Summary

This document identifies Tarleton State University communication infrastructure standards. The communication infrastructure supports the campus voice, data and cable television communication network. Prior to any cable being pulled at or for Tarleton, Information Technology Services is required to obtain approval from the Director of Risk Management to certify the cable route is asbestos free. Any Contractor doing business on Tarleton's behalf is required to comply with these specifications. Any deviation from these specifications requires written authorization from the Tarleton ITS Project Manager.

Contractor shall purchase and install components for a structured cable system utilizing a Belden/Ortronics integrity solution. Ortronics provides Tarleton with a 15-year system and applications warranty on all parts and labor. Warranty commences at the time of completion. Contractor Technicians must Belden/Ortronics integrity certified installers and are authorized to provide cable warranty certifications.

Quality Assurance
Tarleton uses and installs materials and equipment in compliance with the latest applicable standards from ANSI, FCC, ASTM, TIA/EIA, IEEE, NEC, NFPA, NEMA, REA and UL includes but not limited to.

1. ANSI/TIA/EIA-568-C.0 and C1 Standards, Commercial Building Wiring Standard
4. ANSI/TIA/EIA-606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
5. ANSI/TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications
6. Institute of Electrical and Electronic Engineers (IEEE) Standards
7. Underwriters Laboratories (UL)
   i. UL 467 Grounding and Bonding Equipment
8. National Electrical Code (NEC) (Latest revision and pertinent addendums)

**Cable Plant Requirements**

Information outlets for data and voice communication shall be fed using the horizontal cable system. The horizontal system consists of plenum rate 4-pair Unshielded Twisted Pair (UTP) Belden cable (CAT 6). Information outlets will accommodate future installation of telephone, computers, and modems.

A. Horizontal Wiring System (voice & data)
   1. Tarleton Cable pulls are no longer than 270 feet. Longer pulls must be pre-approved by Tarleton Telecom prior to installation.
   2. CAT 6 is cable is orange for data and white for voice. It is used for all new construction or if specifically requested.
   3. EIA-568B termination sequence is always used.
   4. A 36” service loop is provided in the ceiling above each jack location for all copper cables. These service loops shall be neatly dressed and properly supported.
   5. Voice cable is terminated on a Cat6 Patch Panels in the closet and RJ45 flush mount jacks at work station.
   6. Data cable is terminated in 19” equipment rack mounted Ortronics patch panels in the closet and RJ45 flush mount jacks at the work station.
   7. Caddy J hooks are installed to support all horizontal cables. J hooks are to be installed no more than five (5) feet on center and are installed using only Caddy approved installation methods and materials.
   8. All conduct, sleeves or any other penetrations are properly fire-stopped.
9. Grounding and bonding consists of a minimum number 6 AWG copper wire fed from an approved building ground and bonded to an approved electrical earth ground.

10. All conduits for data and voice workstations will be stubbed out the nearest cable tray.

11. Contractor must provide a current and complete Project of Requirements, floor plans with voice and data locations including room numbers and any additional drawings or information required to successfully take eventual ownership and to maintain telecom infrastructure in new building.

12. Contractor must provide documentation detailing labeled workstations with corresponding room numbers.

B. Equipment Room
   Contractor must use the appropriate Industry codes and standards. Contractor must submit a proposed layout to Tarleton Telecom for approval prior to 100% design completion.

C. Intrabuilding Fiber Optic Cable
   Contractor is responsible for installing, terminating, labeling and testing any required intrabuilding fiber. Contractor must submit a proposed cable route to Tarleton Telecom for approval prior to 100% design completion.

D. Intrabuilding Copper Cable
   Contractor is responsible for installing, terminating, labeling and testing any required intrabuilding fiber. Contractor must submit a proposed cable route to Tarleton Telecom for approval prior to 100% design completion.

Testing

A. Each data run is tested to compliance with ANSI/TIA/EIA standards, including but not limited to, continuity, length, anomalies, and attenuation.
B. Records are submitted for all test results.
C. Fiber terminations are outsourced but require bi-directional OTDR testing, including launch and landing reel as well both wavelengths for each type of fiber specified.
D. All Ethernet cabling must be tested as a channel test with the patch cords provided by the contractor. These patch cords must be left in place at the patch panel and workstation after testing.

Identification, Labeling and Documentation

A. Contractor shall labels all terminal blocks, patch panels, cabling pairs, wiring pairs, and both ends of each cable between the work station outlet and the closet.
B. Contractor shall uses a mechanically generated white label with black lettering to label both the outlet face plates and patch panel.
C. Tarleton's labeling scheme is customized.

Work Station Label: Closet # - Patch Panel # - Patch Panel port#
MDF and IDF Patch Panel Label will be the Work Station room #.

Approved Equipment List

Fiber: Corning
- Inside Fiber-XXX-E88-33131-D3
- Outdoor Fiber-XXX-EUC-T4101D20
- Rack Mount Fiber Cabinet (item CORNING CABLE SYSTEMS CCH-0#U)
- Wall Mount Fiber Cabinet (WCH-#P)
- Fiber pigtails cassettes CCH-CS##-A9-P00RE (single jacket, single armor, OS2)
- Fiber is to be fusion spliced to a manufactured fiber jumper instead of terminations being made.
- LC connectors
- Fiber cassettes for Cable TV CCH-CS06-6C-P00RE 6f SM APC Pigtailed Cassette

Copper: Essex PE-89
- The voice cables will be jumped with a 25 pair cables from the Circa to an Ortronics patch panel.
- The horizontal voice will be terminated on an Ortronics patch panel.
- Building Entrance- Circa 1880ECA1-100G for 100 pair backbone cable
  The voice cables will be jumped with a 25 pair cables from the Circa to an Ortronics patch panel part #. OR-PHD-66U48

The horizontal voice will be terminated on an Ortronics patch panel.

Voice & Data Workstation Wiring: Belden/Ortronics (EIA-TIA 568B)
- Cable: Belden Cat6 (item # 2413), Data - Orange

Hardware, general- Ortronics
- Faceplates (item # OR-40300158)
- Blanks (item# OR-40300164)

Hardware, Cat 6 - Ortronics
- Single Data or Voice Jack (item # OR-S21600)
- Double Data or Voice Jack (item # OR-S22600)
- 6 ft. Patch Cord (item # OR-MC606, orange)
- 15 ft. Patch Cord (item # OR-MC615, orange)
- Patch Panel (item # OR-PHD-66U48)

Note: The contractor will provide 2 patch cords per phone and data drop.
The split will be 15 ft. (50), and 6 ft. (50%)
The contractor will provide 1 LC-LC 3 meter fiber jumper per fiber termination

Equipment Racks

**Chatsworth Products, Inc.**
15212-703, Rack
13902-703, 6” Wire Manager
13930-702, Horizontal Wire Manager

Chatsworth Cable Runway will need to be provided through each MDF and IDF

Cable tray must be installed throughout the cable path.

**Cope Cat-Tray Wire Mesh Cable Tray System**

All walls must be covered with plywood and painted with fire resistant paint or a fire retardant plywood can be used.

Separate cooling system must be installed for each telecom room.

1-20 amp circuit with quad plate with 5-20R plug and 1- 30 amp circuit with L5-30R plug. These are to be mounted to the top of 7ft cable rack.

Grounding of all racks and provide a Ground bus bar per closet.

Closet will need to be wired for card access. Refer to one card specs.