



Legacy Support Services dba: LevelOne Technology

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## ***Certified Structured Cabling System for the Consolidation of MDF/IDF Closets***

**Prepared for:**



**Stephenville ISD**

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**The following quote is submitted following an onsite survey of the Stephenville ISD facilities and existing network infrastructure wiring.**

LevelOne Technology is providing this Statement of Work (SOW) for OSI Layer 1 turn key design, installation, labeling and testing for the Stephenville ISD MDF/IDF consolidation project.

**Overview/Solution:**

Over the past several years, the Stephenville ISD Technology team has been in the process of consolidating MDF/IDF technology closets. The long term benefits of consolidating closets are many: fewer points of failure, decreased network hardware costs, decreased support costs, management efficiencies etc.

SISD currently has four campuses that require significant consolidation. One of the most significant challenges associated with the consolidation is whether to try to “salvage and relocate” any existing network connections (data/fiber cables) that are in place or to install all new network connections.

Challenges associated with “salvage and relocate” option:

- Time/Cost required to identify viable existing cables
- Time/Cost required to identify which cables can be relocated i.e.: are they long enough? How are they currently routed?
- Time/Cost to physically remove and relocate existing viable cables
- Network down time is significant in this scenario
- No warranty on salvaged cabling, could result in future costs

Based on the information gathered during the surveys of each facility, it is the opinion of LevelOne Technology that it is more economical for Stephenville ISD to install a new “parallel” structured cabling system and temporarily leave the existing wired network running and in place. On completion of the new cabling system(s), LevelOne will work directly with the SISD staff to determine and schedule the most efficient methods and times that the cutover(s) will occur.

LevelOne has successfully implemented and managed this same install/cutover process in several K-12 school districts, hospitals and commercial businesses.

The quotes provided by LevelOne include the complete installation, termination, labeling and testing of all data lines and Multi Mode Optical Fiber strands/connections. This quote does not include any active network hardware such as switches, routers, wireless access points, speakers, projectors and/or servers. The quotes quantities are based on information provided by the Stephenville ISD Technology Staff and the site survey. All quantities and pricing will be adjusted based on final counts and requirements.

Add/delete price is provided in the proposal documents.

Based on the most recent information, the LevelOne proposed solution consists of the following:

- High School Campus (PVC Environment)

Install, terminate, and test 14 new data cables from the new IDF in the volleyball area to the appropriate WAO (eliminating the IDF in the soccer closet).

Install, terminate, and test 37 new data cables from the 500 hall IDF to the appropriate WAO (eliminating the IDF in ATH 1).

Install, terminate, and test 28 new data cables from the V12 MDF to the appropriate WAO (eliminating the use of V24 office as an IDF).

Install, terminate and test required MM Fiber to connect MDF/IDF.

- Junior High Campus (Plenum Environment)

Install, terminate, and test 100 new data cables from the new IDF in closet 202 area to the appropriate WAO (eliminating the IDF 208).

Install, terminate, and test 58 new data cables from the IDF 218 to the appropriate WAO (eliminating the IDF in Room 113).

Install, terminate and test required MM Fiber to connect MDF/IDF.

- Hook Elementary Campus (Plenum Environment)

Install, terminate, and test 80 new data cables from the new IDF in closet 208 area to the appropriate WAO (eliminating the IDF in the Library).

Install, terminate, and test 50 new data cables from the IDF 208 to the appropriate WAO (eliminating the IDF in Room 111).

Install, terminate and test required MM Fiber to connect MDF/IDF.

- Intermediate Campus (Plenum Environment)

Install, terminate, and test 268 new data cables from the new MDF in closet of the Lab to the appropriate WAO (eliminating the MDF in the open space of the Library).

Install, terminate and test required MM Fiber to connect MDF/IDF.

- FLUKE OF-400 OTDR Testing for all strands of fiber with results provided to owner
- FLUKE DTX 1800 Testing for all CAT5/6 cables with results provided to owner
- All drops labeled at the closet end and the work area outlet.

**NOTE: In order to stay consistent with the existing cabling infrastructure throughout each facility, the High School will be cabled with CAT 6, while the Junior High, Hooks Elementary and the Intermediate School will be cabled with CAT 5e.**

Each horizontal CAT 5e/6 cable will be terminated on a modular patch panel in the associated MDF/IDF. The “workstation” end of the cable will be terminated and mounted in a wall mounted faceplate or an appropriate modular furniture faceplate for the application.

