

Bedford County, Tennessee



REQUEST FOR PROPOSAL Bid No. 21-23

Low Voltage Infrastructure Purchase & Installation

Title: Low Voltage Infrastructure Purchase & Installation

I. INTRODUCTION/OVERVIEW

A) Purpose/Objective

The Bedford County Department of Finance (hereafter Bedford County) has issued this Request for Proposal (hereinafter "RFP") for Bedford County Schools for the sole purpose and intent of obtaining proposals from interested and qualified firms or individuals and if awarded is expected to lead to contract(s) to furnish building structured wiring and outside plant wiring. The provider will be required to install, maintain and repair current and new copper/fiber and/or wireless connectivity. Services are for approximately 14 plus school locations and any future expansion throughout Bedford County.

The successful Bidder will be referred to hereinafter as Contractor.

Bedford County reserves the right to reject any and all proposals and waive any irregularities for the purpose of making the award it feels is in the best interest of the Bedford County. Bedford County intends to award contract(s) only to the responsible respondents whose proposals fall within the competitive range, based on the evaluation factors set forth in this RFP.

The award from this RFP of a contract by Bedford County will not entitle a contractor to perform any specific work or job. Instead, an approved Purchase Order will entitle a contractor to perform future specific work (jobs) within the scope of its contract.

Bedford County anticipates that the contract term will begin on July 1, 2021, and continue through June 30, 2022, with the possibility of three (3) one-year renewals. The effective date will be the later of the date anticipated or the date when the contract was filed in the Bedford County Department of Finance.

The award, if made, will be made to a responsible Bidder whose proposal is the most advantageous to Bedford County.

The terms of this Bid will be extended to other local government agencies, other municipalities, and Boards of Education. Bedford County is responsible only for purchases made and received by Bedford County.

B) Scope of Work

A. Purchase and Installation of cable and equipment related to the following areas:

1. Low Voltage Data pricing (copper)
2. Low Voltage Labor rates
3. Switched Networks and Wireless LAN products
4. Low Voltage supplemental products
5. Audio Visual Devices
6. Audio Visual supplemental products
7. Pro-Audio systems
8. Security systems
9. Life Safety Systems – clocks, paging, phone devices etc.

**** See Exhibit B Scope of Work for clarification of described areas of work.**

B. Contract work in installation, troubleshooting, and maintenance of data and audio-visual equipment.

C. Remove unusable existing wiring and equipment.

D. The projects to be purchased under the resulting contract will range from \$50.00 or less to \$500,000.00 or greater.

C) Background

Bedford County Schools is a growing education district with anticipated needs of expanding, replacing, or enhancing existing school-based technology systems. It is anticipated that the district will need to engage in procurement of some of the District's standardized systems throughout the period of this contract or contract extensions.

The proposed contract would secure a commitment from a qualified vendor for the installation, maintenance, repair and service to the following systems and/or subsystems to conform to acceptable and current standards or new standards created during the duration of the contract.

1. Low Voltage Data pricing (copper)
2. Low Voltage Labor rates
3. Switched Networks and Wireless LAN products
4. Low Voltage supplemental products
5. Audio Visual Devices
6. Audio Visual supplemental products
7. Pro-Audio systems
8. Security systems
9. Life Safety Systems – clocks, paging, phone devices etc.

***** See Low Voltage Infrastructure Bid Standards Addendum**

D) Constraints on the Contractor

Contractor must adhere to the standards used by Bedford County. The contractor is responsible for ensuring all work performed under the contract conforms to all applicable codes and will be responsible for correcting any violations found as well as any penalties that might arise from such violations.

All work to be performed under this contract shall be provided at times convenient to Bedford County. Maintenance and installations may only be performed at times that do not interfere with daily operations of Bedford County and provide the least amount of interruption in service. Typically, Bedford County departments operate between 7:00 am and 4:00 pm.

All estimates given for proposed jobs will be adhered to, unless otherwise approved by Bedford County.

Security Requirements: Due to the nature of locations of some of the installations, contractor's personnel may be subject to searches or other required security measures. All employees of the contractor that will perform work in Bedford County buildings will be required to have a TBI background check and be found to be clear of violations. All employees of the contractor are required by Federal law to undergo an E-verify check upon employment.

Safety and the Environment: Without exception, the potential contractor and subcontractors must comply with all local, state, and federal regulations regarding these matters during the performance of this contract.

Equipment Rental: Rental of equipment used to perform work on this contract will be the responsibility of the Contractor. Reimbursement for actual verifiable rental charges requires the prior approval of the Project Manager and a copy of the rental invoice must be attached to the vendor's invoice of these charges to Bedford County.

The contractor for installation and maintenance of infrastructure wiring and components must comply with the "State of Tennessee Contractors' License Law and Rules and Regulations" issued by the Board of Licensing Contractors, Tennessee Department of Commerce and Insurance. In addition, contractors for this work will need to have both a Performance and a Bid Bond.

Bid Bond/Deposit of Good Faith: Submit Bid Bond with completed Bid Forms. A certified check, cashier's check, or a properly executed bond will accompany the bid proposal. The check will be made payable to Bedford County. Deposits of the bidders are held until award of the order of contract, and the deposit of the successful bidder is held until he has completed delivery or services and/or, if required, provided a Performance Bond. If a bidder refuses to enter into a contract, Bedford County will retain the Bid Security as liquidated damages, but not as a penalty.

Performance Bond, and Labor and Material Bond: The bidder who is selected to enter into a Contract for this work shall furnish and pay for bonds covering faithful performance of the contract and payment of all obligations arising thereunder. Each bond shall be for 100% of the Contract sum. Bond may be unconditional letter of credit from a local bank for amount not less than the contract sum. Deliver the bonds to Bedford County no later than the time of execution of the Contract Agreement. Failure or neglect by the selected bidder to deliver these bonds, as specified, will be considered as his having abandoned the Contract and the Bid Security will be retained by Bedford County as liquidated damages.

