

Amended 02/20/23

1. Data counts incorrect. Room 1.208 erroneously included in spreadsheet and total counts. Room 1.208 does not exist. Removed.

REQUEST FOR BID PROPOSAL
ON CAT-6 DATA CABLING
Winder Elementary in the
BARROW COUNTY SCHOOL SYSTEM

The Barrow County School System
Information Technology Services
179 W. Athens Street
Winder, Georgia 30680
ITSBids@barrow.k12.ga.us

REQUEST FOR PROPOSAL (RFP) FOR CAT-6 CABLING

To: All Interested Vendors

You are invited to submit a formal proposal (bid) for installing CAT-6 data communications cabling at Winder Elementary in Winder, GA in accordance with the attached General Conditions and Specifications.

All questions should be emailed no later than Wednesday, February 15th, to ITSBids@barrow.k12.ga.us. Any modifications to the RFP based on questions and answers regarding this offering will be posted as addendums to the RFP, and made available on the web site at <http://www.barrow.k12.ga.us/>. **Vendors are responsible for checking the web site for amendments to the RFP. Vendors should check for RFP updates prior to submitting final proposal.**

Proposals from bidders will be received by Barrow County Schools via email until 2:00 PM. local time, on Tuesday, February 21st, 2023. Proposals must be sent to ITSBids@barrow.k12.ga.us and should include the words "Winder Cabling response" in the subject.

Emailed proposals will only be deemed accepted for consideration upon delivery of a confirmation email from jstclair@barrow.k12.ga.us to vendor's email indicating receipt of proposal. If vendor does not receive confirmation of receipt of proposal via email, vendor should consider proposal not to have been delivered.

Barrow County reserves right to postpone bid opening to later the same day beyond original due date/time in event of notification of delayed bid delivery. Once time has been called and the first proposal has been opened, any proposals received thereafter will be returned unopened. Proposals must be valid for a period of ninety (90) days after the date of receipt of bid. Barrow County Schools reserves the right to reject any and all bids or to waive any informality in bidding.

GENERAL CONDITIONS

1. Locations of Sites

The location of the work is at Winder Elementary in Barrow County, GA. 47 McElhannon Rd. Winder, GA 30620.

2. Scope of Work

The following are the General Conditions for the work to be performed as outlined in the Specifications.

It is understood that except as otherwise specifically stated in the contract, the Vendor (Contractor) shall provide and pay for all materials, labor, tools, equipment, transportation, temporary construction of every nature and all other services and facilities of every nature whatsoever, necessary to execute, complete and deliver the work within the specified time. Permits and licenses necessary for the execution of the work shall be secured and paid for by the Vendor.

Any work necessary to be performed after regular working hours or on Sundays or legal holidays shall be performed without additional expense to the Owner.

3. Protection in General

The Vendor shall protect all buildings, trees, shrubs, lawns, and all landscape work from damage. Any damaged property shall be repaired and replaced at the Vendor's expense.

The Vendor shall protect all private roads, streets and sidewalks, driveway aprons, driveways, and shall make all necessary repairs at the Vendor's expense.

The Vendor shall protect all furniture, carpeting, flooring, doors, door facings, ceilings, windows, and interior walls from damage, and shall make all repairs or replacements at the Vendor's expense.

The Vendor shall protect all existing equipment, wiring, and cabling that is not scheduled for vendor removal, and shall make all repairs or replacements at the Vendor's expense.

Prior to executing any repairs or replacements resulting from failure to adhere to these guidelines, Vendor shall notify Owner of nature/extent of damages and shall consult with Owner to insure that repairs are planned, executed, and completed in a manner satisfactory to Owner.

4. Change in Contract

The Owner will not be responsible for any change in the work involving extra cost unless approval in writing is furnished by the Owner before such work is begun.

5. Existing Conditions

The Vendor, in undertaking the work under this contract, is assumed to have visited the premises and carefully inspected the blueprints, and to have taken into consideration all conditions which might affect the work. ***No consideration will be given to any claims based on lack of knowledge of existing conditions.***

6. Affidavits

Before acceptance of proposal by the Barrow County School System, the Vendor will be required to furnish affidavits on enclosed forms.

7. Insurance

Within seven days after notification of award, Vendor shall furnish to Owner a Certificate of Insurance showing compliance with the following limitations.

The Vendor agrees to comply with the provisions of Worker's Compensation laws of the State of Georgia.

It shall be stated on every policy or certificate of insurance, as the case may be, that "The insurance company agrees that Policy No. _____ shall not be canceled, changed, or allowed to lapse until ten (10) days after the Barrow County School System has received written notice as evidence by return receipt of registered letter, and it is agreed further that as to lapsing, such notice will not be valid if mailed more than fifteen (15) days prior to the expiration date shown on this policy".

The Vendor further shall maintain such other insurance (with limits as shown below) as shall protect the Vendor and Owner from any claims for property damage or personal injury, including death, which may arise out of operations under this contract, and the Vendor shall furnish the Owner certificates and policies of such insurance as shown below.

Below is listed the insurance coverage that must be procured by the Vendor at his own expense. The Vendor agrees to follow instructions indicated in each case:

A. Owner's Protective Liability Insurance

Protective injury, including death - limits of \$250,000.00 for each person and \$500,000.00 for each accident.

B. Vendor's Public Liability Insurance

Personal injury, including death - limits of \$250,000.00 for each person and \$500,000.00 for each accident.

