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 from the Mesa Laboratory building to a location near the pump house.

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.

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 vandyke@ucar.edu
Secondary: Marla Meehl 303-497-1301 marla@ucar.edu
Engineering: Del Harris 303-497-1257 harrisd@ucar.edu
Ed Snyder 303-497-1255 edsnyder@ucar.edu
Technical: Fabian Guerrero 303-497-1277 guerrero@ucar.edu

C. The Contractor’s communications construction work involves but is not limited to the furnishing and installing of communication pathways, conduit, boxes, and handholes. 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. Some original telephone and other conduits may be reused as specified in the construction drawings. 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 telecommunication cable or network equipment.

1.02 SECTION INCLUDES

A. Division 27, Section 27 05 26 Grounding and Bonding for Communications Systems

B. Division 27, Section 27 05 43 Communications Underground Ducts, Structures, and Raceways

C. Division 27, Section 27 05 53 Identification for Communications Systems

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. Telecommunications Room - A room that feeds work areas with communications pathways.

B. Interior Communication Pathways - Conduit, raceway, outlets that are used to develop the infrastructure of communications.

C. Backbone Cabling - provides the interconnection between the horizontal cabling in the telecommunications room to the entrance cabling.

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.

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

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

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

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

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

1.06 WORK RESTRICTIONS (INSIDE BUILDINGS)

A. The Contractor shall follow the Owner’s security procedures for access to the building and special areas.

B. A limited number of access badges will be provided to the Contractor for building access.

C. Access badges shall be worn by all the Contractor’s workers at all times while they are in the buildings.
D. The Contractor shall clean all locations of the work area and path to the area at the end of each day.

E. Loud and excessive noise shall be minimized. The Owner shall reserve the right to possibly stop work in an area to minimize impact.

F. The Contractor shall minimize strong odors or chemical smells from their work.

G. The Contractor shall control dust and debris from going into other areas.

H. The building shall be maintained in an orderly fashion during construction.

I. The Contractor’s workers shall be accompanied by designated Owner personnel during access to specific restricted areas.

J. It is the Contractor’s responsibility to contact the Owner’s personnel as required for access into restricted areas.

1.07 CONTRACTOR USE OF PREMISES

A. The Contractor will not be provided any staging area or office within the buildings.

1.08 OWNER FURNISHED PRODUCTS

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

1.09 QUALITY ASSURANCE

A. Conform to the requirements of ANSI/NFPA 70 - National Electrical Code (NEC®).

B. Conform to the requirements of the following communications standards.


b. ANSI/TIA/EIA-569, Commercial Building Standard for Telecommunications Pathways and Spaces.


d. ANSI/TIA/EIA-607, Commercial Building Grounding and Bonding Requirements.

e. National Electrical Code (NEC®) - Article 250 Grounding.

C. 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 Contractor.

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

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

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

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

H. 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.

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

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

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

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

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

1.11 SUBMITTALS

A. 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 manufacturer'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.

1. At least one sample shall be given to the owner. The owner shall retain all samples and will not be used in the project.

2. Submittals shall include but not be limited to:

   a. Interduct/Maxcell
b. Section of Pathway

c. Handhole

D. All shop and bid drawings, product data, and detailed materials and suppliers lists shall be included in a O&M manual and given to the Owner. The O&M manual shall be given to the Owner in both paper and electronic form.

B. 1.13 RECORD CONSTRUCTION DRAWINGS

A. The Subcontractor shall provide all labor, tools, materials, and meters as required to prepare record construction drawings, “as-built drawings”, from the Owner provided pre-construction drawings.

PART 2 PRODUCTS

2.01 MATERIALS

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

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

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

D. Substitutions: Permitted on written consent from the owner on an as-equal basis under the provisions of Division 1.

E. Material deliveries to the Owner’s sites must be made directly to a Subcontractor’s representative. The Owner’s shipping and receiving personnel will not accept Subcontractor deliveries.

G. Loading areas shall be cleared with reasonable haste to avoid disrupting normal shipping and receiving, or general operations.

H. Project materials and supplies shall be properly stored in a Subcontractor provided space.

I. Hazardous or flammable materials shall be stored in accordance with health and safety procedures detailed in the Subcontractors approved Health and Safety plan.

J. Storage requirements for hazardous materials used by the Subcontractor shall be the responsibility of the Subcontractor.
K. The Subcontractor shall supply Material Safety Data Sheets (MSDS) for all chemical materials to be brought on site at least one day before the materials are delivered to the site.

PART 3 EXECUTION

3.01 WORKMANSHIP

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.