Use of Subcontractors: This bid is for the purpose of securing a contractual relationship with a self-installing company. If the use of subcontractors is required for the contractor to fulfill any of the require systems or services, it must be disclosed in your bid response and must be agreeable to Bedford County Schools. Without bid disclosure and Bedford acceptance, no subcontractors will be allowed in the performance of this contract.

All systems and services must be installed with the manufacture's expressed installation practices and installed by certified installers employed by the contract holder. Proof of certifications and installation capabilities are required as part of a successful bid response.

E) Contractor Responsibilities

Bedford County seeks contractors able to provide the following:

- Provide cabling end-to-end solutions that qualify for manufacturer warranty of all components.
- Obtain, on the behalf of Bedford County, any licenses, permits, or inspection costs that may be required in the course of work awarded from any entity of Local, State, or Federal government. Costs would be billable on work awarded requiring same.
- Direct contact with technicians, Service Account Manager/Project manager that can provide needed information quickly (within 15 minutes)
- Provide emergency service and repair (**within 2 hours**) during declared national, state, and local emergencies.
- Provide emergency service and repair during a Bedford County declared emergency.
- Provide a 24/7 emergency service number.
- Provide weekly status reports that report on all active Bedford County projects.
- Upon receipt of Purchase Order, provide vendor internal work order number to Bedford County designated project manager.
- At major milestones and job completion, provide notification of job status referencing Bedford County and purchase order number(s).
- Any change in scope from original Purchase Order requires written approval by Bedford County Department of Finance. If appropriate written approval is not provided, Bedford County shall not be responsible for payment of services.
- Provide as-built documentation in an electronic format.

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- Work with Bedford County as appropriate to improve workflow and communications. This work may include interaction with third party software.
 - Project Test: Must test every drop of copper & fiber from end to end with a passing result based upon Bedford County wiring specifications. The results must be provided to Bedford County as part of the documentation needed for payment of invoices.
 - Invoices submitted must contain all required documentation in order for Bedford County Department of Finance to process for payment.

F) Reporting Requirements

The Contractor is to report to Bedford County Finance Department and the Project Manager both verbally and in writing the details of the on-going progress of this contract.

G) Bedford County Departmental Responsibilities

Bedford County will furnish contractor with a copy of all published standards prior to the starting of work from the contract. Bedford County will furnish any changes to standards that will occur during the term of this contract.

H) Bedford County's Right to Inspect

Bedford County shall have the right to inspect any facility or project site where the services performed under the resultant contract are performed.

I) Terms and Conditions of Contract for Goods and Services

A contract resulting from this RFP shall be subject to the terms and conditions set forth in the attached Contract for Goods and Services.

J) Inquiries

Direct questions related to this RFP to Christy Williams, Technology Department, Bedford County Schools, at 931-684-3284 X 2243, fax at 931-685-0698, or via e-mail at williamsc@bedfordk12tn.net. Include the RFP number, page, and paragraph number for each question.

Bidders must clearly understand that the only official answer or position of the government will be the one stated in writing.

K) Method of Source Selection

Bedford County is using a Competitive Sealed Bid for this procurement.

Award(s), if made, will be made to the **Responsive** and **Responsible** Bidder(s) whose proposal is most advantageous to Bedford County, taking into consideration price and the other factors set forth in this Request for Proposal (RFP). Bedford

County will not use any other factors or criteria in the evaluation of proposals received.

Bedford County may, as it deems necessary, conduct discussions with **Responsive** and **Responsible** Bidder(s) determined to be reasonably susceptible of being selected for award for the purpose of clarification to assure full understanding of, and responsiveness to solicitation requirements.

1. Minimum (general) criteria Bedford County will use to determine if the proposal is "Responsive"

- Does the proposal submitted conform in all material respects to the solicitation?

2. Minimum (general) criteria Bedford County will use to determine if the proposal is "Responsible"

- Does the Bidder demonstrate an understanding of Bedford County's needs and proposed approach to the project?
- Does the Bidder possess the ability, capacity, skill, and financial resources to provide the service?
- Can the respondent take upon itself the responsibilities set forth in the RFP (and resultant contract) and produce the required outcomes timely?
- Does the Bidder have the character, integrity, reputation, judgment, experience, and efficiency required by the contract?
- Has the Bidder performed satisfactorily in previous contracts of similar size and scope; or, if the prime contractor has not performed a contract of similar size and scope, has it (and/or its team members) otherwise demonstrated its capability to perform the contract Bedford County seeks to establish through this RFP?
- Does the Bidder propose to perform the work at a fair and reasonable cost?

L) Proposal Evaluation Panel and Evaluation Factors

Proposals will be evaluated by the Finance Department of Bedford County. The factors to be considered in the evaluation of proposals are listed below. While Bedford County believes all these items to be of importance, they are ranked in descending order of importance.

	Criteria	Points
1	Cost	25
2	Meets all specifications	20
3	Past Performance with district	20
4	Business Plan / Requirements	15
5	Experience and Qualifications	10
6	Commitment and successful experience with other K12 schools/References	10

M) Projected Timetable

The following projected timetable should be used as a working guide for planning purposes. Bedford County reserves the right to adjust this timetable as required during the course of the RFP process.

Event	Date
RFP Issued	April 21, 2021
Proposals due	May 14, 2021
Evaluation of Criteria	Begins ASAP
Award Bid	TBD

II. INSTRUCTIONS FOR PROPOSALS

A) Compliance with the RFP

Proposals must be in strict compliance with this Request for Proposals. Failure to comply with all provisions of the RFP may result in disqualification.