Property Damage - limits of \$50,000.00 for each accident and \$100,000.00 for the aggregate.

Disposition: Certificate of Insurance of both of above must be sent to Owner prior to commencement of work.

No insurance will be acceptable unless written by a company licensed by the State Insurance Department to do business in Georgia.

C. Workers Compensation (WC) coverage:
Statutory Limits – required in all contracts

Bodily injury by Accident – each employee \$100,000

Bodily injury by Disease – each employee \$100,000

Bodily injury by Disease – policy limit \$500,000

8. **Warranty**

The Vendor shall furnish a **written warranty** indicating (a) the equipment (electronics) supplied under these specifications will be free from defects of materials and workmanship for a period of no less than five (5) years, (b) the cable plant and labor will be free from defects of materials and workmanship for a period of no less than fifteen (15) years from the date of final acceptance unless otherwise specified and, (c) all defects occurring within that period shall be corrected in a timely manner at no cost to the Barrow County School System.

9. **Payments**

Payment will be made only after inspection and approval by the director of technology or his designee. Such approval will be given only after all debris, equipment, materials, etc., are removed from the property, all cleaning completed, any damage repaired, and test results are delivered and approved. **Only a single payment is guaranteed to be made to the vendor when all aspects of the contract have been completed to the Owner's satisfaction.**

10. **Application for Payment**

All applications for payment shall be signed by the Vendor and emailed to jstclair@barrow.k12.gaus, or mailed to:

The Barrow County Schools
Information Technology Services
Attention: Mr. John St.Clair
179 W. Athens Street
Winder, GA 30680

11. Addenda

Any addenda issued during the time of the request for proposal shall be addressed in the proposal, and in closing the contract they shall become part thereof.

12. Proposal Acceptance and Interpretations

The Barrow County School System may accept any proposal offered on an all, partial, or none basis, within funds available, whichever is in the best interest of the school system.

If any questions arise within the RFP documents, the vendor may submit to the Barrow County School System an emailed written request for interpretation to jstclair@barrow.k12.ga.us. Any interpretation of documents will be made by addendum to the RFP. Copy of such addendum, approved by the director of technology, will be made available on the school system web site. The Barrow County School System will not be responsible for any other explanation or interpretations. The Barrow County School System reserves the right to extend the due date if such information significantly amends this solicitation or makes compliance with the original due date impractical. The Barrow County School System reserves the right to reject any or all proposals and wave technicalities and informalities, including but not limited to late arrival of proposals so long as said proposal arrives on the date proposals are due.

13. Withdrawal of Proposal

A proposal cannot be withdrawn after it is filed, unless vendor makes a request in writing to the Barrow County School System prior to time set for opening of proposals, unless the Barrow County School System fails to accept bid within ninety (90) days after date fixed for opening of bids.

14. Vendor's Qualifications

As part of the proposal, vendor must complete the attached "Statement of Vendor's Qualification" form. Vendor may be required, before awarding of contract, to demonstrate to the complete satisfaction of the Barrow County School System, that vendor has the necessary facilities, ability and financial resources to execute the work in a satisfactory manner and within the time specified; that vendor has had experience in work of the same or similar nature; and that vendor has past history and references which will assure the Barrow County School System of vendor's qualifications for executing the work.

Vendors must submit a copy of a valid low-voltage license (Low-Voltage General, Low-Voltage Telecommunications, or Low-Voltage Unrestricted as issued by the State Construction Industry Licensing Board of Low-Voltage Contractors) of the individual(s) who will perform and/or supervise this work.

Vendors must submit a copy of a BICSI (Building Industry Consulting Service International) certified RCDD (Registered Communications Distributions Designer) certificate of the individual(s) who designs and/or supervises the design of the proposed work.

15. Stored Materials

Any materials stored on job site shall be Vendor's responsibility.

16. Specifications

Complete specification details or "cut-sheets" for all products proposed must be provided as part of the proposal package.

17. Removed.

18. Trade Names "or Equal" Clause

The number and trade names given for any products are taken from various manufacturer's catalogs and shall construed as being descriptive only of type, style, and quality of materials required, and should be considered to include "or equivalent" in the description.

Reference to or specification of any article, device, product, material fixture, form or type of construction, etc., by name, make or catalog number, with or without the words "or equal," shall be for the purpose of establishing a standard of quality and shall not be construed as limiting competition. Should the Vendor wish to use a product other than the make or kind specified, but which is equal to that specified, vendor shall specify the product substitution and reference the original line item being substituted.

19. **Indemnification**

Vendor agrees to hold the Barrow County School System harmless and to indemnify the Barrow County School System from every expense, liability or payment arising out of or through injury (including death) to any person or persons or damage to property (regardless of who the owner may be of the property) of any place in which work is located arising out of or suffered through any act or omission of Vendor or subcontractor.

20. **Vendor's Representative**

The Barrow County School System reserves the right, with sole discretion, to refuse to allow any representative of the Vendor to service the contract in any manner. In this event the Vendor shall furnish another representative who is acceptable to the Barrow County School System.

The vendor **may not use subcontractors** for any portions of the work. The Barrow County School System will reject any un-authorized subcontractor without explanation or recourse by the Contractor or the subcontractor.

