SECTION 27 00 10 - SUPPLEMENTAL REQUIREMENTS FOR COMMUNICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Supplemental requirements generally applicable to the Work specified in Division 27.

B. Related Requirements:

1. Section 260010 "Supplemental Requirements for Electrical" for abbreviations and acronyms for electrical terms and units of measure, abbreviations and acronyms for electrical raceway types, abbreviations and acronyms for electrical cable types, and additional coordination drawing submittal requirements.

1.2 REFERENCES

A. Abbreviations and acronyms for communications.

B. Definitions for communications.

1.3 COORDINATION

A. Interruption of Existing Telephone Service: Do not interrupt telephone service to facilities occupied by Owner or others unless permitted under the following conditions:

1. Notify Owner no fewer than seven days in advance of proposed interruption of telephone service.

B. Interruption of Existing Internet Service: Do not interrupt internet service to facilities occupied by Owner or others unless permitted under the following conditions:

1. Notify Owner no fewer than seven days in advance of proposed interruption of internet service.

1.4 PREINSTALLATION MEETINGS

A. Communications Preconstruction Conference: Schedule conference with Architect and Owner not later than 10 days after notice to proceed.

1.5 ACTION SUBMITTALS

A. Coordination Drawings: Submit multidiscipline coordination drawings depicting communications equipment, devices, cabling, conduit, and duct banks in accordance with requirements specified in Section 260010 "Supplemental Requirements for Electrical."

1.6 INFORMATIONAL SUBMITTALS

A. Installation Schedule for Communications Systems: At preconstruction meeting, and periodically thereafter as dates change, provide schedule for installation of communications Work to Owner and Architect.

B. Certificates:

1. Welding certificates.
2. Seismic-Load Performance Certificates: In accordance with ASCE/SEI 7-05.

C. Qualification Statements:

1. For qualified regional manufacturer.
2. For structural professional engineer.
3. For communications design professional.
4. For welder.
5. For communications cable Installer.
6. For communications testing agency and on-site communications testing supervisor.
7. For structural testing and inspecting agency.

1.7 CLOSEOUT SUBMITTALS

A. Operation and maintenance fata.

B. Software and firmware operational documentation.

C. Software.

1.8 QUALIFICATIONS

A. Qualified Regional Manufacturer: Manufacturer, possessing qualifications specified in Section 014000 "Quality Requirements," that maintains a service center capable of providing training, parts, and emergency on-site repairs to Project site with response time less than eight hours.

B. Structural Professional Engineer: Professional engineer possessing active qualifications specified in Section 014000 "Quality Requirements," with expertise in structural engineering.

C. Communications Design Professional:

1. BICSI Registered Communications Distribution Designer (RCDD) certification.

D. Welder: Certification in accordance with AWS D1.1/D1.1M.

E. Communications Cable Installer:

1. Installation Supervisor: BICSI Technician (TECH) certification.
2. Copper Installers: 30 percent of employees possess BICSI Copper Installer 2 (INSTC) certification. Remaining employees possess BICSI Installer 1 (INST1) certification.

F. Communications Testing Agency:

1. On-site communications testing supervisor must have BICSI Technician (TECH) certification and documented training, and be experienced with testing communications equipment in accordance with BICSI testing standards.

G. Structural testing and inspecting agency.

PART 2 - PRODUCTS

2.1 SUBSTITUTION LIMITATIONS FOR COMMUNICATIONS EQUIPMENT

A. Substitution requests for communications equipment will be entertained under the following conditions:

1. Substitution requests may be submitted for consideration prior to the Communications Preconstruction Conference if accompanied by value analysis data indicating that substitution will comply with Project performance requirements while significantly increasing value for Owner throughout life of facility.
2. Contractor is responsible for sequencing and scheduling equipment procurement. After the Communications Preconstruction Conference, insufficient lead time for equipment delivery will not be considered a valid reason for substitution.

PART 3 - EXECUTION

3.1 INSTALLATION OF COMMUNICATIONS WORK

A. Unless more stringent requirements are specified in the Contract Documents or manufacturers' instructions, comply with NFPA 70, NECA NEIS 1, and BICSI N1 for installation of Work specified in Division 27. Consult Architect for resolution of conflicting requirements.

3.2 FIELD QUALITY CONTROL

A. Administrant for Communications Tests and Inspections:
1. Engage qualified communications testing and inspecting agency to administer and perform tests and inspections.

B. Administrant for Structural Tests and Inspections:

1. Engage qualified structural testing and inspecting agency to administer and perform tests and inspections.

END OF SECTION 270010

SECTION 27 05 28 - PATHWAYS FOR COMMUNICATIONS SYSTEMS

1.1 SUSTAINABILITY REQUIREMENTS

A. ASHRAE 189.1:

1. Low-emitting adhesives.

1.2 MATERIALS

A. Metal Conduits and Fittings:

1. GRC.
2. IMC.
3. EMT.
4. Fittings:

a. Conduit fittings for hazardous (classified) locations.
b. EMT: Steel, compression type.
c. Expansion fittings.