B) Acknowledgment of Insurance Requirements

By signing the proposal, Bidder acknowledges that it has read and understands the insurance requirements for the proposal. Bidder also understands that the evidence of required insurance must be submitted within fifteen (15) working days following notification of its offer being accepted; otherwise, Bedford may rescind its acceptance of the Bidder's proposal. See Exhibit C for insurance requirements.

C) Delivery of Proposals

Proposal must be submitted sealed in an appropriately sized package with the Bidder's name, Bid Number on the outside of the box or envelope and note "Request for Proposal enclosed." Bidders must also place their State of TN contractor license information (name of license, license number, and expiration date on the outside of the Package

All proposals are to be delivered before **May 14, 2021, at 2:00 P.M.**, Central local time to:

**Bedford County Department of Finance
200 Dover Street, Suite 102
Shelbyville, Tennessee 37160**

Bedford County will not accept any proposals received after 2:00 PM and shall return such late proposals to the Bidder.

Bidders must **submit one (1) Original, and two (2) exact duplicates**, of the proposal response and **one (1) electronic copy** of the complete proposal response including any attachments, on a WINDOWS PC compatible USB drive, CD or DVD.

D) Evaluation of Proposals (Procedure)

Bedford County will first examine proposals to eliminate those, which are clearly nonresponsive to the stated requirements. Therefore, Bidders should exercise particular care in reviewing the Proposal Format required for this RFP.

The evaluation committee shall then score all proposals based upon the evaluation factors detailed herein.

Bedford County reserves the right to contact any and all references to obtain, without limitation, information regarding the Bidder's performance on previous projects.

Bedford County reserves the right to withdraw this RFP at any time and for any reason.

Receipt of a proposal by the Bedford County Department of Finance or a submission of a proposal to the Bedford County Department of Finance offers no rights upon the Bidder nor obligates the Bedford County Government in any manner.

Bedford County reserves the right to reject any and all proposals and waive any irregularities for the purpose of making the award it feels is in the best interest of the Bedford County. Any such waiver shall not modify any remaining RFP requirements or excuse the Bidder from full compliance with the RFP specifications and other contract requirements if the Bidder is awarded the Contract.

In order to complete the evaluation process faster, list the name, address, phone number, fax number, and email address of the person capable of answering any questions that may arise during the evaluation process. **(Please Print or Type)**

Company Name: _____
Attention: _____
Address: _____
City/ST/Zip: _____
Phone: _____
Fax: _____
Email: _____

E) Ambiguity, Conflict, or Other Errors in the RFP

If a Bidder discovers any ambiguity, conflict, discrepancy, omission, or other error in the Request for Proposal, it shall immediately notify the Department of Finance of such error in writing and request modification or clarification of the document. The Department of Finance will make modifications by issuing a written revision and will give written notice to all parties who have received this RFP from the Department of Finance.

The Bidder is responsible for clarifying any ambiguity, conflict, discrepancy, omission, or other error in the Request for Proposals prior to submitting the proposal or it shall be waived.

F) Proposals and Presentation Costs

Bedford County will not be liable in any way for any costs incurred by any Bidder in the preparation of its proposal in response to this RFP, nor for the presentation of its proposal and/or participation in any discussions or negotiations.

G) Rejection of Proposals

Bedford County reserves the right to accept or reject in whole or in part any or all proposals submitted. Bedford County shall reject the proposal of any Bidder that is determined to be non-responsive. The unreasonable failure of a Bidder to promptly supply information in connection with respect to responsibility may be grounds for a determination of non-responsibility.

H) Acceptance of Proposals

Bedford County shall accept all proposals that are submitted properly. However, Bedford County reserves the right to request clarifications or corrections to proposals.

I) Requests for Clarification of Proposals

Requests by Bedford County for clarification of proposals shall be in writing. Said requests shall not alter the vendor's pricing information contained in its cost proposal.

J) Validity of Proposals

All proposals shall be valid for a period of ninety (90) days from the opening date of the Request for Proposal.

K) Response Format

The items listed below shall be submitted with each proposal and should be submitted in the order shown. Each section should be clearly labeled, with pages numbered and separated by tabs. Failure by a bidder to include all listed items may result in the rejection of its proposal.

Section I, Management Summary

Provide a cover letter indicating the underlying philosophy of your firm in providing the service.

Section II, Business Plan

Describe in detail how the services will be provided. Include the following:

- Description of the proposed contract team, and the role to be played by each member.
- Detail the proposed team organizational structure, interrelationships, and interactions.
- Exceptions will be considered; however, no acceptance of proposed exceptions is guaranteed. Exceptions to the Contract are business concerns for Bedford County. Indicate that your company's general counsel has reviewed and accepts the terms and conditions of the attached contract. If your company takes exception to any clause in the contract, please identify what that exception(s) is/are and how your firm suggests phrasing that clause(s). Also indicate any exceptions to any other requirements listed in the RFP.

Depending upon the value of the exception(s) to Bedford County, your Business Plan score may reflect a lowered Business Plan Score.

Section III, Compensation and Cost Data

See Exhibit A for the required cost grid for goods and services offered for this contract. This grid must be completed by Bidder to meet minimum requirement of response to the RFP. It is the intent of Bedford County to receive line item pricing for each of these goods and services to allow for additions, subtractions and future purchases. Bedford County intends to extend its contract to any school system, municipality, or government in the State of Tennessee.