21. **School District Regulations**

The Vendor and its representatives shall follow all applicable Barrow County School System policies and regulations while on school district property, including the no smoking, no weapons, and drug-free policies. No work shall interfere with school or system activities or environment unless permission is given by the Principal of the school or the Network Telecommunications Manager.

22. **Governing Law**

All proposals and related documents submitted to the Barrow County School System by vendors are governed by the laws of the State of Georgia.

23. **Special Stipulations**

Attached to these General Conditions are certain conditions specific to the work to be performed.

24. **Comprehensive list of references**

Vendor's proposal shall include a detailed list of references along with contact person, dates of work, mailing address, and telephone numbers.

25. **Demonstrated Capability of Vendor**

The Vendor must provide proof of successful installation in a minimum of two sites using Category 6 CAT-6 cabling with four hundred (400) or more active nodes installed.

**CHECKLIST FOR PROPOSAL TO PROVIDE CAT-6 COMMUNICATIONS CABLING
FOR Winder Elementary IN Barrow, GA**

BIDDERS:

YOU ARE REQUIRED TO COMPLETE THIS CHECKLIST AND INCLUDE IT WITH YOUR PROPOSAL.

YOUR PROPOSAL PACKAGE MUST INCLUDE THE FOLLOWING ITEMS IN THE ORDER SPECIFIED:

- _____ 1. PROPOSAL CHECKLIST (This page)
- _____ 2. SIGNED PROPOSAL FORM (Following page of this document)
- _____ 3. PROPOSAL INCLUDING ALL OF THE FOLLOWING
 - _____ A. TOTAL COSTS OF PROPOSAL
 - _____ B. COMMENCEMENT AND COMPLETION SCHEDULES
 - _____ C. BILL OF MATERIALS AND LABOR PER TASK
 - _____ D. CATALOG PAGES AND/OR CUT SHEETS AS APPROPRIATE
 - _____ E. Proposed cable TESTING and ACCEPTANCE procedures and documentation
 - _____ F. WARRANTY services, procedures, conditions, and time periods.
 - _____ G. OTHER CONSIDERATIONS - See page 16 of this RFP
- _____ 4. STATEMENT OF VENDOR'S QUALIFICATIONS
- _____ 5. SIGNED AFFIDAVIT
- _____ 6. LOW VOLTAGE LICENSE AND PROOF OF RCDD CERTIFICATION

PROPOSAL FORM TO PROVIDE CAT-6 CABLING

EMAIL ALL QUESTIONS AND FINAL PROPOSAL TO: JOHN ST.CLAIR, saint@barrow.k12.ga.us

Having carefully examined the Proposal Invitation Letter, the General Conditions, and the Request for Proposal for CAT-6 Cabling, any addenda, as well as the actual sites and premises, and conditions affecting the work, the undersigned proposes to provide the required materials, labor, and services specified in the attached proposal for the total sum of

_____ Dollars (\$_____)

Respectfully Submitted,

Name of Firm

Address of Firm

Signature

Telephone Number

Name and Title

Name and Title of Vendor's Representative who will service contract

Address and Telephone Number of Vendor's Representative

Email address

sam.gov CAGE code

Earliest possible start date, including acquisition of materials

SUMMARY OF COSTS AND SCHEDULES

PROJECT COST SUMMARY – Print or type ALL amounts HERE

Break down project's costs

Task	Materials	Labor	TOTAL
1	\$	\$	\$
2	\$	\$	\$
3	\$	\$	\$
4	\$	\$	\$
5	\$	\$	\$

SCHEDULE SUMMARY – Print or type ALL quantities HERE:

Estimated start date – approximately May 29th, to be coordinated with general contractor during summer revisions.

_____ Estimated start date.

Estimate completion date

_____ Estimated completion date

(Vendor Name)

(Date)

(Signature Approving The Cost and Schedule Quotes Given Above)

(Print or Type Name of Vendor Representative Giving This Approval)

PROPOSAL FORMAT
BILL OF MATERIALS AND LABOR PER TASK
Attach separate pages as necessary utilizing this format

Task #

Material or Labor Description and Units	Part/Item No.	Quantity	Unit Price	Extended Price
CABLE				
RACKS				
PATCH PANELS/WIRE MANAGEMENT				
DATA JACKS				
FACEPLATES				
PATCH CORDS				
RACEWAY & RELATED FITTINGS				
OUTLET BOXES				
CABLE TRAY				
J HOOKS, TIES, CLIPS, etc.				
OTHER				

Fully define and describe the testing and acceptance procedures and documentation. Tests performed must meet requirements specified in this RFP.

Fully explain all warranty provisions including services to be provided, procedures, conditions, response times and time periods.

STATEMENT OF VENDOR'S QUALIFICATIONS

To accompany proposals submitted for installing data and voice communications networks in the Barrow County School System.

Name of Vendor _____

Business Address of
Office or Facility Which
Will Service This Contract _____

Distance from Barrow County School System ITS Miles _____ Minutes _____

When Organized? _____

Where Organized? _____

Partnership? _____ Corporation? _____

How many years have you been engaged in this business under the present firm name? _____

Have you ever refused to sign a contract at your original bid? _____

Please attach a list of major accounts in Georgia comparable to the work proposed.

If no accounts in Georgia, list other accounts.

Remarks: _____

Attach copies of Low-Voltage License and RCDD Certificate of individual(s) who will perform/supervise/design the proposed work.

AFFIDAVIT

In accordance with the Laws of Georgia, the following affidavit is required by all vendors submitting proposals.

