power should be provided by a single UPS, located in the maintenance area, near the building electrical switching gear and backup generator. UPS power is to be provided for all network equipment in the MDF/IDF's.

Overhead runway: Provide overhead cable runway to ring the room and, at minimum, cross the room over data racks. Drop out devices (water falls) shall be installed at locations where cables drop down out of runway or horizontal conduit or sleeves.

Grounding and Bonding: Install a contiguous Intra-building grounding and bonding system in compliance with NEC Article 250 and TIA/EIA-607 using a minimum conductor size of 6 AWG to be located on each plywood backboard with Ground Bus Bar as directed.

Service slack: All MDF / IDF closet cables must have industry standard amount of service slack, at each end, within the wiring room. Service loop shall run entire perimeter of IDF / MDF in 18" ladder tray.

Security: Unique telecom key compatible University standard for data closets.

Location: Room shall be located such that no single horizontal workstation cable shall exceed 90 meters in total length including service loops.

HVAC and Humidity: Separate HVAC units need to be designed and strategically placed to serve all data/communications rooms with year-round temperature and humidity control and maintain a constant temperature of 64 - 75 F with one air change per hour.

Fire Protection: As required by applicable codes.

2 post Equipment Rack: 7' x 19" x 30" cable management rack (see 1.5.D) with wire management (see 1.5.H) shall be provided and installed as directed. All other specifications of ANSI/TIA/EIA 569 apply.

Other Network devices: All equipment housed in the MDF/IDF will be required to have separate data outlets installed to the patch panel and labeled. No equipment will be permitted to plug directly into a network switch.

Network Equipment Installation: No network equipment is to be installed before the MDF/IDF rooms are inspected for electrical power and UPS, HVAC, security (NKU locks installed) and free of dust and debris.

#### **2.1. B.**

No copper communication cabling shall be run adjacent and parallel to power cabling. A minimum of 18" distance is required from any fluorescent lighting fixture or 6" from power lines up to 2kVA and 24" from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMI or RFI, such as ballasts, generators, fans, motor control units, motors, etc.

#### **2.1. C.**

The MDF/IDF shall be constructed using 110 wiring distribution systems for voice. Use patch panels, equipment racks and distribution systems for fiber



optics as specified in the materials list. Cable terminations, order of terminations, groupings, numbering plans and labeling shall be performed in accordance with NKU's Office of Information Technology conventions (per paragraph P.1.4.b.). See sections pertaining to Horizontal and Vertical Cable. Coordinate with a representative of the NKU Office of Information Technology prior to installation of MDF/IDF distribution and termination hardware.

## **2.2 ENTRANCE FACILITIES**

### **2.2. A**

Outside plant facility requirements shall be coordinated with the NKU Office of Information Technology. A minimum of (4) 4" inside diameter schedule 40 PVC conduits shall be run from the MDF to the designated vault or tunnel system. Conduits shall be buried a minimum of 24" from the surface on a foundation of 10" wet sand fill. A metallic locator ribbon shall be installed above and parallel to the conduits. There shall be a minimum horizontal separation of 24" from co-located buried electrical service. One pull string shall be installed in every conduit.

### **2.2. B.**

Outside copper cable pair count shall be a minimum of 100 pair. (Building specific, to be determined in conjunction with building occupancy and purpose) Use only 24AWG, PE-89 Type REA, direct bury cable with foam skin/filled core, 8-mil aluminum shield, polyethylene jacket, where applicable. See material list. Copper cable shall be terminated in a minimum of (100) pair increments in its entirety for the count of the specific cable at the MDF in a Building Entrance Termination (BET) system.

### **2.2. C.**

The other end of the copper cable shall be terminated in a minimum of (100) pair increments in its entirety at the MDF of its origin as determined by the NKU Office of Information Technology. See materials list.

### **2.2. D.**

Copper inter and intra connection cable facilities shall be tested and documented at 100ohm with maximum 0% failure allowed.

### **2.2. E.**

Outside fiber optic cable strand count should be determined by the NKU Office of Information Technology. Fiber optic cables shall be terminated in their entirety at the MDF in a Fiber Patch Cabinet. **Fiber terminations that connect separate buildings shall be in their own Fiber Patch Cabinet.** Fiber optic fan-out and terminations shall be performed using fan out kits with LC style connectors.

### **2.2. F.**

Indoor and outdoor fiber optic cable should be terminated in its entirety at the TR/ICR/MCR of both its origin and final destination in a Fiber Patch Cabinet. Fiber optic fan-out kits and terminations should be done using singlemode, LC, fusion splice on connectors.

### **2.2. G.**

Single Mode Fiber optic facilities should be OTDR and bi-directional insertion loss tested and documented at 1310nm/1550nm with maximum 0% failure allowed. Max cable attenuation is .4/.3 for loose tube and .7/.7 for tight buffer.

