SECTION 16710 - 27 00 00 COMMUNICATIONS

PART 1 - GENERAL

1.01 COMMUNICATIONS PROJECT DESCRIPTION

A. Description: The project includes the construction of telecommunications pathways as designated on the construction drawings for the NCAR Wyoming Supercomputing Center (NWSC).

This project consists of the installation of all infrastructures for the pathways. No optical fiber, network cabling or network devices are required for this project. All network cabling and network devices will be supplied by NCAR.

B. Contacts: Communications contact coordination shall be handled through the appropriate contact names and phone numbers as follows:

Primary: James R. Van Dyke 303-497-1251 mailto:vandyke@ucar.edu
Secondary: Marla Meehl 303-497-1301 mailto:marla@ucar.edu
Engineering: Del Harris 303-497-1257 mailto:harrisrd@ucar.edu
Ed Snyder 303-497-1255 mailto:edsnyder@ucar.edu
Technical Eng: Fabian Guerrero 303-497-1277 mailto:guerrero@ucar.edu

C. The Contractor’s communications construction work involves but is not limited to the furnishing and installation of communication pathways, conduit, boxes, handholes, racks, and ladder. The Contractor is not responsible for network cabling or devices.

D. All network cabling in the project, which will be installed by the Owner, will be contained in conduit and cable tray. Various cable pull boxes or handholes will be located in the conduit paths to provide access for the cables pulls. The Contractor is not responsible for the installation of any telecommunications cable or network equipment.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

C. All subsequent sections in this division.

1.03 OWNER SUPPLIED AND INSTALLED EQUIPMENT

A. The Contractor shall install telecommunications infrastructure as displayed in the telecom drawings and/or as specified herein for the project. The Owner shall provide, install, and activate all network cabling and networking devices. The contractor is not responsible for any network cabling or network devices as specified in this division.
1.04 DEFINITIONS

A. **Backbone**: In a Data Center, a facility (E.G. pathway, cable or conductors) between any of the following spaces: Entrance Rooms or spaces, main distribution areas, horizontal distribution areas, Telecommunications Rooms.

B. **Consolidation Point**: A location for interconnecting between horizontal cables extending from building pathways and horizontal extending into furniture pathways.

C. **Demarcation Point**: A point where the operational control or ownership changes.

D. **Entrance Room** (telecommunications): An environmentally controlled centralized space for telecommunications equipment that usually houses a main or intermediate cross-connect.

E. **Equipment Distribution Area**: The computer room space occupied by equipment racks or cabinets.

F. **Horizontal Cabling**: In a Data Center, horizontal cabling is the cabling from the horizontal cross connect (in the main distribution area or horizontal distribution area) to the outlet in the equipment distribution area or zone distribution area.

G. **Horizontal Distribution area**: A space in a computer room where a horizontal cross-connect is located.

H. **Main Distribution Area**: The space in a computer room where the main cross-connect is located.

I. **Telecommunications Room**: An enclosed architectural space for housing telecommunications equipment, cable terminations, and cross-connect cabling.

J. **Zone Distribution area**: A space in a computer room where a zone outlet or a consolidation point is located.

1.05 WORK SEQUENCE

A. Complete the entire electrical installation in accordance with schedules as determined for the general completion of the entire project.

B. Schedule the progress of work so as to conform to the schedule of the work of other trades and to allow for future telecommunications conduit installations.

C. Cooperate with all other trades so that the installation of all electrical equipment may be properly coordinated and located.

D. Carefully check the location of communication infrastructure after the installation of materials and equipment by other trades.

E. Do not block or hinder the access or installation of materials for any other trades.

F. Coordinate communications installation with the Owner’s designated communications representative.

G. The Contractor shall complete or closeout Owner designated communication phases of the project before moving on to the next phase.

1.06 OWNER FURNISHED PRODUCTS

A. The Owner will not provide the Contractor with any products needed for their project work.
1.07 QUALITY ASSURANCE

A. Conform to the requirements of all reference standards given below.

B. The Owner shall perform whatever testing and other inspection as required to determine that an acceptable level of specification adherence has been achieved by the Subcontractor.

C. All installed systems will be evaluated for both systematic and random error.

D. An error is defined as an instance of non-compliance with the contract document requirements

E. Systematic error is defined as a procedural non-compliance.

F. Random error is defined as an occasional non-compliance on a random (non-systematic) basis.

G. Systematic non-compliance and/or an unacceptably high level of random error will result in the rejection of an entire lot of submitted work. Notice of rejection will be issued by the Owner’s Project Manager and the Subcontractor shall be given one week to remedy the situation and resubmit.

H. Work may be resubmitted a maximum of two times at which time the Owner may elect to cancel the contract for non-performance.

I. Quality control shall be the responsibility of the Subcontractor.

J. The Subcontractor shall supply samples of testing reports from similar installations.

K. The Subcontractor shall provide all materials necessary to demonstrate each installer’s ability to perform their assigned task as necessary.

L. The Subcontractor’s installers may be examined on site in project locations to demonstrate their own individual skills in project installation requirements.

1.08 REFERENCE STANDARDS

A. ANSI/NFPA 70

B. National Electrical Code (NEC)


1.09 REGULATORY REQUIREMENTS

A. The Contractor is required to conform to all applicable state building, mechanical, electrical and any other local or state codes.
B. Electrical or other permits may be required for work at the project site.

C. The Contractor shall follow all applicable safety codes while on the project site.

D. The Contractor shall comply with Uniform Building Code, NFPA, and fire codes.

1.10 SUBMITTALS

A. Furnish submittals for review by the Owner’s staff at least two weeks prior to installation. Refer to other sections for specific requirements.

B. Product Data – All product data and technical information shall be submitted to the designated Owner communication representative. Any product data submitted shall be included in the O&M manual.

C. Product Sample – Product samples may be requested for specified items. All items are to be of new condition and contain the manufacture’s full documentation label. All samples shall be submitted to the Owner’s Communications Infrastructure Engineers. All samples shall become the property of the Owner and shall not be used in the project.

D. Shop Drawings – Drawings are required in this division. The contractor shall furnish the drawings in both paper “D” size and AutoCAD version 2009 or above electronic form. At least four different sets of intermediate “as-built” drawings will provided at major milestones of the project during the project. The Contractor shall minimally provide “as-built” or close-out drawings and files of the project and communications effected work.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

B. All material used in this project shall be new and installed in accordance with manufacturer’s instructions.

C. All material shall be listed and labeled by UL, ETL, CSA and be suitable for the application.

D. The material purchased must be of original manufacturer’s quality, no outdated, “seconds”, or substandard parts may be used.

E. Substitutions: Permitted on written consent from the Owner’s designated Network Engineers on an as equal basis under the provisions of the previous Divisions.

PART 3 - EXECUTION

3.01 WORKMANNASHIP

A. Install work in a neat and work person like manner using procedures defined in relevant standards, manufacturer’s recommendations, and industry standards.

B. All equipment and labeling shall be straight, plumb and centered with the intent of presenting a visually neat, professional looking installation.

C. All work areas including paths to the construction area shall be cleaned at the end of each day. This includes the organization of material, disposal of trash, and general cleaning of surfaces and the floor.
3.02 SAFETY
   A. Comply with all OSHA requirements, relevant standards, and industry standards.

3.03 CUTTING AND PATCHING
   A. All cutting and patching required to install electrical items under this Subaward shall be done according to Division 1 and subsequent divisions.

END OF SECTION 16710 - 27 00 00