Fill out the affidavit below and include with this proposal.

State of _____

County of _____

Before me, an officer of said state, authorized by law to administer oaths, personally come the undersigned affiant, who on oath says that the attached proposal is submitted independently of any other proposal, and that this vendor has no interest, directly or indirectly, in any other proposal for said material, equipment, or services, and that this vendor will not receive any commission or any sum whatsoever, directly or indirectly, on the sale of said material, equipment, or services, in the event some other person, association, firm or corporation should be awarded the contract or sale for said material, equipment, and/or services.

Affiant L.S.

Sworn to and subscribed before me on this

the _____ day of _____ 20____.

Notary Public

Notary Seal

Commission Expires

***Failure to properly execute this affidavit
is considered grounds for rejecting this proposal***

SCHOOL DISTRICT RESPONSIBILITIES

The Barrow County School System and its contractors will:

Access for Installation

During the progress of the installation, allow the vendor and its employees access to the premises and facilities at all reasonable hours or at hours to which the school district and vendor may agree.

Provide free and clear access to existing conduit or allow vendor to place new conduit if necessary to all work locations, floors, buildings, etc., to support the media installation and provide vendor access to these adjacent areas where and when required.

Secure Storage

Provide secure storage space for materials and equipment during the progress of the installation.

Hazardous Conditions

Take such action as necessary to ensure that the premises are dry and free from hazardous materials or chemicals, (i.e., asbestos) and in such condition as not to be hazardous to the installation personnel or the material to be installed.

Building Plans

Furnish adequate detailed drawings of the buildings to allow installation of equipment and cables by the vendor.

Inspections

Promptly make inspections when notified by the vendor that the project, or any part thereof, is ready for acceptance.

Coordination

Facilitate coordination between the work of the vendor and all other vendors and trades at the site(s). Such facilitation responsibility does not alleviate the cabling vendor of any responsibilities for completing this project in a timely and cost effective manner.

VENDOR RESPONSIBILITIES

The vendor will:

Provision

Provide all supervision, labor, tools, equipment, hardware and cabling materials as specified, transportation, erection, construction, unloading, inspecting, keeping inventory, and returning spare or unused material as specified in attached contract documents. Whenever used in this RFP the terms "provide," "furnish," "supply," or "install," etc., can be interpreted as requiring the vendor to both furnish and/or install materials, unless specific provisioning/installation of the materials by the school district is denoted.

Permits

Obtain all necessary city, county, municipal or state work/building permits at vendor's own expense.

Damage

Be responsible for and repair all damage to the building due to negligence of its workers, and report to the school system any such damage to the building which may exist or may occur during the occupancy of the quarters.

Fire Fighting Apparatus

Take necessary steps to ensure that required fire fighting apparatus is accessible at all times. Flammable materials shall be kept in suitable places outside the building.

Identification

Identify to the district any work necessitating cutting into or through any part of the building structure such as girders, beams, concrete, dry wall, tile floors or partition ceilings. The school district and its contractors will approve such work before it is performed.

Cutting, Drilling, Penetrating

Provide any cutting, drilling, or other structural penetration for the purpose of installing all conduits or sleeves through firewalls as required to meet codes.

Sealing of Firewall Penetrations

Seal all firewall penetrations made to accommodate the cabling installed. Sealant materials and processes shall meet all applicable building codes.

Installation

Install the wire, cable, and associated hardware in accordance with the manufacturer's specifications.

Trenching and Boring Beneath and/or Cutting Through Pavement

Provide any boring under and/or cutting through exterior concrete or asphalt pavement to allow burial of underground cabling. Provide any trenching necessary for burial of underground cabling. All boring, cutting, and/or trenching must be appropriately coordinated with the appropriate contractors and/or municipal authorities.

Status Reports

Provide project status reports to school system's director of technology or his designee as agreed upon before commencing work.

Tests and Inspections

Conduct tests and inspections after installation has been completed in order that the school district may be assured that the requirements for the installation are met.

Completion Notification

Promptly notify the school district of the completion of work on each project or such portion(s) thereof that is/are ready for inspection.

Ceiling Tiles

Vendor must provide for the removal and reinstallation of all ceiling tiles required for the installation of all above ceiling wire. Any tiles damaged by vendor's representatives will be replaced at the vendor's own expense prior to project completion.

Defects

Promptly correct all defects for which the vendor is responsible.

School System Contact

Coordinate all work with the school system contact who will be designated before the commencement of the installation.

Clean Up

Upon completion of the work each day, remove all tools, equipment, rubbish and debris from the premises and leave the premises clean and neat.

Subcontractors

Vendor ***may not use subcontractors to perform any work.***

TEST/ACCEPTANCE CONDITIONS

Outline

The PROPOSAL must contain an outline of the recommended acceptance criteria. Prior to start of installation, the vendor will provide the school system with a complete detailed acceptance test procedure covering the offered distribution system. The criteria for acceptance procedure must be based upon contractual agreements as to what constitutes system failure and restoration procedure.

MAINTENANCE

This section addresses the service maintenance contracts, levels of service, and service procedures that are of interest to the school system when assessing the service capabilities of a distribution systems vendor. If someone other than the vendor is to provide service, the servicing company, instead of the vendor, shall be listed along with the following information.

Copy

A copy of the vendor's maintenance/service agreement with current prices, levels of service, and service procedures must be attached to the proposal.

