

Henderson County Public Schools: New Edneyville Elementary School

Structured Cabling Statement of Work

A. GENERAL

- a. Specifications/Guidelines for the RFP: New Edneyville Elementary School: Data, Phone, Fiber, and WAP Cabling**

B. CONTRACTOR QUALIFICATIONS AND REQUIREMENTS

- a. Contractor shall design and provide all materials in order to install a structured cabling solution supporting voice, intercom, and data. The contractor shall be responsible for providing a communications infrastructure compliant to current standards; including the procurement of products, installation of cabling infrastructure, fire stopping, verification of performance, and documentation.**
- b. Contractor must possess a valid NC contractor's license, and BICSI Certification**
- c. Contractor employees shall act in a professional manner, and dressed appropriately for the task. No person shall bring alcoholic beverages, controlled substances, firearms, tobacco, or animals to the job site.**
- d. Contractor shall clear the work area every evening. If available space exists, contractor equipment and materials may be stored at the facility with approval of the Owner. All packing material shall be disposed of at the end of each day. The Owner will not be responsible for the loss, theft, or damage of any equipment or material.**
- e. Contractor shall follow the security policies and procedures defined by the Owner. This may include providing key access, creating access badges, and escorts for restricted areas.**
- f. The Contractor shall take all precautions necessary to protect existing structures and furniture. Any items that are damaged during the course of the work shall be repaired or replaced by the contractor at no cost to the Owner.**
- g. Owner will provide the contractor with reasonable access to the job site Monday-Friday 8-5 (Federal / State holidays excluded). The**

Owner must approve any work that requires access outside of these parameters.

- h. Contractor shall take special precautions to ensure a safe work environment for the employees, contractors, and visitors.**
- i. Contractor will make a reasonable effort to not be disruptive to other contractors, or working staff at the job site.**
- j. Contractor will install only material that is new and undamaged. Refurbished or used materials are not acceptable.**
- k. Owner expects the workmanship to be of high quality. All equipment shall be plumb and true with the structure. All materials shall be firmly secured in place, adequately supported, and permanent.**
- l. Owner will consider the project complete when all work has been completed, the final documentation has been delivered, and the work site has been cleaned to the Owners satisfaction.**
- m. Contractor agrees to replace or repair, as new, any defective work or materials, which are identified by the Owner within 2 years of final payment.**

C. CODES, STANDARDS, AND BEST PRACTICES

- a. All work and materials shall be in full accordance with the latest codes, standards, and best practices. It is the responsibility of the Contractor to have access to each document. In the case that one of the following documents has a ratified update or addendum; it shall be incorporated into this scope of work. If multiple documents provide different requirements, the strictest requirement shall be followed. Not all documents may apply to this project.**
 - i. ANSI/TIA/EIA - 568-B.1 - Telecommunications Cabling Standard, Part 1: General Requirements (including all the latest**
 - ii. ANSI/TIA/EIA - 568-B.2 - Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components**
 - iii. ANSI/TIA/EIA - 568-B.3 - Telecommunications Cabling Standard, Part 3: Optical Fiber Cabling Components Standard**
 - iv. ANSI/TIA/EIA – 526-7 – Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant**
 - v. ANSI/TIA/EIA – Measurement of Optical Power Loss of Installed Multimode Fiber Cable Plant**
 - vi. ANSI/TIA/EIA - 569-A Pathway and Spaces**
 - vii. ANSI/TIA/EIA – 606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings (labeling identifiers will be provided by Owner)**

- viii. ANSI/TIA/EIA – 607-(A) Commercial Building Grounding/Bonding Requirements
 - ix. NFPA 70 – 1996
- x. ANSI/TIA/EIA-942 – Telecommunications Infrastructure Standard for Data Centers
- xi. ANSI/TIA/EIA-758-(A) – Customer-Owned Outside Plant Manual
- xii. BICSI - Telecommunications Distribution Methods Manual (latest edition)
- xiii. BICSI - Cabling Installation Manual (latest edition)
- xiv. BICSI – Customer-Owned Outside Plant Design Manual (latest edition)
- xv. FCC 47 CFR 68
- xvi. NEMA – 250
- xvii. NEC - Articles 770 and 800
- xviii. ADA - Americans with Disabilities Act
- xix. ISO/IEC 11801 (International) Generic Cabling for Customer Premises Standard (including all the latest amendments and applicable addenda)
- xx. All Federal, State, and Local Codes

D. Definitions

- a. **Data Connection:** A horizontal cabling solution that consists of a UTP cable terminated on a Data Jack at the work area outlet, and a Data Jack in a modular patch panel within the ER or TR. This connection will support data and/or VoIP connections.
- b. **Data Jack:** A Category 6a connector used to terminate a single UTP cable for data and/or VoIP communications..
- c. **Outlet Box:** A housing to protect Data and Voice Jacks at the Work Area.
- d. **Telecommunications Room (TR):** An enclosed space that is used for horizontal cross-connects, and telecommunications equipment.
- e. **Equipment Room (ER):** An enclosed space that is used for housing main cross-connects, horizontal cross-connects, and telecommunications equipment.
- f. **Telecommunications Space (TS):** A generic term for a space that houses main cross-connects, horizontal cross-connects, and telecommunications equipment.
- g. **VoIP:** Voice over Internet Protocol
- h. **Work Area:** A building space where the occupants interact with Telecommunications equipment