Contractor is required to use a core alignment fusion splicer for all fiber terminations.

Test results for single fiber should not exceed maximum attenuation allowed based on EIA/TIA loss calculation formulas. Test results must be provided to NKU in .pdf format.

#### **2.2. H.**

Grounding and Bonding shall conform to NEC Article 250 and ANSI/TIA/EIA-607 using a minimum conductor size of 6 AWG. See material list.

### **2.3 HORIZONTAL WORKSTATION CABLES AND POWER REQUIREMENTS PER LOCATION**

#### **2.3. A**

If IP phones are in use, covert Voice outlet for a Data outlet in all spaces.

##### **Single Occupant Office**

Minimum 2, Duplex (Data & Voice) Outlets (1 each on opposing walls)  
Duplex Power Outlet adjacent to each Data & Voice Outlet.

##### **Cubicle Space**

Minimum 2, Duplex (Data & Voice) Outlets  
Duplex Power Outlet adjacent to each Data & Voice Outlet.

##### **Shared Offices**

Minimum 1, Duplex (Data & Voice) Outlet per Occupant  
1 Duplex (Data & Voice) Outlet for Shared Printer and  
Duplex Power Outlet adjacent to each Data & Voice Outlet.

##### **Reception/Support Areas**

Minimum 1, Duplex (Data & Voice) Outlet per Occupant  
Minimum 1, Duplex (Data & Voice) Outlet for Shared Printer  
And Duplex Power Outlet adjacent to each Data & Voice Outlet.

##### **Copy Room/Storage Rooms**

Minimum 2, (Data & Voice) Duplex Outlets and  
Duplex Power Outlet adjacent to each Data & Voice Outlet.

##### **Lounge Space, Café, Study Areas**

Layout and quantity depends on design.  
Data Duplex Outlets for Laptop Access and  
Duplex Power Outlet adjacent to each Data Outlet.

##### **Non-Classroom Instructional Spaces/ Seminar Rooms/ Conference Rooms**

Minimum 4 Data & 2 Voice Faceplates (opposing walls) and  
Duplex Power Outlet adjacent to each Data & Voice Outlet  
Preferred: Level 2 Smart Classroom Technology (scaled to room size and use). See below.

##### **Classrooms and Labs**

Minimum 6 Data at instructor station and 2 data at the ceiling mounted projector.  
Duplex Power Outlet adjacent to each Data and/or Voice Outlet.  
Preferred: Level 2 Smart Classroom Technology. See below.

##### **Computer Labs**

Minimum 6 Outlets. Three (3) Data & one (1) Voice at instructor station (1 at the ceiling mounted projector and 1 voice location to be determined by NKU).

Duplex Power Outlet adjacent to each (Data & Voice) Outlet.

Level 2 Smart Classroom Technology, See below

Remainder of layout depends on design.

#### **Level 2 Smart Classroom**

Minimum 4 data outlets to be located at the podium location

2 Projector outlets to be located in the ceiling

Regular room layout depending on the room classification and

Duplex Power Outlet adjacent to each Data & Voice Outlet.

#### **Vending Areas**

1 Data outlet per vending machine

2 data outlets (minimum) per vending area

#### **Multimedia Outlets**

Fiber to the Desktop) Location TBD by NKU

4 Data & 2 Voice outlets per location

2 Fiber outlets

#### **2.3. B.**

Provide (1) Category 6A 4-Pair UTP cable for every voice outlet and (1) Category 6A 4-Pair UTP cable for every data outlet as specified in materials list. Cables shall be distributed in a horizontal star topology to the MDF/IDF. Total length of cable from workstation information outlet jack to the MDF/IDF shall not exceed 90 meters total length including service loops. This length includes a 12" service loop at the outlet and a full perimeter service loop in the telecommunications room. Each horizontal cable shall be installed in a "home-run" configuration. No "daisy chained" conduit or cables shall be allowed. All workstation cables are to be terminated using the T568A wiring standard.

#### **2.3. C.**

All cables shall be installed in conduit, cable tray, or "J" hooks. Minimum size of conduit should be no less than a 1" conduit. Fill ratios not to exceed the ANSI/TIA/EIA 569 specification. Where cables are not installed in conduit or cable tray, the cable shall not be pulled or installed directly across suspended ceiling tiles or fluorescent lights without proper suspension and consideration of possible electrical interference. If "J" hooks are used, avoid placing any pressure or creating stress points on the cable. Maximum spacing between "J" hooks shall not exceed five feet.