School District Responsibilities

The school district will notify the vendor of any equipment malfunction in accordance with normal reporting procedures provided by the vendor. The school district will provide reasonable access to equipment and maintain environmental standards as specified by the vendor. The school district will provide, if needed, space to store spare parts as designated by the vendor, which will remain vendor's property.

Services

The following services must be provided as part of the contract:

Labor

Parts

Technical resources and support for consultation for unique or major problems

WARRANTY

The vendor shall describe the appropriate product warranty periods, conditions, and services. The vendor shall also describe vendor's capability to collaborate with other vendors whose products rely upon the data transmission network for operability in order to develop solutions if difficulties and problems arise during the warranty period.

POST WARRANTY MAINTENANCE

The vendor shall describe post warranty maintenance offerings and rates.

SERVICE PROCEDURES

The vendor shall describe Service Procedures.

OTHER CONSIDERATIONS

Describe the following with supporting documentation as indicated:

What is the distance and location of maintenance forces in relation to the customer site?

What geographical area do these forces serve, relative to school district sites?

Will your firm maintain responsibility for repair of any damage done to the school district premises by anyone representing your firm?

Will you agree to a guaranteed installation date?

REQUEST FOR PROPOSAL (CAT-6 CABLING)

PROJECT SPECIFICATIONS

0. DRAWINGS

PDF blueprints for this RFP will be sent in response to emailed requests to ITSBids@barrow.k12.ga.us.

1. Scope of Project Standards and Description

The Barrow County School System is interested in the following:

- a. **Adding two CAT-6 data drops**, separately run and terminated in separate biscuit jacks located above ceiling, per classroom space identified on the blueprints as **purple** highlighted locations and as specified in the attached cable location spreadsheet. Cabling is to be used to connect Audio Enhancements amplifier and camera in each classroom.

Adding one CAT-6 data drops, terminated in biscuit jacks located above ceiling, per classroom space identified on the blueprints as **pink** highlighted locations and as specified in the attached cable location spreadsheet. Cabling is to be used to connect Audio Enhancements amplifier only, no camera.

Audio Enhancements equipment installation is outside the scope of this RFP. This RFP only covers installation of the data cabling. The horizontal cabling system is based on the installation of 4-pair unshielded twisted pair (UTP) category 6 data cables, conforming to applicable ANSI/EIA/TIA/BICSI standards.

Specifications for the Jacks and Outlets, Horizontal Wiring, and Patch Panels are provided in this document.

The intent of this document is to establish the specifications and standards of the project. Specific products and model numbers are mentioned for the purpose of conveying design expectations. Comparable or equivalent equipment will be considered.

Vendor is expected to use existing data racks/cabinets for cabling. Vendor shall use existing cable tray to support new cabling. Existing penetrations into classrooms may be used by vendor if dedicated solely to data cabling and available.

Vendor is expected to provide additional patch panels as required, penetrations into classrooms if required, and J-hooks if/as required in classrooms.

VENDOR SHOULD BE AWARE that data cabling installation will be taking place during summer renovations at the school, with multiple other trades and subcontractors performing work in the building under the coordination of a general contractor. Data cabling vendor must coordinate scheduling and work with general contractor.

The Barrow County School System may accept any RFP offered on an all, some, or none basis, within funds available, whichever is in the best interest of the school system.

2. Quality Assurance

This request for proposal establishes the general specifications for a “universal” premises distribution system that will support virtually all industry standards communications systems and allow multi-vendor compatibility on shared media to meet the data and voice needs of the Barrow County School System.

3. Design Requirement

The system must be based on an open-distribution architecture so that existing equipment and facilities as well as future equipment from multiple vendors can be supported by the proposed system.

A star or distributed star topology is required in the design of the distribution system. MDFs and IDF's must house all electronics, cabinets, and racks. Electronics and racks will not be installed in any other areas unless specified by the school system.

All cables shall be permanently labeled at both the patch panel and the communications outlet. The labeling shall consistently adhere to the following scheme: all labeling at the jack shall designate closet, patch panel, and port #. Example: MDF-A1 indicates MDF, first patch panel, first port. IDF1-C-24 indicates first IDF, third patch panel, 24th port.

4. Testing and Certification

Testing fiber optic and copper distribution systems is crucial in assuring the overall integrity and satisfactory performance of the network. Test results quantify system quality, identify system faults, and establish the baseline accountability performance of the system. Proper testing also maximizes the longevity of the system, minimizes downtime and maintenance, and facilitates system upgrades or reconfigurations.

The contractor shall test, fully document, and provide proof of communications wiring systems certification.

Each communication outlet tested should include the patch panel, device jack, and all cable connecting them.

Testing must include complete, unmodified cat6 and cat6a testing parameters, including but not limited to:

Copper testing

1. Length
2. Delay and delay skew
3. Impedance (TDR)
4. Resistance
5. Capacitance
6. Attenuation
7. Near End Cross Talk (NEXT)
8. Line Mapping
9. Return loss
10. PSNEXT (Power sum near-end cross talk loss)
11. PSELFEXT (Power sum equal level far-end cross talk loss)
12. ELFEXT Loss

and fiber testing including:

13. OTDR

Failure of vendor to provide these full test results will result in delay of payment until full test results are provided.

5. Approved materials

Vendor response must use materials approved as listed in Appendix C. Deviations from approved materials list must be approved in writing by district prior to submission of proposals.