The quote is based on LevelOne utilizing Industry Leading On-Site Installation Technicians to perform the scope as listed in this document, not to exceed the listed price based on the original building plans and original counts.

## **PROJECT PARAMETERS**

LevelOne will provide a Leviton/General Manufacturer’s 20-year Product warranty on the cabling materials and labor.

LevelOne will manage and install the project with full time employees, LevelOne will also offer updates to the appropriate Stephenville staff as requested.

LevelOne is proposing completion within the parameters and schedule.

LevelOne fully understands the requirements to successfully install a new network with a minimum of disruptions to the day to day operation of the Stephenville ISD. LevelOne will coordinate with Stephenville ISD representatives before the installation begins.

All work performed under this scope will strictly adhere to the latest Stephenville ISD Infrastructure standard.

LevelOne will act as a central point of contact for the communication cabling implementation in the facility. All services will be provided in accordance with the provided specifications, as well as Stephenville ISD, manufacturer, and industry standards.

## **LevelOne Service Deliverables:**

### **Centralized Project Management**

- The main point of contact at LevelOne for project related communication is Braden Downs, [braden\\_downs@levelonetechnology.com](mailto:braden_downs@levelonetechnology.com) (254-749-7662)
- Additional Contacts are:  
Brandon Armstrong, [Brandon\\_armstrong@levelonetechnology.com](mailto:Brandon_armstrong@levelonetechnology.com) (254-214-8166)  
Chip Thompson, [chip\\_thompson@levelonetechnology.com](mailto:chip_thompson@levelonetechnology.com) (254-214-7681)
- LevelOne will coordinate installation activities in conjunction with Stephenville ISD planning personnel and/or construction managers.

- No additional work will be performed unless approval has been received.
- Technicians will have proper LevelOne identification.

### **LevelOne Methodology**

This section starts from the point of deployment, and assumes all back office scheduling and preliminary site support is completed. This methodology is considered to be in the preliminary phase as this is a proposal; these methods are *suggested* and can be modified to fit the project more precisely upon receipt of additional information.

- LevelOne will staff the required number of technicians to install the specified system.
- LevelOne will execute a sign-off form verifying completion for each project stage.

LevelOne will complete the following as part of this project prior to deployment:

- In-Person Design Programming Meeting in conjunction with the Stephenville ISD engineering and consultant personnel.
- Preliminary layout of site.

### **Leviton/General Structured Cabling Solution**

The Leviton/General structured cabling system carries a 20-year manufacturer's warranty on all installed labor, cabling and passive connectivity hardware.

### **Work Area Outlets (WAO) / Horizontal Cabling**

#### **1     CAT 5e/6 Cable and CAT5e/6 Jacks**

CAT 5e/6 cable will be utilized in the horizontal cabling. Per EIA/TIA Standards, cable will be run "perpendicular and parallel" to the building structure wherever possible. CAT 5e/6 Modular inserts will be utilized in a faceplate at the workstation end for data applications. The inserts will be colored as per application and in compliance with specifications.

#### **2     Fiber Infrastructure**

A Corning Laser Optimized 50/125 um 10 gig armored 6-strand Multi Mode optical fiber cable will be installed from the Elementary IDF to the Elementary Gym. All strands will be terminated with Corning UniCam

SC Connectors. Each strand of fiber will be tested and certified via OTDR. 100% of fiber strands will be certified. 3 Meter duplex SC-LC Laser Optimized fiber patch cables are also included in the proposal cost.

### **3 Faceplates and Additional Cable Terminations**

- 3.1 At each Work Area Outlet and specific to the outlets application, LevelOne will provide and install a faceplate designed to accept snap-in inserts and equipped with a label field and cover. LevelOne will install surface mount faceplates wherever possible, if they cannot be accommodated, a Biscuit type will be installed.
- 3.2 Each 4-pair data cable will be terminated on a CAT5e/6 insert and snapped into the faceplate. Any open faceplate ports will be filled with a blank insert.

