

UNT SYSTEM™

Strategic Infrastructure,
Planning & Construction

DATE: November 4, 2024
TO: Potential Respondents
FROM: Elaine Robbins – Construction Contract Coordinator II
SUBJECT: Addendum #1
RFCSP769-25-996ER
2022 CCAP UNTHSC Health Pavilion Floors 1 & 6

This Addendum is being issued as there was a section missing for Project Manual Vol. 2.

The section missing was Section 27 0500 - COMMON WORK RESULTS FOR COMMUNICATIONS SYSTEMS.

Please initial acknowledgement on Page 3 at the top of the page of the Proposal Form, 004100 which is page 15 of the entire document.

SECTION 27 0500 -COMMON WORK RESULTS FOR COMMUNICATIONS SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Uniform General Conditions, Supplementary General Conditions and Division 1 General Requirements apply to this Section.
- B. Section includes: Description of project, definitions, references, contractor qualifications, supervision, equipment and materials, minimum requirements, workmanship, warranty, coordination drawings, storage and protection of materials, cutting and patching, concealment, rough-in, and submittals.
- C. Each section following, including this is an integrated part of a whole. No section shall be issued alone. Parts 1 and 2 of each section may contain descriptions of general information and approved materials that are typically used industry-wide, but are not specifically part of this project. Part 3 - Execution of each section together with the drawings identifies the installation procedures for components that are included in this project. A brief synopsis of the work included in this project also follows below in Section 1.3.
- D. The work covered by the communications specifications shall include the furnishing of all materials, labor, transportation, tools, permits, fees, utilities, and incidentals necessary for the complete installation of all communications work required in the contract documents and specified herein. The intent of the contract documents is to provide an installation complete in every respect. In the event that additional details or special construction may be required for the work indicated or specified in this section or work specified in other sections, it shall be the responsibility of the Contractor to provide all material and labor in order to make the installation complete and operative.
- E. All phases of work shall be sequenced under Division 1 and the Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of other trades. Prior to the start of installation, contractor shall provide a detailed set of plans showing the coordination of pathways and termination equipment with Mechanical, Plumbing and Electrical drawings. Voice and Data Communications systems shall be independent of any other systems.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related Division 27 Sections include:
 - 1. 27 05 00 Common Work Results
 - 2. 27 05 28 Pathways for Communications Systems
 - 3. 27 05 53 Identification for Communications Systems
 - 4. 27 15 00 Communications Horizontal Cabling
 - 5. 27 16 00 Patch Cords, Station Cords,& Cross-Connect Wire
 - 6. 27 40 00 Audio Visual System

1.3 REFERENCES

- A. Codes and Standards (Latest issue and addenda)
1. ADA Standards for Accessible Design 28 CFR Part 36
 2. U.S. Department of Labor Occupational Safety & Health Administration (OSHA)
 3. UNTHSC Telecommunications and Infrastructure Requirements
 4. BICSI TDM 11th Edition
 5. National Electric Code (NEC), Latest Issue
 6. ANSI/TIA568-C.1 - Commercial Building Telecommunications Cabling Standard*
 7. ANSI/TIA568-C.2 - Commercial Building Telecommunications Cabling Standard*
 8. ANSI/TIA568-C.3 - Optical Fiber Cabling Components Standard*
 9. ANSI/TIA569-C - Commercial Building Standard for Telecommunications Pathways and Spaces*
 10. ANSI/TIA 606-B - Administration Standard for Commercial Telecommunications Infrastructures, June 21, 2002*
 11. ANSI J-STD-607-A, Commercial Building. Grounding/Bonding Requirements- Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications, 2002*
 12. ANSI/TIA758-B - Customer-owned Outside Plant Telecommunications Infrastructure Standard, May 2005*
 13. International Standards Organization/International Electrotechnical Commission (ISO/IEC) IS 11801, 2000*
 14. Underwriters Laboratories (UL) Cable Certification and Follow Up Program*
 15. National Electrical Manufacturers Association (NEMA)*
 16. American Society for Testing Materials (ASTM)*
 17. American National Standards Institute (ANSI), ANSI T1.404 (DS3) and CATV Applications
 18. Institute of Electrical And Electronics Engineers (IEEE), IEEE 802.4 Broadband Applications and 802.7 Broadband Specifications Standard
 19. Federal Communications Commission (FCC), FCC Part 15 and FCC Part 76
 20. National Cable Television Association (NCTA), NCTA-02.
- B. Acronyms and Abbreviations
1. ADA Americans with Disabilities Act
 2. AKA also known as
 3. ANSI American National Standards Institute
 4. AP access provider
 5. ASTM American Society for Testing and Materials
 6. AWG American Wire Gauge
 7. BICSI Building Industry Consulting Services International
 8. CATV community antenna television
 9. CO-OSP customer owned outside plant
 10. EF entrance facility
 11. EIA Electronic Industries Alliance
 12. EMI electromagnetic interference
 13. FCC Federal Communications Commission
 14. HVAC heating, ventilation, and air conditioning
 15. IEEE The Institute of Electrical and Electronics Engineers
 16. ITS Information Technology System
 17. ISO International Organization for Standardization
 18. LAN local area network
 19. Mb/s megabits per second
 20. MC main cross-connect AKA Main Distribution Frame (MDF)
 21. MDF main distribution frame AKA main cross-connect (MC)