#### **2.3. D.**

At no time should pulling tension exceed 25 lbs. on horizontal cables. Exceeding the maximum recommended pulling tension during installation of cables will compromise the wire integrity. If wire integrity is compromised, the wire may not pass testing and certification standards required for a 10-Gigabit infrastructure. The installing contractor will be responsible for replacement of any cable system that does not pass required certification standards. A representative from the NKU Office of Information Technology may randomly test cable installations during weekly coordination meetings.

#### **2.3. E.**

Traditional nylon synch style Tie Wraps should not be used to bundle cables in a MDF/IDF. Only Velcro Tie Wraps are acceptable to bundle cables within these

rooms. See material list. Traditional nylon synch style tie wraps are acceptable in all other areas. The tie wraps must be installed as directed in the ANSI/TIA/EIA 568 specification.

**2.3. F.**

No Intra-building telecommunications cable should be run adjacent and parallel to power cabling. A minimum of 6" distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24" from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMF, such as ballasts, generators, fans, motor control units, motors, etc.

**2.3. G.**

Horizontal UTP station cable shall be terminated at the MDF/IDF in a manner such that each workstation location will be numbered and terminated in sequential order (see 1.4.b.) Data (Blue) cable shall be terminated in patch panels as specified in materials list and should be located in 19" stand alone rack as specified in materials list. Horizontal and vertical fiber optic cable should be terminated at MDF/IDF in fiber optic distribution cabinets as specified in materials list. Coordinate with a representative of the NKU Office of Information Technology prior to installation of MDF/IDF distribution and termination cable hardware.

**2.3. H.**

Each workstation information outlet location should use hardware as specified in materials list. The Category 6A cable should be terminated T568A in a Blue Category 6A RJ45 jack. Striping of cable jacket, untwisting of conductor pairs and termination should be done using ANSI/TIA/EIA conventions. 12" of excess, jacketed, cable should be coiled in ceiling above the drop location or as near as possible to accommodate future re-termination. Maintain UTP cable pair twists up to the point of termination (maximum of up to 1/4" jacket removal allowed) at both the station/outlet end as well as patch panel/ block end for each horizontal cable. Take caution as to refrain from physically changing or damaging the shape or geometry of the cable during installation, i.e., do not cinch cable ties too tightly; no kinks are allowed and avoid bends of cable. Do not place bundles in such a way that the weight of large bundles is damaging the cables on the bottom of the bundle. Each workstation information outlet jack wall plate shall be numbered sequentially, consistent with the MDF/IDF numbering layout plan. See section 1.4.B for description of cable labeling requirements.

**2.3. I**

Cables should be dressed in to patch panels directly from vertical wire managers.

**2.3. J.**

Contractor shall test and certify, in writing, building wiring meets or exceeds all applicable ANSI/TIA/EIA 568, 569, 607, 758 or others as applicable conventions and standards for Cat6a. Contractor shall test and certify, in writing, building wiring shall support 10 Gigabit Ethernet technologies. Contractor shall warrant Communication cabling system wiring for a period of not less than 25 years, upon acceptance.

**2.4 VERTICAL RISER CABLE****2.4. A.**

A minimum of (4) 4" conduit paths shall be provided between the MDF/IDF's & B IDF.

**2.4. B.**

For each (12) workstation locations there should be a (25) pair copper riser from the MDF/IDF to the MDF/IDF as applicable. Copper riser cable should be of a 25 Pair Category 5E riser rated construction as specified in materials list. All riser cable shall be terminated using 110 IDC wiring distribution systems as specified in materials list. Riser cable shall be terminated on a separate 100 pair block from horizontal station cable. Labeling of all riser and workstations cables shall be labeled in accordance with the NKU Technology Infrastructure labeling documentation. Coordinate with a representative of the NKU Office of Information Technology prior to installation and termination of riser cable and hardware.

**2.4. C.**

Each MDF/IDF shall have a 12 or 24 strand count single mode Fiber optic cable

Indoor fiber optic installations will utilize single mode, 12 strand, plenum-rated, armored premise distribution cable Corning PN: 012E88-33131-A3

Indoor/outdoor fiber optic installations will utilize singlemode, 12 strand, plenum-rated, armored, indoor/outdoor cable Corning PN: 012E8P-31131-A3

Outside plant fiber optic installations will utilize singlemode, 12 strand, armored, outside plant cable Corning PN: 012ZUC-T4F22D20

See materials list. Coordinate with a representative of the NKU Office of Information technology prior to installation of fiber optic riser cable.

**2.5 PATHWAY SUPPORT SYSTEM**

**2.5. A.**

All horizontal cable shall be installed using a home-run configuration. Conduit and cable tray are acceptable in any combination to support the cable system and not violate Cat6a rules.