B. Nonmetallic Conduits and Fittings:
1. Rigid HDPE.
2. Fittings: Match conduit.

C. Metal Wireways and Auxiliary Gutters: Sheet metal with screw covers.

D. Nonmetallic Wireways and Auxiliary Gutters: PVC plastic.

E. Surface Metal Pathways: Metal and galvanized steel, with snap-on covers.

F. Surface Nonmetallic Pathways: Two or three piece, rigid PVC.

G. Tele-Power Poles: Aluminum with clear anodized finish.

H. Hooks:

1. Galvanized steel.
2. J shape.

I. Boxes, Enclosures, and Cabinets:

1. Sheet metal outlet and device boxes.
2. Cast-Metal Outlet and Device Boxes: Ferrous alloy.
3. Small sheet metal pull and junction boxes.
4. Cast-metal access, pull, and junction boxes.
5. Hinged-Cover Enclosures: Metal.
6. Cabinets: Galvanized steel.

J. Handholes and Boxes for Exterior Underground Wiring: Polymer concrete with polymer-concrete frame and cover; prototype tested for compliance with SCTE 77.

1. Configuration: Open bottom.
2. Weatherproof cover.
3. Cover Legend: "COMMUNICATIONS.".

1.3 PATHWAY APPLICATION

A. Outdoors:

1. Exposed: GRC .
2. Concealed, Aboveground: GRC.
3. Underground: RNC, Type EPC-40-PVC, direct buried.
4. Boxes and Enclosures, Aboveground: Type 3R.

B. Indoors:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: IMC.
4. Concealed: EMT.
5. Damp or Wet Locations: GRC.
6. Boxes and Enclosures: Nonmetallic in institutional and commercial kitchens and damp or wet locations.

C. Minimum Pathway Size: 3/4-inch trade size. Minimum size for optical-fiber cables is 1 inch.

D. Pathway Fittings: Compatible with pathways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Threaded rigid steel conduit fittings.
2. PVC Externally Coated, Rigid Steel Conduits: Fittings listed for use with this type of conduit.
3. EMT: compression, steel fittings.

E. Wiring Method: In pathways.

1. Install surface pathway for surface telecommunications outlet boxes only where indicated on Drawings.

END OF SECTION 270528

SECTION 27 11 00 - COMMUNICATIONS EQUIPMENT ROOM FITTINGS

1.1 QUALITY ASSURANCE

A. Installer Qualifications: Layout, supervision, and inspection by BICSI-registered personnel.

1.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Equipment frames shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1.3 MATERIALS

A. Backboards: Plywood, fire-retardant treated.

B. Boxes, Enclosures, and Cabinets:

1. Sheet metal outlet and device boxes.
2. Small sheet metal pull and junction boxes.
3. Hinged Cover Enclosures: Nonmetallic

C. Power Strips: 20-A, 120-V ac, NEMA WD 6, Configuration 5-20R receptacles; close-coupled, direct plug-in line cord; and 33-kA peak single-impulse surge current rating per phase.

END OF SECTION 271100

SECTION 27 15 13 - COMMUNICATIONS COPPER HORIZONTAL CABLING

1.1 PERFORMANCE REQUIREMENTS

A. Transmission Standards: TIA-568-C.1.

1.2 QUALITY ASSURANCE

A. Designer Qualifications: BICSI certified as an RCDD.

B. Testing Agency Qualifications: A testing laboratory with a field supervisor certified by BICSI as an RCDD.

C. Quality Standards:

1. Telecommunications Pathways and Spaces: TIA-569-D.
2. Grounding: TIA-607-B.

D. Products: NRTL listed and labeled.

1.3 SUSTAINABILITY REQUIREMENTS

A. ASHRAE 189.1:

1. Product data indicating lead content.
2. Environmental product declaration.
3. Health product declarations.
4. Sourcing of raw materials.

1.4 MATERIALS

A. Twisted Pair Cabling: Category 6a.

1. Connecting hardware.
2. Connecting Blocks: 110-style IDC for Category 6a, with 25 percent spare blocks for future use.
3. Modular array of connecting blocks to terminate building cables and permit interconnection between cables.
4. Jacks and Jack Assemblies: Eight-position modular.
5. 36-inch patch cords.

1.5 INSTALLATION

A. Wiring Method: In raceways.

B. Identification: TIA/EIA-606 Class 2 level of administration.

1.6 FIELD QUALITY CONTROL

A. Testing Agency: Contractor engaged.

END OF SECTION 271513

SECTION 27 15 33 - COMMUNICATIONS COAXIAL HORIZONTAL CABLING

1.1 PERFORMANCE REQUIREMENTS

A. Transmission Standards: TIA-568-C.4.

1.2 QUALITY ASSURANCE

A. Installer Qualifications: BICSI certified as an RCDD.

B. Testing Agency Qualifications: An NRTL with a field supervisor certified by BICSI as an RCDD.

C. Quality Standards:

1. Telecommunications Pathways and Spaces: TIA-569-D.
2. Grounding: TIA-607-B.

D. Products: NRTL listed and labeled.

1.3 SUSTAINABILITY REQUIREMENTS

A. ASHRAE 189.1:

1. Product data indicating lead content.
2. Environmental product declaration.
3. Health product declarations.
4. Sourcing of raw materials.

1.4 MATERIALS

A. Backboards: Plywood, fire-retardant treated.

B. Communications Coaxial Cable: RG-6/U.

C. CATV Coaxial Cable: RG-6/U.

D. Coaxial Cable Hardware:

1. Connectors.
2. Jacks and jack assemblies.
3. Patch cords.
4. Faceplates.

1.5 INSTALLATION

A. Wiring Method: In raceways.

B. Identification: TIA-606-B Class 2 level of administration.

1.6 FIELD QUALITY CONTROL

A. Testing Agency: Contractor engaged.

END OF SECTION 271533