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| 22. | NEMA | National Electrical Manufacturers Association |
| 23. | NESCO | National Electrical Safety Code |
| 24. | NFPA | National Fire Protection Association |
| 25. | OFOI | Owner Furnished Owner Installed |
| 26. | RCDD | Registered Communications Distribution Designer |
| 27. | SCS | Structured Cabling System |
| 28. | TBB | telecommunications bonding backbone |
| 29. | TR | telecommunications room AKA Intermediate Distribution Frame (IDF) |
| 30. | TGB | telecommunications grounding busbar |
| 31. | TMGB | telecommunications main grounding busbar |
| 32. | TIA | Telecommunications Industry Association |
| 33. | UL | Underwriters Laboratories |
| 34. | UTP | unshielded twisted-pair |
| 35. | WA | work area |
| 36. | WAP | wireless access points |
| 37. | X | cross-connect |

1.4 PROPOSAL SUBMITTALS

- A. See Section 01-30-00 - Administrative Requirements, for submittal procedures.
- B. Follow Division 1 and this section. All submittals shall be reviewed and stamped by the Contractor's project RCDD.
- C. Submit a resume and copy of Building Industry Consulting Services International (BICSI) Registered Communication Distribution Designer (RCDD) certificate for Contractor's project RCDD.
- D. A list of technical product education (training) completed by the Contractor's project personnel.
- E. All members of the installation team must be certified by the Manufacturer as having completed the necessary training to complete their part of the installation. Submit resumes of the entire team and completed training courses and copies of BICSI Installer certificates TE300, training course IN100 and IN200.
- F. Cable tester manufacturer or a third party certification for copper and fiber cable test technicians.
- G. Price Quotation Information -
 - 1. Itemized Unit Pricing for Labor and Material;
 - 2. Itemized Add/Deduct Unit Pricing for Labor and Material for Pre- Cutover (200' average length) ONE (1) CAT 6 Drop;
 - 3. Itemized Add/Deduct Unit Pricing for Labor and Material for Post-Cutover (200' average length) ONE (1) CAT 6 Drop;
 - 4. Itemized Add/Deduct Unit Pricing for Labor and Material for Pre- Cutover (200' average length) TWO (2) CAT 6 Drop;
 - 5. Itemized Add/Deduct Unit Pricing for Labor and Material for Post-Cutover (200' average length) TWO (2) CAT 6 Drop;
 - 6. Itemized Add/Deduct Unit Pricing for Labor and Material for Pre- Cutover (200' average length) FOUR (4) CAT 6 Drop;
 - 7. Itemized Add/Deduct Unit Pricing for Labor and Material for Post-Cutover (200' average length) FOUR (4) CAT 6 Drop;