Section IV, Corporate Experience and Capacity

Provide information, which documents your firm's and subcontractors' qualifications to produce the required outcomes, including its ability, capacity, skill, financial strength and number of years of experience in providing the required services. Include the following:

- How long has your firm been in business doing work similar the similar the scope of service described in this RFP?
- Provide information regarding your firm's ability to perform the requirements of this RFP.
- How long have those assigned to the team been doing the type of work similar the scope of service described in this RFP? Identify their names, years of experience and any certifications applicable to the scope of service described in this RFP. Provide resumes of all personnel working assigned to the team.
- Provide emergency service and repair – Provide responses to the following questions based on from time of notification to service restored:
 - a. What is your MTTR on a multiport service outage of a 24 strand or less fiber cut?
 - b. What is your MTTR on a multiport service outage of a horizontal copper distribution system of less than 49 drops?
- List three projects you have completed in Middle Tennessee service area in the last two years. The projects should be similar in size and scope including each of the area listed B Section "Scope of Work".
- List the following:
 - a. company name,
 - b. contact person at that company,
 - c. their phone number,
 - d. email address,
 - e. brief description of the project, including systems your company self-installed (not contracted).
 - f. dollar value of the project

Section V, Customer Listing

Provide a listing of all previous customers during the past three years for all work of similar size and scope. The services provided to these clients shall have characteristics as similar as possible to those requested in this RFP. Information provided for each client shall include the following:

- a) Client name and address
- b) Description of services provided
- c) Time period of the project or contract
- d) Client's contact reference name and current telephone number and e-mail address.

Bedford County reserves the right to contact any and all references to obtain, without limitation, information regardless of the Bidder's performance on the listed jobs.

Section VI, Acceptance of Conditions

Indicate any exceptions to the general terms and conditions of the RFP and to insurance requirements and any other requirements listed in the RFP.

Exhibit A
Compensation and Cost Data

- A) Provide the cost breakdown for which your firm will provide the work described in this RFP. For the following items it is assumed that there are existing pathways for the cabling and port capacity at the Intermediate Distribution Frame (IDF) for connection. Installation should be based on information in Exhibit A. All other costs associated with the line item are the responsibility of the Bidder.

Table #1

Cost per drop for: (as defined by BCS Standards)

CAT6a Copper Installation Service (parts and labor)	1-15 drop count	\$
CAT6a Copper Installation Service (parts and labor)	16-48 drop count	\$
CAT6a Copper Installation Service (parts and labor)	49-100 drop count	\$
CAT6a Copper Installation Service (parts and labor)	101-200 drop count	\$
CAT6a Copper Installation Service (parts and labor)	201-500 drop count	\$
CAT6a Copper Installation Service (parts and labor)	501-1000 drop count	\$
CAT6a Copper Installation Service (parts and labor)	1001-2000 drop count	\$

- B) Provide the cost breakdown for which your firm will provide the work described in this RFP.

Table #2

Cost for:

Lead Low Voltage Technician (labor only)	\$
Low Voltage Technician (labor only)	\$
Fire Alarm Service Technician (labor only)	\$
Security Service Technician (labor only)	\$
Audio Video Service Technician (labor only)	\$
Life Safety Communications Technician (labor only)	\$
System Electrical Grounding (labor and parts) per distribution frame	\$
Fiber-Optic Cable Installation (labor only – does not include termination)	\$
Site Preparation – penetrations (labor only)	\$
Site Preparation – Core Drilling (labor only)	\$
Site finishing- Firestop/trim (labor only)	\$
Cable Pathway Installation (labor only)	\$
Innerduct Installation (labor only)	\$
Project Management (labor only)	\$
Licensed Electrician (labor only)	\$
Network & Systems Management (labor only)	\$
Site Survey (labor only)	\$
Site removal of unusable cabling and equipment	\$

C) For tables 3 through 7 enter the cost to Bedford County based on a verifiable vendor cost plus charge to Bedford County for products purchased from the catalog.

Table #3

Enterasys Electronics catalog MSRP less %

Examples are:

Description Part Number

Enterasys core switches

Enterasys edge switches

Enterasys PoE switches

Enterasys Wireless High Speed LAN components connections

Enterasys Ethernet Fiber Modules

Ruckus Networks catalog MSRP less %

Examples are:

Description Part Number

Amer Switches – Managed

Amer Switches - Unmanaged

Brocade Electronics catalog MSRP less %

Examples are:

Description Part Number

Brocade Switches Core switches

Brocade Switches edge switches

Brocade Switches accessories

Brocade Wireless

Table #4

Provide at least six (6) catalogs for the purchase of: Cable, Pathways & Cable Support, Cable Testing
Examples of some catalogs are: Eaton, Chatsworth, Panduit & CommScope, or equivalent. Must have 20-year minimum Manufacturer warranty period for the cabling systems.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %
Catalog #4	_____	MSRP less %
Catalog #5	_____	MSRP less %
Catalog #6	_____	MSRP less %

Table #5

Provide at least four (4) catalogs for the purchase of Audio-Visual Equipment; Examples are Dell Casio, Sharp, Samsung, SMART, or equivalent.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %
Catalog #4	_____	MSRP less %

Table #6

Provide at least three (3) catalogs for the purchase of Audio-Visual Support Equipment: Examples are Bretford, B & H Audio Visual, Extron, or equivalent.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %

Table #7

Provide at least three (3) catalogs for the purchase of Pro-Audio Equipment: Examples are Peavey, Crest Audio, Atlas etc.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %

Table #8

Provide at least four (4) catalogs for the purchase of Security Equipment: Examples are Avigilon, Gallagher, Milestone, Pelco, or equivalent.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %
Catalog #4	_____	MSRP less %

Table #9

Provide at least four (3) catalogs for the purchase of Life Safety Catalogs - paging digital clocks, phones: Examples are Inova, 360, Valcom, Atlas.

Catalog #1	_____	MSRP less %
Catalog #2	_____	MSRP less %
Catalog #3	_____	MSRP less %

Exhibit B

Scope of Work Summary

The following is a general summary of the Scope of Work. Throughout the duration of the accepted contract period, updated and newly developed components to the scope of work can be added. Any scope of work installations must be compatible with existing infrastructure and components.