6. Fiber Optic Backbone

No fiber cabling is required in this RFP.

7. Fiber Routing, Termination, and Labeling Requirements

No fiber cabling is required in this RFP.

8. Local Area Network (LAN) Horizontal Wiring Specifications

This section covers the cable from the communications outlet to the patch panel in the IDF or MDF. Each cable shall be placed in a "point-to-point" fashion from the communication outlet to the wiring closet for each communications outlet needed. There shall be no intermediate splices or cross connects in these cables. The vendor may use any pull cords provided by the electrical contractor in any conduits designated for network and

voice cabling, in which case the vendor is to bring new pull cords through the conduits with the cabling for future use.

The characteristics of the horizontal cable are as follows:

Category 6 and 6A Cabling

Category 6 or 6a as specified in the appendix list of drops, cable consisting of four pair of 24 AWG bare solid copper conductors insulated with a **plenum-rated** material shall be used for data cabling.

Unless specified otherwise below, cable must be blue in color and data jacks must be blue in color.

All cabling shall be plenum grade.

The cabling shall meet or exceed all applicable EIA/TIA/BICSI standards.

All face plates should be white.

Existing data conduit or J-hooks from hallway into rooms may be used by vendor if available. Where not available, vendor is responsible for J-hooks from hallway into room to data drop location.

Pre-existing cable tray shall be used to support all data cabling in hallways.

Audio Enhancements data locations

One category 6 cable shall be used for each Audio Enhancements location identified as a pink location on blueprints.

Two Category 6 cables shall be used for each Audio Enhancements location identified as a purple location on blueprints.

In purple locations only, one cable shall be used for classroom camera installed center of classroom, terminated in a biscuit jack or similar enclosure above ceiling. Cabling shall be green in color. Data jacks in patch panel shall be green in color.

In both pink and purple locations, one cable shall be used for audio amplifier installed in location to be determined, terminated in a biscuit jack or similar enclosure above ceiling. **Cable length shall be sufficient to be able to reach furthest corner in classroom**, and left coiled up above ceiling for Audio Enhancements installer to be able to place in classroom at a future date. Cabling shall be blue in color. Data jacks in patch panel shall be orange in color.

Each location on the blueprints marked with purple mark indicates both a camera and amplifier to be installed. Each location on the blueprints marked with pink mark indicates the location of only an amplifier to be installed without corresponding camera.

For clarity, in appendices, Audio Enhancements data locations are specified at two data drops per individual room installations with camera and amplifier, and at one data drop per individual room installation with amplifier only.

9. Patch Panels & Cabling Standard

Patch panels shall be Category 6 or 6a matching the data cabling specification, and shall use modular jacks, sized in 24-port layouts or multiples thereof.

The termination hardware will be co-located on 19-inch racks or in 19-inch data cabinets in the MDF and IDFs with the owner-supplied LAN switches. The configuration of the patch panels should be in an arrangement that minimizes patch cord lengths.

Velcro ties and not zip ties are to be used to bundle cables.

Horizontal cables from the MDF/IDF to the data outlets in the building shall be wired to the EIA 568A wiring standard for cat6/6a respectively.

10. Removed.

11. System Documentation

System verification and acceptance documentation signed and dated by the installer (Contractor) and the design professional shall be provided. This documentation shall include test measurements and system calibrations performed for the entire system. Sample system operations shall also be performed with actual hardware or using Contractor provided test equipment and documented to verify that the system is operational and ready for acceptance.

12. Bill of Materials for Local Area Network (LAN)

Attach a Bill of Materials listing each product, product number, product description, and quantity, unit costs and price extensions. A sample Bill of Materials is presented below. Specify all materials using the categories noted and in the order shown in the sample. A product specification sheet will be required for each of the network components.

Materials Description	Manufacturer's Product Number	Quantity	Unit Price	Extension
Example Only!				
<u>CABLE</u>				
4-Pair Plenum Cable, Cat 6	?	40,000 ft.	####	####
1" Plenum Interduct	?	300 ft.		
<u>PATCH PANELS (COPPER)</u>				
24 Port Patch Panel, Cat-6	?	1		
48 Port Patch Panel, Cat-6	?	4		
Patch Cables, Cat-5	?	162		
<u>COMMUNICATIONS OUTLET</u>				
Faceplate	?	32		
Single RJ45 Wall Plates, Cat 5	?	96		
Sixplex RJ45 Wall Plates, Cat 5	?	39		
Blank Insert	?	8		
Surface Mount Box	?	32		
Workstation Jumpers, Cat 5	?	162		

Standards for CAT-6 Cabling Plant

All installations must comply with the Georgia Administrative Code. The most recent issue of the following standards and references apply in whole or in part to the installation of the communications and electrical power facilities. Where the guidelines differ with the listed reference standards, the standards shall dominate with the exception of the National Electrical Code which shall dominate.