- E. The Contractor shall review paragraph 1.3 of this Section; Codes and Standards - Latest issue and addendums and state understanding and compliance or exception.
- F. Product Data: For each type of product indicated below. Product data to include, but not limited to, materials, finishes, approvals, load ratings, and dimensional information.
 - 1. Submittals shall include the manufacturers cut sheets for the following:
 - a. Equipment enclosures and/or racks;
 - b. Fiber optic and balanced twisted pair cable;
 - c. Patch cords and cross connect media;
 - d. Connectors and termination hardware;
 - e. Protection hardware;
 - f. Fire stopping materials;
 - g. Test equipment to be used for fiber and balanced twisted pair channels;
 - h. Cable tray and cable support hardware.
- G. Product Data Manufactures literature sheets for all materials and equipment, including a copy of the proposed warranty, recommended preventative maintenance and spare part inventory recommendations. Literature containing more than one device shall be clearly marked to delineate item(s) included in the work. Clearly indicate color or special finishes.
- H. Manufacturer and Contractor statement of RoHS: Restriction of Certain Hazardous Substances Compliance.
- I. Design and Installation Certificates: Signed by local cable manufacturer's representative certifying that design is acceptable with cable manufacturer's Design Engineer(s) and Contractor is authorized by manufacturer to install registered (warranty) cabling system.

1.5 DESCRIPTION OF PROJECT

- A. Main Distribution Frame (MDF) – Located on Level 1 of the Facility.
- B. Pathways - Conduits will be installed by the electrical contractor. One (1) 1” EMT conduits will be placed from each communications device outlet into the ceiling spaces and will terminate within 6” above the nearest cable tray where practical. The conduit will be attached to the underside of the roof structure above the ceiling and the cable tray and will include a bushing-type coupler at the connection point. All conduit stub-ups will be terminated above into accessible ceiling spaces. Cabling, not in conduit or cable tray placed above the ceiling in the Health Professionals Building 1 will be supported on 48” maximum centers using J-hooks (see Section 27 05 28).
- C. Horizontal cabling – Typical Data Outlet will consist of two (2) Data Cables. All horizontal cabling shall be plenum-rated.
- D. Riser/Backbone/Tie Cabling - Existing.
- E. Relay Racks – Existing.

1.6 SUBMITTALS FOR PROJECT RECORD

- A. Follow Division 1 and this Section.
 - 1. Drawings: As-built documentation must be submitted five (5) business days prior to obtaining approval for cutover to any portion of the new cable plant system. Furnish

- for review and comments, 4 complete sets of E size (30 by 42) and 4 complete sets of C size as-built drawings along with 4 CDs containing all electronic AutoCAD 2000 or newer (DWG) files.
2. Final approved Shop Drawings: Include plan and elevation of TRs, cable pathway details, and cable locations and cable ID#.
 3. 4 sets of cable inventory data must be submitted for all copper and fiber, termination hardware (prior to cutover to new cable plant if applicable.) Submit data in binders and electronically on CDs in "Microsoft Excel " format, listing products furnished, including:
 - a. Manufacturer's name and part numbers.
 - b. Cable numbers utilizing the Owner's cable numbering standard.
 - c. Location and riser assignments.
 4. Manufacturer Certificates: Within 10 days of completion of the project, Contractor shall deliver letter signed by local Structured Cabling Components representatives and Contractor's RCDD stating that installed cabling system complies with all requirements specified in manufacturer's installation guidelines and that there were no accidents, improper installation, mishandling, misuse, damage while in transit, unauthorized alteration, unauthorized repair, failure to follow instructions, or misuse with the structured cabling system that could adversely impact warranty.
 5. Test Reports: 4 sets of hard copies with 4 copies on CD in compliance with related Test Result Documentation.
 6. Submitted test results and other submittals that are non-compliant will be reviewed and returned to the Contractor with comments.
 7. Re-submitted test results and other submittals that are non-compliant will be reviewed and returned to the Contractor with comments.
 8. Manufacturer's warranty to the Owner. This shall include, but is not limited to: Owner's name and project name and address. (Within three weeks of substantial completion).
 9. Within 10 days of completion of the project, Contractor shall deliver letter signed by local SCS Manufacturers representative and Contractor's RCDD stating that installed cabling system complies with all requirements specified in installation guidelines and that there were no accidents, improper installation, mishandling, misuse, damage while in transit, unauthorized alteration, unauthorized repair, failure to follow instructions, or misuse with the structured cabling system that could adversely impact warranty.
 10. Within 30 days of completion of a project, the communications contractor and/or the manufacturer's local representative will provide owner The Structured Cabling Performance Warranty signed by the manufacturer. The warranty shall list the owner and name of the Facility including location as the holder of the warranty.