1. Fiber and copper Ethernet infrastructure
 - a. Ethernet cabling, connectors, management, mountings, structural support, racks and other components related to Ethernet infrastructure.
 - b. Fiber cabling, connectors, management, mountings, structural support, racks and other components related to fiber infrastructure.
2. Switched Ethernet network with active IP components
 - a. Switches: managed, unmanaged, PoE and PoE+
 - b. Switch port adapters, PoE injectors, fiber connectors
 - c. Network management system (bandwidth mgmt. and content filtering)
 - d. Managed UPS backup systems
3. Analog and Digital Telephony
 - a. VoIP telephones and power accessories
 - b. VoIP system controller
 - c. Analog/digital adapters
4. Electrical wiring, both low and high voltage
5. Audio Visual infrastructure
 - a. School environment audio/visual equipment, mountings, cabling, and controllers (such as screens, microphones, speakers, a/v control devices)
6. Pro-Audio equipment
7. Wireless LAN infrastructure
 - a. Enterprise class wireless controllers, software, servers, and access points
 - b. Software support
8. Security systems
 - a. IP based security cameras, mountings, and cabling
 - b. IP based security servers, recorder, and software
 - c. Compatible emergency notification system and associated devices
 - d. Access Controls system components (such as door entry access controls and electronic clocks and systems)
9. Life Safety systems
 - a. Public address system (paging/intercom)
 - b. School-wide clock system

Exhibit C

Insurance Requirements

Contractor shall at its sole expense obtain and maintain in full force and effect for the duration of the Agreement and any extension hereof at least the following types and amounts of insurance for claims which may arise from or in connection with this Agreement.

- a. *Commercial General and Umbrella Liability Insurance.* Contractor shall maintain commercial general liability (CGL) insurance and, if necessary, commercial umbrella insurance with limits of not less than **\$1,000,000** each occurrence. **Coverage shall include child molestation coverage with the same limits (\$1,000,000).** If such CGL insurance contains a general aggregate limit, it shall apply separately to the project/location in this Agreement.

Such insurance shall:

1. Be written on ISO occurrence form CGL 00 01 12 04 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract).
 2. Include Bedford County Government as an insured under the CGL, using ISO additional insured endorsement CG 20 37 or CG 20 26 or a substitute providing equivalent coverage and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to Bedford County. There shall be no endorsement or modification of the CGL to make it excess over other available insurance; alternatively, if the CGL states that it is excess or pro rata, the policy shall be endorsed to be primary with respect to the additional insured.
- b. *Automobile Liability Insurance:* including vehicles owned, hired, and non-owned, with a limit of not less than **\$1,000,000** each accident for Bodily Injury and Property Damage. Such insurance shall include coverage for loading and unloading hazards. Insurance shall contain or be endorsed to contain a provision that includes Bedford County, its officials, officers, employees, and volunteers as additional insured's with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of Contractor in the performance of this contract.
 - c. *Workers' Compensation Insurance.* Contractor shall maintain workers' compensation insurance with statutory limits as required by the State of Tennessee or other applicable laws and employers' liability insurance with limits of not less than **\$500,000**. Contractor shall require each of its subcontractors to provide Workers' Compensation for all of the latter's employees to be engaged in such work unless such employees are covered by Contractor's workers' compensation insurance coverage.

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- d. **Other insurance: Commercial Crime Coverage including Employee Dishonest, Theft, Disappearance & Destruction and Robbery of Money & Securities and Property of Others.** The limits should be not less than **\$400,000** per occurrence.

Other Insurance Requirements.

Contractor shall:

- a. Prior to commencement of services, furnish Bedford County with original certificates and amendatory endorsements affecting coverage required by this section and provide that such insurance shall not be cancelled, allowed to expire, or be materially reduced in coverage except on thirty (30) days' prior written notice to Bedford County Department of Finance except ten (10) days in the event of non-payment of premium.
- b. Provide certified copies of endorsements and policies if requested by Bedford County in lieu of or in addition to certificates of insurance.
- c. Replace certificates, policies, and/or endorsements for any such insurance expiring prior to completion of services.
- d. Maintain such insurance from the time services commence until services are completed. Failure to maintain or renew coverage or to provide evidence of renewal may be treated by Bedford County as a material breach of contract.
- e. Place such insurance with insurer licensed to do business in Tennessee and having A.M. Best Company ratings of no less than A-. Modification of this standard may be considered upon appeal to the Bedford County.
- f. If subcontractors are preapproved by Bedford County Schools then the contractor must require all subcontractors to maintain during the term of the Agreement, Commercial General Liability insurance, Business Automobile Liability insurance and Workers' Compensation/Employer's Liability insurance (unless subcontractor's employees are covered by Contractor's insurance) in the same manner as specified for Contractor. Contractor shall furnish subcontractors' certificates of insurance to Bedford County prior to the commencement of subcontractors' work. The General Contractor's commercial general liability insurance should not include CG 2294 or CGT 2295.
- g. Any deductibles and/or self-insured retentions greater than \$50,000 must be disclosed to and approved by Bedford County prior to the commencement of services.
- h. If the Contractor has or obtains primary and excess policies, there shall be no gap between the limits of the primary policies and the deductible features of the excess policies.
- i. The insurer shall agree to waive all rights of subrogation against Bedford County, its officers, officials, and employees for losses arising from work performed by Contractor for Bedford County.

Bedford County

Low Voltage Infrastructure District Standards



Bedford County Infrastructure Standards

Infrastructure Capacity

1. Schools Infrastructure Standards

a. Classroom & Admin/Work Areas

The following is to be targeted minimum standards for the classroom and admin/work area technology needs.

Student Data Drops	6	Admin / Work Area Data Drops	3
Teacher Data Drops	2	Computer Labs	30
AV Data Drop, Projection or Panel	1	Wireless AP (quantity based on design and physical conditions)	1

2. Horizontal Cabling

General

Horizontal cabling is that portion of the cabling that extends from the WA (work area) outlet to the HC (horizontal cross-connect) in the TR (telecommunications room).