E. System Design and Clarifications

- a. **The goal of this project is the installation of a structured cabling system for data.**
- d. **2, 4, or 6 position faceplates shall be installed at each work area outlet appropriate to the need. Each port shall be numbered with ER Room number, patch panel, and port location, (eg 136-A-1 ie ER136 Panel A Port 1) from left to right, top to bottom. The data jacks shall be placed in Port #1 (required) and Port #2 (required), and the traditional voice jack (POTS) shall be placed in Port #3, etc...(when specified by the owner), Blanking panels (matching in color) shall be installed on all unused ports**
- c. **All data connections shall use Category 6a Cable terminated on Category 6a Jacks (one on each end). The cable should be Blue in color.**
- d. **Cat6a UTP Patch cords, 1 foot in length, are required in the ER /TR. Installation of patch cords to be coordinated with HCPS personnel after switching is installed.**
- e. **Contractor assumes all existing pathways are free and clear and additional work will be done as a change order.**
- f. **All cabling should be pulled to the appropriate ER/TR**

F. Execution

Edneyville Elementary School – New Construction

- i. **Furnish and install as needed, Cat6a cabling, cabling hangers, j-hooks, cable trays, jacks, wall boxes, plates, patch panels, equipment racks, and all needed appurtenances, for 276 drops in classroom and office spaces. Each port shall be numbered with ER/TR room number and patch panel location. Examples 122-A12, 122-B5, 122-C10, etc...and should be marked the same on the patch panels in each ER/TR and the MDF**
- ii. **Furnish and install as needed, Cat6a cabling, cabling hangers, j-hooks cable trays, jacks, ceiling boxes, plates, patch panels, and all needed appurtenances, for 140 network drops in classroom and office space ceilings and or wall(s) as indicated in certain locations as well as an appropriate length cat6a patch cable from each box to the location of the AP. Dual outlet boxes shall be installed on the ceiling of each work area appropriate to the need. Each port shall be numbered as follows : AP01a, AP01b, AP02a, AP02b, etc..., and should be marked the same on the patch panels**
- iii. **Locations and number of drops to be installed are marked on electrical plans and drawings provided.**

- iv. Install Firestopping on all utilized communications conduits, sleeves to re-establish the integrity of the fire rated walls or floors.
 - v. Install 2 Fiber optic lines in between each ER/TR and the MDF. All fiber to be terminated with LC connectors and in tray with appropriate kits.
- a. (2) 9/125 single-mode (OM4) 12 strand fiber cable between each ER/TR and MDF
- vi. Any pull strings used to facilitate the transfer of cables or fiber should be replaced.
 - vii. Requests for minor changes such as the addition of network port locations must be provided at the same unit price as the original bid, with no additional charges.
 - viii. Cabling work must take place after conduit and wall and floor mount boxes have been installed and before the walls and ceiling are finished

G. Documentation

a. Performance Test Results

- i. The contractor shall provide tester generated documentation for the Voice Connections and Data Connections.
- ii. The results shall be provided in hard and soft copy formats. The soft copy results shall be provided on CD-R media, in a non-proprietary format.

H. Products

- a. All products shall be installed in compliance with the manufactures instructions. The Owner has identified products, which are approved for this installation. **No substitutions of identified products shall be allowed without approval.** This will ensure a quality installation, guarantee performance, and reduce on-going maintenance costs for the life of the solution.
- b. This is not a complete parts list. Additional products may be required to complete this installation.
- c. Horizontal Cabling: The horizontal cabling solution must conform to the Category 6a Cabling Specification. Plenum cable shall be used.
- d. UTP Cable
 - 1. The cable jacket for data drops shall be plenum rated and blue in Color.
 - 2. The cable to be used for intercom/voice drops shall be plenum rated and white in color.
- e. Connectivity
 - 1. The workstation jack to be used for data drops is a Panduit jack. Data jacks should be blue in color.

2. The workstation jack to be used for voice drops is the Panduit jack.
Voice jacks should be white in color.

f. Faceplates

1. The faceplates shall be the Panduit 2,4 or 6-port Faceplate
Appropriate to the location, that is white in color.

g. Patch Panels

1. The patch panels shall be a 48-port modular patch panel by Panduit.

h. Keystone Jacks

1. All Jacks should be Panduit keystone jacks for compatibility with
existing systems

i. Equipment Racks

1. The Equipment racks should be Chatsworth 2 post racks.
2. There should be (2) two racks installed and bolted to floor and walls
with appropriate ladders, vertical wire managers, and wiring supports in the
MDF, and (1) one rack installed and bolted to floor and walls with appropriate
ladders, vertical wire managers, and wiring supports in each other ER/TR