1.7 DEFINITIONS

- A. MER - Main Equipment Room: The main room, which typically contains the PBX, MDF and main Data Communications equipment.
- B. TR - Telecommunications Room: Any additional room, which contains switches, hubs, patch panels and cross-connects away from a central location to serve areas out of distance from the MER.
- C. TO - Telecommunications Outlet: Point of connectivity for voice, data or video on the wall or in the floor. Refer to Telecommunications Drawings and Symbol sheet(s) for quantities and types of media at each outlet.

- D. MDF - Main Distribution Frame: A termination frame for unshielded twisted pair cable, usually providing a connection field for PBX telephone ports and feeder/riser cables to TR's. The MDF is normally located in the MER.
- E. IDF - Intermediate Distribution Frame: A termination frame for unshielded twisted pair cabling providing a connection field for horizontal wiring from the workstation and feeder/riser cables extended from the MER.
- F. PBX - Private Branch Exchange: Privately owned voice communications switch.
- G. STUBBED OUTLET - A flush device box, 4-11/16" x 4-11/16" x 2-1/8" deep, with a single-gang extension ring installed behind sheet-rock walls or within concrete block walls. There shall be two (2) conduits a minimum of 1" installed to each device box (See drawing T3.03.05). The device box is centered at 18" a.f.f., and the conduit(s) rise to a point above the suspended ceiling or continues to an accessible ceiling for cable installation. The electrical contractor provides this work.
- H. PROJECT MANAGER - An individual who manages the logistic requirements of projects such as personnel, material and schedules. This individual may be responsible for multiple projects.
- I. SUPERVISOR - An individual who is responsible for a specific project and is on site 95% of the workday. This individual manages personnel assigned to the project, assures that materials are ordered, received and installed in a timely manner and, assures overall quality on the project. This individual must be a Registered Communications Distribution Designer in good standing with BICSI. Successful completion of the BICSI IST100 training course in addition to TE300 is required.
- J. LEAD TECHNICIAN - An individual who is in charge of up to a maximum of 4 technicians. This individual is responsible for timely project completion and quality assurance. Successful completion of the BICSI TE300 training course and all its prerequisites is required.
- K. TECHNICIAN, LEVEL II (Installer, Level 2) - An individual who possesses the training and skills necessary to qualify for and has successfully passed the requirements of the BICSI IN200 training course. This individual is responsible for his or her own work plus the work of not more than one (1) level 1 installer.
- L. TECHNICIAN, LEVEL I (Installer, Level 1) - An individual who possesses the training and skills necessary to qualify for and has successfully passed the requirements of the BICSI IN100 training course.

1.8 CONTRACTOR QUALIFICATIONS

- A. General Qualifications
 - 1. Untrained, undocumented, or otherwise unqualified personnel are not allowed to perform any portion of the communications infrastructure installation.
 - 2. All personnel must be permanent employees of the telecommunications contractor, or approved sub-contractors.
- B. Voice/Data
 - 1. Contractor shall have been in telecommunications business continually for at least the past 5 years.

2. A minimum of five (5) representative educational facilities projects must be submitted as references to include the school's name, address, architect or Engineer, cost of the project and the contact person at the school district to include phone number.
 3. Telecommunications contractor shall own and possess at least one copy of ANSI/TIA Telecommunications Building Wiring Standards, latest issue. Available from Global Engineering Documents, telephone (800) 624-3974, internet address www.global.ihs.com.
 4. Telecommunications contractor shall own and possess at least one copy of BICSI Telecommunications Distribution Methods Manual, latest issue, available from BICSI (Building Industry Consulting Services International) telephone (800) 242-7405, internet address www.bicsi.org.
 5. Telecommunications contractor shall possess current certifications from CommScope/Systimax
 6. All project managers, supervisors, lead technicians, and technicians for the telecommunications contractor shall each possess individual certification(s) for the installation and testing of CommScope/Systimax voice/data and fiber optic cabling products.
 7. Supervisor(s) shall possess BICSI certificates of completion for training courses IN101 and TE350.
 8. Strongly Recommended: Lead Technicians shall possess BICSI certificates of completion for the training course TE350.
 9. Strongly Recommended: Technicians shall possess BICSI certificates of completion for the training courses IN225/IN250 or IN101 for Installer Level 2 or Installer Level 1.
- C. Audio/Video
1. Five (5) years' experience in the installation of broadband distribution systems, including splicing, termination, and testing of copper coaxial cable.
 2. Five (5) installed systems, comparable to the Owner's installation, where broadband distribution systems are installed and the systems have been in continuous satisfactory operation for at least one (1) year. The Contractor shall submit as proof, supporting documents and the names, addresses and telephone numbers of the operating personnel who can be contacted regarding the installed systems.
 3. A minimum of five (5) representative educational facilities projects must be submitted as references to include the school's name, address, architect or Engineer, cost of the project and the contact person at the school district to include phone number.
 4. Installers must have been trained and experienced in the specific splicing, terminating and testing equipment to be used in the installation. Contractor shall possess any and all relevant certifications required by the manufacturer prior to installation of the manufacturer's specific products. Contractor shall provide a list of their technical support staff together with their work experience, training history and manufacturer's certification.
 5. Qualified Contractors shall submit proof of all certifications and experience detail with bid response.