**2.5. B.**

Conduits shall be dedicated, using no smaller than a 1 1/2" inside diameter per workstation outlet. There shall be no daisy-chain conduit runs. Each workstation location shall require one 1 1/2" conduit, which is a home run back to the appropriate MDF/IDF or cable tray. Provide pull boxes in communications conduit runs spaced not greater than 100 feet apart, and also provide a pull box located at half the distance of the length on any conduit with more than two right angle bends. If more than two bends are in any 100-foot section, increase the conduit by one trade size. See ANSI/TIA/EIA-569-A Section 4.4 Place **TELECOMMUNICATIONS** label on all pull and junction boxes. If a cable tray system is installed, the conduit shall be a home run from the workstation outlet jack to the tray. Conduit runs shall comply with cable fill capacity and bend design as specified in ANSI/TIA/EIA-569-A documents.

**2.5. C.**

Traditional nylon synch style Tie Wraps should not be used in MDF/IDF's to bundle cables. Velcro style Tie Wraps are the only acceptable method to secure cable bundles in TR/ICR/MCR's. At no time shall pulling tension exceed 25 lbs.

on horizontal cables. Exceeding the maximum recommended pulling tension on Category 6A cables will compromise cable integrity. If wire integrity is compromised, the wire may not pass testing and certification standards required for a 1000BaseTX infrastructure. The installing contractor will be responsible for replacement of any cable system that does not meet required standards.

#### **2.5. D.**

No intra/inter-building telecommunications cable should be run adjacent and parallel to power cabling. A minimum of 6" distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24" from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMF, such as generators, motors etc.

### **3.0 Warranty**

**3.1. A.** All work is to be covered by minimum of a twenty-five year warranty supplied by Ortronics and General Cable Corp.

#### **3.2. B Ortronics/General Cable Corp Structured Cabling System Warranty**

##### **QUALIFICATIONS AND REQUIREMENTS**

To qualify for the 25 year Warranty, all of the following conditions must be met:

1. Products used in the network cabling system for which warranty support is requested must be qualifying Supplier products. System components must be new (never used before).
2. The network cabling infrastructure must be designed in accordance with TIA-568 and other relevant premises series standards in effect at the start of the time of purchase.
3. The network cabling infrastructure must be installed by Ortronics/Legrand approved designers and Certified CIP Contractors in accordance with Legrand/Ortronics' installation instructions and specifications. Supplier is not liable for third party design errors or improper construction.
4. Each permanent link or channel in the network must be field tested in accordance with the TIA-568 series industry standard testing requirements in force at the time of purchase. The installed permanent links and channels must have passed all applicable TIA performance requirements. Minimum testing for copper systems includes Wire Map, Length, Attenuation, Near End Crosstalk, Far End Crosstalk, Return Loss, PS NEXT, ELFEXT, and PS ELFEXT. Minimum testing for Fiber Optic links includes horizontal and backbone, Bi-Directional Dual Wavelength, Insertion Loss and Length.
5. Special consideration for Category 6A+ Solutions: Designed specifically to mitigate the effects of Alien Crosstalk (ANEXT) between cable segments, Alien Crosstalk field testing is not required for certification of Category 6A+ systems. Alien Crosstalk testing requirements are only waived if the installed system is comprised entirely of approved Category 6A+ cabling and components including horizontal cabling, patch cords, equipment cords, and associated connectivity. This exception is exclusive

to Category 6A+ Alien Crosstalk testing parameters. All Category 6A testing requirements must be performed to certify the installation.

6. Appropriate Warranty Applications should be properly completed online through the Ortronics ConCert certified contractor website prior to initiating the installation.
7. The Warranty Submittal must be completed online within 10 days of installation completion. Copies of all certification test reports must be submitted as part of the Warranty Submittal, and be kept on file by the registrant to be re-submitted when requested by Supplier. Data must be saved and submitted in raw data and summary formats. Test data must be submitted via online upload to the Ortronics ConCert Certified Contractor website. E-mail or disc may be used if the online upload is unsuccessful (please contact the Warranty Administrator for detailed instructions).
8. The 25 year Warranty will be void if (1) the system is not maintained in accordance with industry standards (2) a third party has changed, modified or attempted maintenance or repair on otherwise qualifying Supplier products, or (3) changes are made after warranty issuance and acceptance date, unless Supplier grants written consent for such changes and installation records are updated and forwarded to the Supplier reflecting these approved changes. All changes must be submitted for approval following the original warranty application process.
9. Supplier has issued a registered warranty certificate to Buyer for the Warranty. Buyer may not sell, assign or transfer the Warranty.

#### ADMINISTRATION

Warranty applications will be approved or disapproved by Supplier with a response sent to the applicant. Access to the Warranty application information can be obtained by contacting the Warranty Administrator at +1-860-405-2988, or by e-mailing your request to [contractor.cert@legrand.us](mailto:contractor.cert@legrand.us). All warranty applications must be completed on Certified Contractor website.

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