Topology

Horizontal cabling must be installed in a star topology. Each cable shall be a homerun without splices.

Recognized Cables

Two types of cables are acceptable for new installations, either or both can be used as required by the system applications:

- 4-pair 100-ohm UTP
- 12-fiber 50/125 um OM3/OM4 MMF (10GB-40GB)

Jacket Colors

Use the following overall jacket colors to identify cable use:

Cable Color	Cable Description / Function
White	Cat 6a Telephone/Voice
Blue	Cat 6a Data, (10GB)
Black	RF/Video
Teal	50um OM3/OM4 Multi-mode Optical Fiber (10GB)
Yellow	Single-mode Optical Fiber
Orange	Security / CCTV/ Access
Red	Public Safety (fire & PS25)

3. Backbone Cabling

General

The function of the backbone cabling is to provide interconnection between the HC and IC (intermediate cross-connects)/MC (main cross-connects) located in the ER (equipment room) or at the EF (entrance facility).

Topology

The backbone cabling shall use hierarchical star topology wherein each HC in a TR is either cabled directly to a MC or to an IC then a MC. There shall be no more than two levels of cross-connects in the backbone cabling.

Recognized Cables

Three types of cables are acceptable for new installations that can be used individually or in combination, as the design requires:

- 100-ohm UTP
- 50/125 um OM3/OM4 MMF
- 9 um SMF

Capacity

- The minimum fiber capacity is to be rated at 10-gigabit capacity. (Minimum OM3 Fiber)

4. Work Area

General

Work area components include the TO and equipment cables at the user's workstation. They are not limited to numbers or types of devices (telephones, modems, faxes, computers, data terminals, etc.).

Telecommunications Outlet/Connector

100-ohm Balanced Twisted-Pair Connectors

Optical Fiber Connectors

Horizontal optical fibers to the work area will terminate into a SFF (small form factor) duplex outlet/connector of LC design (angled is preferred, flat or straight is acceptable). While there are many non-compatible SFF connector styles used by the telecommunications industry, LC is widely used and very compact. If previous applications have used duplex 568SC or simplex ST/SC connectors, they shall be accommodated by factory-made LC jumper/adapters with the appropriate connector style on one end.

Faceplates

Use of faceplates is to accommodate the T568A/B and LC connectors terminating UTP/ScTP copper and optical fiber cables. The individual components and work area system must be manufactured by CommScope or approved by written Bedford County Technology policy. Each single gang faceplate must be, at minimum, a quad modular connector style. Any unused positions will be covered by blank inserts.

Equipment Cords

Equipment cords are used to connect the TO to the user equipment. Maximum length is 5 m (16 ft). Where communication devices are located farther away, it will be required to move the TO closer to the user equipment. Except for temporary emergency repairs only factory terminated and tested modular cords are allowed. All equipment cords will use UTP/ScTP 24 AWG stranded wire.

Data Cords

In addition to the specifications under Section 4, all data equipment cords will be 4-pair UTP/ScTP category 6a cords terminated with T568B connectors. Data equipment cords will be color coded blue either with blue colored boots (optional) or the entire cord (preferred).

Telephone/Voice Cords

In addition to the specifications under Section 4, all telephone/voice equipment cords will be UTP (at least Category 6A) cords terminated with a T568A connector on the TO end and a 8P8C modular plug on the user end. Telephone/voice cords will be color coded white either with a white boot on the TO end (optional) or the entire cord (preferred). As an acceptable option, a T568 plug to 8P8C jack adapter can be used with a standard 4/6 conductor modular cord.

Computer to AV Device Connections

From the teaching computer outlets, a minimum of (1) USB and (1) HDMI cable per application is required. AV connections shall be located in a separate connection from the locations data connections. Acceptable AV extending solutions will include, low skew twisted pair cables, and or approved electronic extending solutions. BCBOE must approve any AV extending solution prior to award or install.

5. Pathways and Spaces

General

This section covers horizontal pathways, intra-building pathways, WA (work areas), TR (telecommunications rooms), ER (equipment rooms), EF (entrance facility), and fire stopping. The telecommunications industry has changed the terminology from TC (telecommunications closet) to TR (telecommunications room) to better reflect the real needs of this component. The primary function of the TR is termination and cross-connection of horizontal and backbone cables. The primary function of the EF is demarcation from service providers and customer premises cabling. The primary function of the ER is a controlled environment to house telecommunications equipment. These may be separate rooms/facilities or combined.

Horizontal and Backbone Pathways

The primary means of supporting or protecting cable in horizontal pathways is either conduit, trays, in ceiling or any combination of these and may include pull boxes. Conduit should be avoided because of its inflexibility except for through floor sleeves, ground wire protection, in-wall stub-ups for outlets, or as required by local codes. Maximum length of conduit shall be 30 m (100 ft) between pull boxes. No section of conduit shall have more than 180 degrees of bend between pull boxes. The inside bend of conduit shall be at least six (6) times its internal diameter. Any conduit run can serve no more than three (3) outlets.

Cabling Supports

All low voltage cabling must be properly supported with the outlined acceptable support types per NEC code 334.40. Where nonmetallic cable is installed horizontally through holes or notches in framing members, it is considered supported and not required to be secured. Also, where nonmetallic cable is fished within walls, it does not require support or fastening. In dwelling units within an accessible ceiling, support for the cable can be 4 ½ ft. from the last point of support to a connection to a luminaire or other piece of electrical equipment.

Main Pathway – **Cable tray** is preferred, but properly installed and spaced **J-hooks** will be options that may be approved as well.

Branch Pathways - properly installed and spaced **J-hooks** or **small cable tray** will be required. Conduit may be required for certain pathway scenarios. Conduit is required in exposed ceiling areas.