1.9 SUPERVISION

- A. All work performed under Division 27 shall be continuously supervised at the project site by a Registered Communications Distribution Designer (RCDD) in good standing with Building Industry Consulting Service International (BICSI).
- B. The Project Manager shall be the main point of contact for the project between the Owner and the Owner's assignee.

- C. The contractor's Project Manager shall attend a pre-installation meeting with the Owner and design team prior to working on the project.
- D. The site supervisor shall be assigned to the project site for 95% of the work week and shall be responsible for the management of Lead Technicians.
- E. The Lead Technician shall be responsible for the direct supervision of not more than four (4) total Technicians, either Level II or Level 1.
- F. A Technician, Level II shall be directly responsible for not more than one (1) Technician, Level 1.

1.10 EQUIPMENT AND MATERIALS MINIMUM REQUIREMENTS

- A. All wiring, materials, and equipment must be listed and labeled by a nationally recognized testing laboratory.
- B. Original Equipment Manufacturer (OEM) documentation must be provided to the Owner's Telecommunications Technical Representative, who certifies performance characteristics that meet TIA standards.
- C. The Contractor shall structure and equip the cable and wire system to minimize vulnerability to single points of failure.
- D. All parts shall be made of corrosion resistant materials, such as plastic, anodized aluminum, or brass.
- E. All materials used in the installation shall be resistant to fungus growth and moisture deterioration.
- F. An inert dielectric material shall separate dissimilar metals that are apt to corrode through electrolysis under the environmental operating conditions specified.
- G. The Contractor shall ensure that the wire and cable allow detection and diagnosis of problems to achieve high reliability and availability.
- H. The wiring, materials, and equipment furnished for this request shall be essentially the standard product of the Manufacturer.
- I. Firestop all rated wall penetrations according to code requirements and industry standards.

1.11 WORKMANSHIP

- A. All work shall be performed in a neat, workmanlike manner.
- B. Cable trunks (bundles) shall be routed along or perpendicular to building lines.
- C. Cable trunks shall be placed above installation-convenient pathways such as hallways.

1.12 WARRANTY

- A. The Contractor and Manufacturers shall provide a ONE (1) YEAR guarantee for all work under the Telecommunications Trade. However, such guarantees shall be in addition to and not in lieu of all other liabilities, which the Manufacturer and Contractor may have by law or by other provisions of the Contract Documents. In any case, such guarantees and warranties shall commence when the Owner accepts the telecommunications system, as determined by the Engineer, and shall remain in effect for a period of ONE (1) YEAR thereafter.
- B. All materials, items of equipment and workmanship furnished under each Section shall carry a ONE (1) YEAR warranty against all defects in material and workmanship. Any fault under any Contract, due to defective or improper material, equipment, workmanship or design which may develop shall be made good, forthwith, by and at the expense of the Contractor for the work under his Contract, including all other damage done to areas, materials and other systems resulting from this failure.
- C. The Contractor shall guarantee that all elements of the system, which are to be provided under his Contract, are of sufficient capacity to meet the specified performance requirements as set forth herein or as indicated.
- D. Upon receipt of notice from the Owner of failure of any part of any systems or equipment during the guarantee period, the Contractor for his respective work, as applicable, shall replace the affected part or parts.
- E. An additional extended warranty is required for work on this project. The additions and/or extensions to the standard year guarantee previously described are to be provided in writing, by the Manufacturers. The warranty is to cover all parts and labor as specified below:
 - 1. a certified Systimax 25-year performance certification for:
 - a. Category 6, horizontal and backbone copper cable and associated labor.
 - b. Category 6, patch panels, blocks and associated labor.
 - c. Category 6, data workstation outlets and associated labor.
- F. Furnish, before the final payment is made, a written guarantee covering the above requirements.
- G. Additional/extended warranty listed above is Non-negotiable, and cannot be amended through the submittal process.