The terms and definitions used in this RFP are found and specified in the following standards. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Codes and current manufacturing standards. All materials shall be listed by UL and shall bear the UL label. If UL has not published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. The cabling system described in this RFP derived from the recommendations made in recognized telecommunications industry standards. The following documents are incorporated by reference:

- A. **ANSI/TIA/EIA – 568-A**, Commercial Building Telecommunications Cabling Standards
 - **TSB-67**, Field Testing of UTP Cabling Systems
 - **TSB-72**, Centralizing Cabling Guidelines
 - **TSB-75**, Additional Horizontal Cabling Practices for Open Offices
 - **TSB-95**, Additional Field Testing Requirements for Category 5
 - **ANSI/TIA/EIA – 568-A, Addendum 1**: Propagation Delay and Delay Skew Specifications for 100 ohm 4-pair Cables
 - **ANSI/TIA/EIA – 568-A, Addendum 2**: Miscellaneous changes and corrections
 - **ANSI/TIA/EIA – 568-A, Addendum 3**: Hybrid and Bundled Cables
 - **ANSI/TIA/EIA – 568-A, Addendum 4**: Modular Patch Cord Production Testing
 - **ANSI/TIA/EIA – 568-A, Addendum 5**: Category 5e Performance
 - **ANSI/TIA/EIA - 568B.2-1**, all addendums: Category 6 standards
- B. **ANSI/TIA/EIA – 569-A**, Commercial Building Standards for Telecommunications Pathways and Spaces
 - **ANSI/TIA/EIA – 569-A, Addendum 1**: 2000, Perimeter pathways
 - **ANSI/TIA/EIA – 569-A, Addendum 2**: 2000, Furniture pathways
 - **ANSI/TIA/EIA – 569-A, Addendum 3**: 2000, Access floors
 - **ANSI/TIA/EIA – 569-A, Addendum 4**: 2000, Poke-thru devices
- C. **ANSI/TIA/EIA – 606**, Administration Standards for Telecommunications Infrastructure of Commercial Buildings
- D. **ANSI/TIA/EIA – 607**, Commercial Building Grounding and Bonding Requirements for Telecommunications
- E. **ANSI/TIA/EIA – 729**, Screened, 100 ohm Twisted Pair Cabling
- F. **ANSI/TIA/EIA – 758**, Customer-Owned Outside Plant Telecommunications Cabling Standards
 - **ANSI/TIA/EIA – 758-1, Addendum 1**, OSP Optical fiber cabling practices
- G. **BICSI – TDMM**, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (TDMM) – 9th Edition, 2000
- H. National Fire Protection Agency (**NFPA – 70**), National Electrical Code (**NEC**) – **2002**
- I. **TIA – 568.C.2**
 - General Conditions
 - A. #9 Warranty add Cabling System Warranty
 - 1. A Cable Products Warranty shall provide a complete warranty to guarantee a high performance cabling systems that meet application requirements. The guarantee shall include all cable installed in the CAT-6 cabling system. The Cable shall be warranted for a period of at least 15 or 25 years. Contractor must be a Certified Installer for solution provided.
 - 8. LAN Horizontal Wiring Specifications Cabling characteristic
 - Category 6 cable & connectivity. Products shall be made in the USA.
 - Cable performance guaranteed to 350 MHz
 - Cable must be third-party verified for guaranteed performance
 - Cable must meet specifications of General Cable 7131800.
 - 9. LAN Patch Panel
 - Category 6 modular patch panels 24 port.
 - A. Patch cords to be 28 AWG, factory made and tested

If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for Installation.

This document does not replace any code, either partially or wholly. The contractor must be aware of local codes that may impact this project.

APPENDIX A – Specific Tasks

Task 1. Two category-6 data drops per marked purple location

Each classroom on the blueprints marked in purple indicates the location of a to-be-installed Audio Enhancements Classroom System. Each system includes one audio amplifier installed near ceiling on one wall in the classroom, exact location to be determined, and one network-based-camera, to be installed in ceiling in center of classroom.

Vendor is to provide two CAT-6 data drops, terminated in biscuit jack or equivalent, in each marked classroom. One data drop located center of classroom for camera location, and one data drop location to-be-determined for amplifier. Vendor should plan cable lengths for amplifier data drop to be able to reach farthest point in classroom. Vendor is responsible for providing sufficient cable length for amplifier data drop to reach any point in classroom.

QUANTITY 55 LOCATIONS, 110 TOTAL DATA DROPS

Task 2. One category-6 data drop per marked pink location

Each location on the blueprints marked in pink indicates the location of a to-be-installed Audio Enhancements audio amplifier only, no camera in this room. One data drop location to-be-determined for amplifier. Vendor should plan cable lengths for amplifier data drop to be able to reach farthest point in classroom. Vendor is responsible for providing sufficient cable length for amplifier data drop to reach any point in classroom.

QUANTITY 2 LOCATIONS, 2 TOTAL DATA DROPS

Appendix B – Data cable locations (also see spreadsheet on bid website)

Room	Standard Audio Enhancment Drop (Amp and Camera)	Amp only Audio Enhancements Drop	Notes
1.104		1	
1.201	2		
1.203	2		
1.205	2		
1.207	2		
1.209	2		
1.212	2		
1.214	2		
1.321	2		
1.142		1	
1.143	2		
1.148	2		
1.149	2		
1.161	2		
1.180	2		
1.182	2		
1.301	2		
1.303	2		
1.305	2		
1.307	2		
1.312	2		
1.314	2		
1.316	2		
1.331	2		
1.333	2		
1.342	2		
1.346	2		
1.348	2		
1.502	2		
1.507	2		
1.521	2		
1.524	2		
1.525	2		
1.526	2		
1.541	2		
1.542	2		
1.543	2		
1.544	2		
1.545	2		
1.546	2		
1.547	2		
1.553	2		
1.601	2		
1.602	2		
1.603	2		
1.604	2		
1.605	2		
1.606	2		
1.609	2		
1.613	2		
1.619	2		
1.621	2		
1.624	2		
1.631	2		
1.633	2		
1.634	2		
TOTALS	108	2	
	Total # of CAT-6 data drops	110	