Telecommunications Room

A telecommunications room TR shall be located on each floor as close as practical to the center of the floor space and preferably in the core area. Additional TRs shall be provided when the horizontal distribution distance to the WA exceeds 90 m (295 ft). The TR shall be dedicated to the

telecommunications function and related support facilities and not shared with electrical or HVAC installations nor shall water pipes, ductwork, pneumatic tubing, etc. pass through the

Equipment Room

The equipment room ER is a centralized space for telecommunications equipment such as PBX, computer servers and video switches. As stated previously the ER and TR can be the same room. Avoid areas that limit expansion such as elevators, core, outside walls, or other fixed building walls. The ER shall be accessible for delivery of large equipment.

Fire stopping

Fire stopping is **REQUIRED** for all penetrations involving any activity under this contract that would disturb fire ratings governed by the local AHJ. Fire ratings as they pertain to wall, ceiling, or floors. A qualified system or design approved and tested by an independent laboratory for use in the specific penetration. The function of the fire stop is to prevent fire, smoke, or water from passing through a barrier.

Grounding and Bonding

Proper grounding and bonding is **REQUIRED**. The grounding and bonding specification is derived from a combination of the NFPA NEC Article 250 and Chapter 8 and TIA/EIA-607. It provides a telecommunications grounding infrastructure within buildings that use telecommunications equipment and cabling. The telecommunications grounding infrastructure in conjunction with the building's electrical power grounding system and lightning protection system make up the building grounding system. The infrastructure provides a ground reference for telecommunications systems within the EF, TR, and ER. It also bonds pathways, cable shields, conductors, and hardware within those areas.

Bonding refers to the permanent joining of metallic parts. This can be accomplished either by an exothermic weld or by irreversible two-hole compression connectors. Non-bonded grounding connections only require an irreversible one-hole compression or screw/bolt connector. The minimum gauge of wire is 6 AWG, but can get as large as 3/0 AWG. It should be noted that this is in the process of being upgraded to larger conducts dependent on distance in the near future. The grounding conductor is either green insulated or marked with green tape, but should never be a bare conductor.

6. Administration and Testing

Testing

All testing is to be done with an approved Level III tester, such as Fluke DTX 1800. All test results must be verified and submitted electronically to Bedford County for commissioning purposes.

Labeling

Administration is the method for labeling, identification, and documentation during initial installation and as needed to implement moves, additions, and changes of the telecommunication infrastructure. TIA/EIA 607 labeling standard should be used on all installations.

See a representative of the technology department for current labeling methods for infrastructure cabling prior to beginning any cabling project for the district.

7. General Guidelines

Placement of Cables

Cables and components shall be visually inspected for proper installation. Cable stress such as tension in suspended cables or tightly cinched bundles should be minimized. Cable ties used to bundle cables should be applied loosely (hand tight) to allow the cable tie to slide around the cable bundle. Cable sheath shall not be deformed either by ties or placement. Velcro hook and

loop cable ties or ISO 9000 complaint lightweight twine may be used. **Nylon cable ties are not permitted.**

UTP/ScTP Cables

The minimum bend radius, under no-load conditions, for 4-pair UTP cable shall be four (4) times the cable diameter, eight (8) times for 4-pair ScTP cable, and ten (10) times for multipair cable. Maximum pulling tension for 4-pair UTP cable is 110 N (25 lbf), use manufacturer's guidelines for other cable types. Cables shall be terminated with category 5e (or higher) connecting hardware. This includes: impact terminal blocks, patch panels and cords, and cross-connect jumpers. To maintain cable geometry, remove only as much cable sheath as necessary to terminate the cable pairs as per manufacturer instructions.

Optical Fiber Cabling

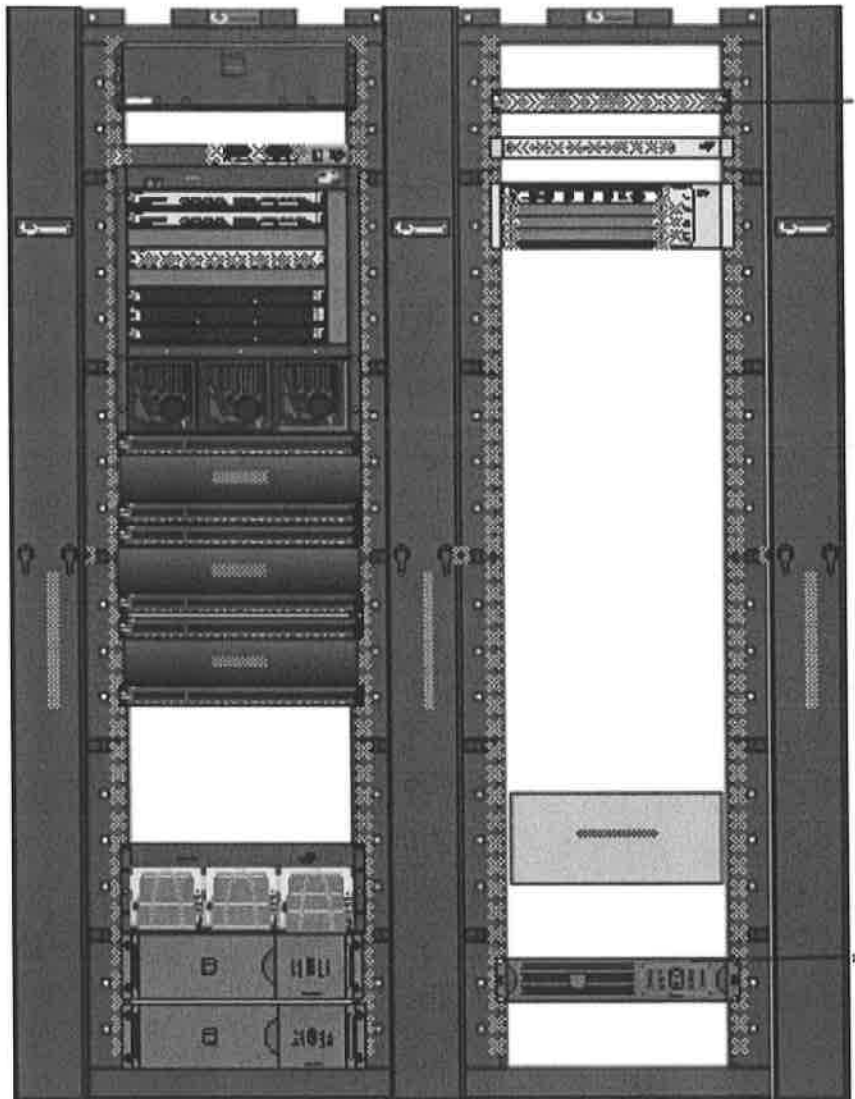
Fiber optic cables terminated in any location other than a work area (TO) must use LC type connectors. Multi-mode fiber optic cable must be 50-micron core unless specified otherwise for use in specialized applications. The bend radius for intra-building 2- and 4-fiber horizontal optical fiber cable shall not be less than 25 mm (1 in) under no-load conditions. When under a maximum tensile load of 222 N (50 lbf), the bend radius shall not be less than 50 mm (2 in). The bend radius for intra-building optical fiber backbone cable shall not be less than that recommended by the manufacturer. If not known, then the bend radius shall not be less than ten (10) times the cables outside diameter under no load and not less than 15 times under tensile load. Each cabling segment shall be installed such that odd numbered fibers are Position A at one end and Position B at the other end, while even numbered fibers are Position B at one end and Position A at the other end. This will maintain which fiber is transmit and receive in duplex applications. Optical fiber patch cords shall consist of 2-fiber cables of the same type as in the optical fiber channel with factory-installed connectors on each end.