### **4 Structured Cable System Routing**

- 4.1 LevelOne will install each cable from the specified rack in the designated closet to the appropriate work area outlet as identified on the project prints and/or at the direction of the Stephenville ISD staff. All cables will be routed in the overhead ceiling space and placed into a cable support system consisting of newly installed J-hooks.
- 4.2 Any floor cores are to be provided by others.
- 4.3 Patch Panels for Voice and Data Termination
  - 4.3.1 Loaded 24 or 48 port Patch Panels will be utilized in the Distribution Cabinets or Racks for the termination of the CAT5e/6 horizontal station cables.
  - 4.3.2 Corning Rack Mount Fiber enclosures will be installed in the MDF and IDF for the Fiber terminations.
- 4.4 Wire Managers
  - 4.4.1 LevelOne will place one (1) Horizontal Wire Manager above and below each patch panel. This will ensure neatness in all cable dressing.
- 4.5 Equipment Racks and Cabinets
  - 4.5.1 LevelOne will and install cabling into existing or new racks or wall mount racks in each MDF/IDF in the facility. These racks will house all copper, fiber and networking components.

- 4.5.2 All Racks will be properly grounded in accordance with EIA/TIA 5E07 and Stephenville ISD Standards. Earth Ground Provided by Others.

## **5 Fire Stopping**

- 5.1 LevelOne has included labor and material for the fire stopping of all necessary telecommunications penetrations that may be required.  
Products:

- Fire Stop Caulk for Conduits – HILTI FS5E01
- Fire Stop Putty for Bare Penetrations – HILTI FS5E11A
- Fire Stop Pillows, Box of 20 – Nelson AA500

### **CAT5e/6 Testing, Fiber Testing**

All 4-Pair, CAT5e/6 UTP cables will be tested and certified with a Fluke DTX-1800. The cable testing will be equipped with the latest software available. The tester will measure the electrical characteristics of the cable using a true frequency sweep method, similar to that of high-end laboratory style testing equipment. Each test will be conducted from the Horizontal Cross connect to the workstation outlet. All cable pairs and terminations will be tested for continuity including shorts, opens, crosses, splits, and wire mapping.

- Length (ft)
- Impedance (ohms)
- Resistance (ohms)
- Capacitance (pF)
- Attenuation (dB @ 250 MHz)
- Near End Cross Talk (NEXT; dB @ 250 MHz)
- Return Loss
- Delay Skew
- Pair to pair Power Sum Cross Talk (ELFEXT; dB @ 250 MHz)
- Attenuation to Crosstalk Ratio (ACR; dB @ 100 MHz)
- Additional EIA/TIA Cat 6 requirements

- 5.2 Hard-copy results for each UTP CAT 6, 4-pair cable will be submitted as part of LevelOne's project performance acceptance records. In addition to the above information, the documentation will also include a pass/fail indication for the specified cable, the test date, and the serial number and software version of the scanner.
- 5.3 All fiber will be tested and certified with a FLUKE OF-400 OTDR. Test/Certification results will be provided to Stephenville ISD on Completion of the project.

## 6 **Labeling**

- 6.1 Labeling provided by LevelOne will be typed or computer printed. The labeling convention will be as per the drawings and specification provided by Stephenville ISD or otherwise requested prior to construction. At such time, a jointly agreed upon labeling convention will be incorporated into LevelOne's pre-construction plan.
- 6.2 Items that will be labeled include:
- Work area telecommunications outlets
  - Telecommunications closet connecting hardware (i.e., terminal blocks, patch panels)
  - Telecommunications cable (i.e., backbone fiber/copper, horizontal) The cables will be labeled on each end.

### **PROVISIONS**

Any additional work not specified in this scope of work or any additional work request from customer may result in a change order.

This quote does not include hardware, mounting devices or labor to install speakers, wireless access points, rack and stack of switches etc.

Project delays outside of LevelOne's control, including but not limited to delay by other trades or customer, could result in additional cost to customer.

This quotation assumes that all existing and new conduits are properly sized and that any new conduits, power poles, core holes, sleeves, power poles and floor boxes, not mentioned in the above scope of work, will be provided by owner.

Main building ground attachment and riser TGBB's to be provided by others.

### **Stephenville ISD:**

Signature: \_\_\_\_\_  
Printed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

### **Level One Technology:**

Signature: \_\_\_\_\_  
Printed: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

Please see attached for bill of materials