Appendix C

Approved list of Materials

1) Network Closet

- a) 2-Post Racks
 - i) Hoffman EDR19FM45U
 - ii) Chatsworth 55053-703
- b) Full Sized Cabinet
 - i) Eaton RSV4580B
- c) Wall Mount Cabinet
 - i) Hoffman ACCESSPLUS II EWMW242425 is typical
 - ii) Other sizes of Hoffman ACCESSPLUS II cabinets may be used if EWMW242425 is too small. For example, EWMW362425 or EWMW482425
- d) Trailers / Mobile Units
 - i) Chatsworth ThinLine II 13050-712
- e) Cable Runway/ Ladder Rack
 - i) Straight Sections – Hoffman LSS12BLK
 - ii) 90-Degree Horizontal E-Bend – Hoffman L90HB12BLK
 - iii) Curved Inside Radius Bend – Hoffman LIB12BLK
 - iv) Curved Outside Radius Bend – Hoffman LOB12BLK
 - v) Triangle Support Bracket – Hoffman LTSB12BLK
 - vi) Wall Angle Support – Hoffman LWASK12BLK
 - vii) Junction Splice – Hoffman LJSKB
 - viii) Rack to Runway Mounting Plate – Hoffman LRRMPBLK
 - ix) Butt-Splice – Hoffman LBSKB
 - x) Radius Drop – Hoffman LRD12BLK
 - xi) Vertical Wall Bracket – Hoffman LVWBB

Part numbers above are typical but may vary depending on the installation. All cable runway / ladder rack components should be black in color and 12" in width unless otherwise specified. Chatsworth equivalent part numbers may be substituted.

- f) Wire Management
 - i) Vertical Manager for 2 Post Racks – Panduit WMPV45E
 - ii) Horizontal Manager / Front Only – Panduit WMPHF2E
 - iii) Horizontal Manager / Front & Rear – Panduit WMPH2E
- g) Patch Panels
 - i) 24 Port Panel – Panduit NKPP24FMY
 - ii) 48 Port Panel – Panduit NKPP48HDY
- h) Patch Cables
 - i) Cat6 6" Cable – Zero Connect 6110-I06
 - ii) Cat6A 6" Cable – Zero Connect Z6A4P3SB-SBI006
- i) Fiber Enclosures
 - i) Rack Mount – Panduit FRME1U, FRME2U, FRME3U, FRME4U depending on the capacity required in the closet.
 - ii) Wall Mount – Panduit FWME2

Fiber enclosure shall be loaded with appropriate Panduit Fiber Adapter Panel based on fiber optic cable type and strand count. Panduit FAP6WAQDLCZ and FAP12WAQDLCZ are typical. At least one two-meter duplex-style LC<->LC OM4 patch cable should be included with each installed fiber adapter panel.

2) Cable Support and Pathways

- a) Cable Tray – nVent Caddy WBT tray, fasteners, and accessories shall be used for cable tray applications. Tray and fasteners shall be sized appropriately for future growth and shall not exceed a fill rate allowed by the NEC or other applicable codes.
- b) J-hooks – nVent Caddy Cablecat J-hooks shall be used to support small branch runs of horizontal and backbone cabling where cable tray is not practical, such as in classroom and office ceiling spaces. Hooks should be spaced appropriately to adequately support and distribute the cable's weight. The manufacturer's specifications for cable loading should be followed.
- c) Surface Mount Raceway – Legrand Wiremold metallic surface raceway and metallic boxes shall be used when surface mounting is required. Surface mounting should be avoided when practical. Surface raceway shall be sized appropriately and not exceed allowable fill rate specified by the NEC or other applicable codes.

3) Horizontal Cabling

- a) Category 6 Cable
 - i) Blue Cat6 Cable – General Cable 7131800
 - ii) Green Cat6 Cable – General Cable 7131806
 - iii) Purple Cat6 Cable – General Cable 7131809
- b) Category 6a Cable
 - i) Yellow Cat6A Cable - General Cable 7141822
- c) Keystone Jack Modules
 - i) Blue Cat6 – Panduit NK688MBU
 - ii) Green Cat6 – Panduit NK688MGR
 - iii) Orange Cat6 – Panduit NK688MOR
 - iv) Yellow Cat6A – Panduit NK6X88MYL
- d) Wall Plates and Surface Boxes
 - i) Wall Plates - Panduit NetKey Stainless Steel Faceplates shall be used. NKF2S, NKF4S, NKF6S are typical.
 - ii) Biscuit Style Surface Box – Panduit NK2BXIW-A shall be used for above-ceiling locations, such as wireless access point locations, IP camera locations, Audio Enhancement amplifier locations, etc.

4) Backbone Cabling

- a) Fiber optic cabling shall be used for all backbone connections between network closets.
- b) Cable Type – OM4 Optical Multimode, plenum-rated, armored cable shall be used
- c) Strand Count – 6F, 12F, and 24F are typical. See exact scope of work for expected strand count.
- d) Acceptable Manufactures
 - i) Corning
 - ii) General Cable
 - iii) Berk-Tek