Connecting Hardware

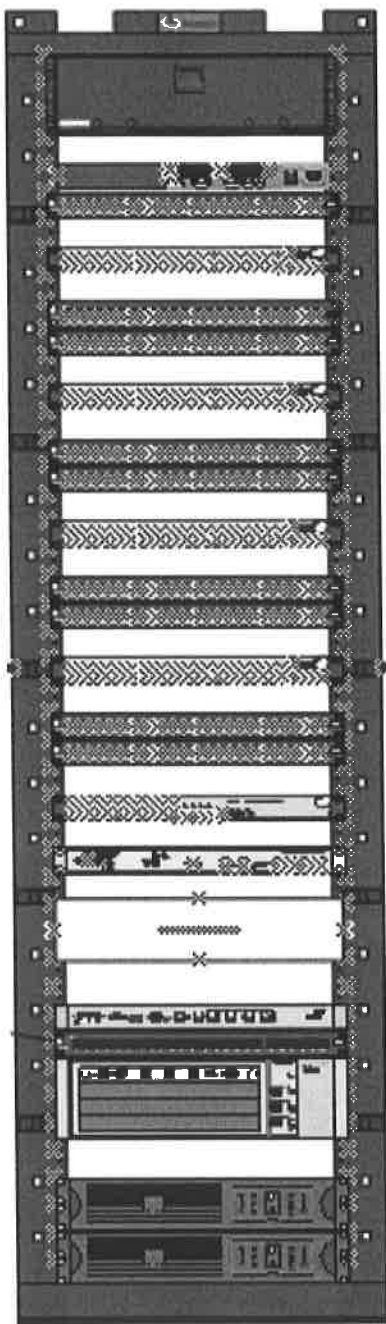
Horizontal and backbone cabling will be terminated on connecting hardware that meets ANSI/TIA/EIA-568-B.2 and -B.3. These terminations shall not be relocated to implement cabling system moves, adds, or changes. All connections between horizontal and backbone cables shall be cross-connections consisting of cross-connector jumpers and terminal blocks or patch cords and patch panels. Situations in which telephone/voice terminations are terminated on category 6a 110-style terminal blocks, a service loop (described in section 8.2) long enough to reach a logical rack placement in the TR is required. Data/LAN terminations shall be on category 6a patch panels. Other category 6a solutions may be approved by Bedford for special or non-standard applications including equipment manufacturer requirements including 66-style, Krone, and/or BIX termination blocks. Whether installed on walls or in racks, connection hardware must be organized with sufficient space for orderly cable management.

Appendix B - Reference Diagrams

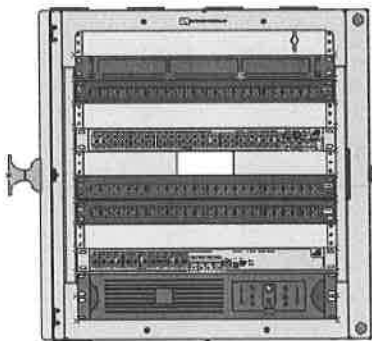
Typical ER / MDF



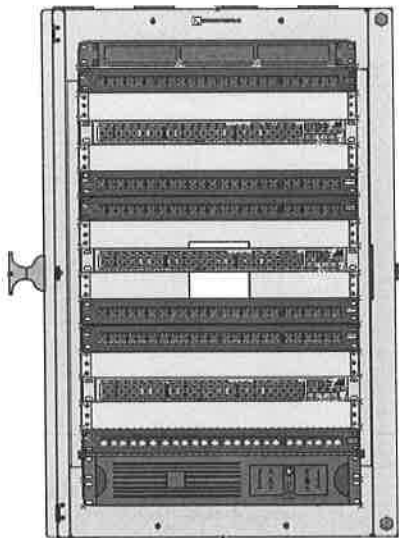
Typical TR/IDF locations



24" Cabinet



36" Cabinet



Locating Racks or Cabinets in ER/TR rooms