1.13 COORDINATION DRAWINGS

- A. It shall be the responsibility of the Contractor to consult the Architectural and Engineering Drawings and Details, thoroughly familiarizing himself with the type and quality of construction to be provided on this project.
- B. The Telecommunications Drawings are diagrammatic in character and cannot show every connection in detail or every line or conduit in its exact location. These details are subject to the requirements of local ordinances and also structural and architectural conditions. The Contractor shall carefully investigate structural and finish conditions and shall coordinate with all other trades in order to avoid interference between the various phases of work.
- C. The approximate location of Telecommunications items is indicated on the Telecommunications Drawings. These drawings are not intended to give complete and exact

details in regard to location of outlets, apparatus, etc. Exact locations are to be determined by actual measurements at the job site and will in all cases be subject to the approval of the Architect. The Architect reserves the right to make any reasonable changes in the location indicated without additional cost.

1.14 STORAGE AND PROTECTION OF MATERIALS

- A. Wiring, materials, and equipment shall be delivered and stored in a clean, dry space.
- B. All materials shall be properly packaged in factory-fabricated containers and protected from damaging fumes, construction debris, and traffic until job completion.
- C. Refer to Division 1 for additional information.

1.15 CUTTING AND PATCHING

- A. Where it becomes necessary to cut through any wall, floor or ceiling to install any work under this Section of the Contract, or to repair any defects that may appear up to the expiration of the guarantee period, such cutting shall be done under the supervision of the Architect/Engineer by the Contractor. The Contractor shall not be permitted to cut or modify any structural members without the written permission of the Architect/Engineer.
- B. Patching of all openings cut by the Contractor, or repairing of any damage to the work of other trades caused by cutting or by the failure of any part of the work installed under this Contract, shall be performed by the appropriate trade but shall be paid for by the Contractor.
- C. Openings cut through concrete and masonry shall be made with masonry saws and/or core drills and at such locations acceptable to the Architect/Engineer. Impact-type equipment shall not be used except where specifically acceptable to the Architect/Engineer.
- D. All openings shall be restored to “as-new” condition under the appropriate Specification Section for the materials involved, and shall match remaining surrounding materials and/or finishes.
- E. Coring through slabs after concrete placement will require X-ray to verify rebar location prior to coring. Contractor shall bear all costs associated with coring, including but not limited to coring and X-ray inspection. Core drill shall not cut any rebar.
- F. Refer to Division 1 for additional information.

1.16 CONCEALMENT

- A. No telecommunications cable or cable tray may be installed where physical access is not attainable.
- B. If cable and/or cable tray must pass through areas obstructed by sheet-rocked ceilings and/or fire-rated walls, or exceeds 20' over a solid sheet-rocked ceiling area, then access panels must be installed.
- C. The Contractor shall determine whether access panels are required, by investigating the architectural drawings for this Contract. The Contractor shall also bear the cost of installation

of any access panels.

1.17 ROUGH-IN

- A. "Rough-in" shall be defined as incomplete installation of cable or equipment.
- B. Where cable is to be roughed-in, the following conditions shall be met:
 - 1. Cables shall be run within active cabling bundles and dressed-out as same.
 - 2. Where cables are routed into stub-outs, at least 18" of cable shall be left coiled within the device box. Device box shall have an appropriate blank cover plate installed.
 - 3. Where no stubbed-out pathways are provided, leave roughed-in cables coiled near the center of the growth area with enough slack to reach the floor plus anyplace in the area and a minimum of 15' for service loop.

Cables that are not to be terminated at patch panels in an MTR or TR shall be left coiled in the ceiling of the MTR or TR with enough slack to reach the floor plus across the MTR or TR to the opposite wall.

1.18 DOCUMENTATION

- A. Documentation shall be provided in the form of as-built drawings, cable test records and O&M Manuals.
- B. Provide one set of 30"X42" Laminated Floor and Ceiling Data Plans showing outlet locations and labels. Mount on wall in TR. Coordinate final mounting location with UNTHSC Telecom.
- B. Refer to Division 1 for Submittals Procedures
- C. Refer to Division 1 for Shop Drawings, Product Data, and Samples

1.19 SUBMITTALS

- A. Refer Division 1 requirements for submission of Shop Drawings, Product Data, Samples and Colors

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Substitutions: See Section 01-60-00 - Product Requirements.
- B. Special Note: UNTHSC is a CommScope/Systimax specific location and has requested that the Systimax 25 year Warranty be extended to this installation. This requires that:
 - 1. The installer of the telecommunications infrastructure be a certified Systimax installer.
 - 2. The jack inserts, patch panels and accessories must be manufactured by Systimax.
 - 3. The Category 6A cable must be manufactured by Systimax.
 - 4. The project shall be registered for warranty and test data submitted for acceptance by Systimax.

- C. Special Note: UNTHSC is a Systimax specific location for fiber optic infrastructure and has requested that the Systimax 25 year solutions warranty be extended to this installation. This requires that:
1. The installer of the fiber infrastructure be a certified Systimax Installer.
 2. The connectors patch panels and accessories must be manufactured by a certified Systimax.
 3. The fiber optic cable must be manufactured by a certified Systimax.
 4. The project shall be registered for warranty and test data submitted for acceptance by a certified Systimax.

PART 3 EXECUTION

3.1 CABLE CONTRACTORS

- A. Cable Contractor Qualifications
1. The Cable Contractor shall have a workers' compensation experience modification rating (EMR) of less than 1.0.
 2. The full time on-site supervisor shall be certified by the Manufacturer of the products being installed.
 3. The Cable Contractor shall have installed similar systems in at least one similar project in the year prior to this bid and be regularly engaged in the business of installation of the types of systems specified in this document. The Cable Contractor shall provide the names and locations of project contacts and numbers, total square footage, total number of cables/drops, types of media, etc.
 4. The Cable Contractor shall have a minimum of one (1) full time employee on staff that is a BICSI RCDD with experience in similar projects to review and approve the design and construction plans and inspect work and report status on a weekly basis.
 5. The Cable Contractor's personnel shall have a complete working knowledge of low voltage cabling applications such as, but not limited to data, voice, video and audiovisual network systems.
 6. Untrained or otherwise unqualified personnel are not allowed to perform any portion of the communications infrastructure installation.
 7. The Cable Contractor's personnel must be permanent employees of the Cable Contractor, or approved sub-contractors.
 8. The Cable Contractor shall review paragraph 1.5 B Codes and Standards - Latest issue and addendums (of this Section) and state compliance or exception to any code or standard.
 9. The Cable Contractor shall have been in telecommunications cabling business continually for at least 4 years.
 10. Eighty per cent (80%) of Cable Contractors' personnel shall have a minimum of 3 years experience in the installation of the types of systems, equipment, and cables specified in this document.
 11. Fifty per cent (50%) of Cable Contractors' personnel shall be certified by specified manufacturer(s) for Telecommunication cabling installations and maintenance of listed product.

3.2 SUBMITTALS

- A. Provide a copy of the supervising Registered Communications Distribution Designer's current certificate.
- B. Provide a copy of the proposed manufacturer's extended warranty.
- C. Provide copies of resumes for each technician, lead technician, supervisor and project

- manager. Each resume shall be accompanied by each individual's training certificates.
- D. Provide proof of ownership of the ANSI/TIA-568 standards, latest issue.
 - E. Provide proof of ownership of the Telecommunications Standards and Methods Manuals, eleventh edition.
 - F. Submit proposed layouts of Television Broadband Distribution System equipment and cable plant, including equipment rack layouts, system schematics and riser diagrams. All equipment, along with expected signal levels and equipment signal level values must be shown.
 - G. Submit records of Category 6A Cable Certification tests at time of substantial completion.
 - H. Submit records of fiber optic Power Meter and OTDR (Tier Two) Cable Certification tests at time of substantial completion.

3.3 RECORD DOCUMENTS

- A. Maintain Project Record documents on a weekly basis.
- B. Refer to Section 017800 Closeout Submittals for dispensation of all record documentation.
- C. Refer to Section 27 05 53 Identification for Telecommunications Systems for details on Closeout Submittals required for warranty certification.

END OF SECTION