KAISER PERMANENTE LARGO MEDICAL CENTER RESTACK
MEDICAL OFFICE BUILDING
LARGO, MARYLAND

SECTION 27 05 29

HANGERS AND SUPPORTS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. General provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections.

B. Architectural, Electrical, and Telecommunications Drawings. Other systems drawings may apply.

C. Division 26 Basic Electrical Materials and Methods sections apply to work of this section.

D. Vertical Transportation (Elevators, Escalators, etc.) Specifications and/or Codes Requirements.

E. Rough carpentry is specified in a Division 6 section.

1.02 QUALITY ASSURANCE

A. Refer to Section 27 05 00 for requirements that shall be fulfilled as part of this specification section.

1.03 SUBMITTALS

A. Refer to Section 27 05 00 for requirements that shall be fulfilled as part of this specification section.

1.04 WORK INCLUDED

A. Refer to Section 27 05 00 for requirements that shall be fulfilled as part of this specification section.

PART 2 - PRODUCTS

2.01 NON-CONTINUOUS CABLE SUPPORT SYSTEMS

A. Acceptable Manufacturers
1. B-line
2. Erico
3. Or approved equal

B. Non-continuous cable supports
1. Non-continuous cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables.
2. cULus listed.
3. Non-continuous cable supports shall have flared edges to prevent damage while installing cables.
4. Non-continuous cable supports sized 1 5/16” and larger shall have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable and be suitable for use in air handling spaces.
5. Non-continuous cable supports shall be rated for indoor use in non-corrosive environments.
6. Provide manufacturer recommended specialty fasteners including threaded rod assemblies, beam clamps, flange clips, C and Z purlin clips.

2.02 STRUCTURAL SUPPORT SYSTEMS

A. Slotted strut supports
1. Acceptable manufacturers:
a. B-line
b. Unistrut
c. Or approved equal
2. Provide continuous slotted strut and all associated fittings and hardware.
3. Use:
a. Post and grid support system inside communications spaces.
b. Trapeze and bracing type supports.
4. Slotted struts and fittings shall have the manufacturer’s name, part number, and material heat code identification number stamped in the part itself for identification.
5. Material certification sheets and test reports must be publically available by the manufacturer.
6. Single slotted strut shall be 1-5/8” wide in varying heights and welded combinations as required to meet load capacities and designs indicated on the drawings.
7. Materials and Finish: Material and finish specifications for each strut type are as follows:
a. Aluminum: Strut shall be manufactured of extruded aluminum alloy 6063-T6. All fittings and hardware shall be zinc plated according to ASTM B633 (SC3 for fittings, SC1 for threaded hardware) for indoor use only. For outdoor use, all fittings and hardware shall be stainless steel Type 304 [Type 316]. [Fittings shall be hot dip galvanized after fabrication in accordance with ASTM 123 with stainless steel Type 304 [Type 316] or chromium zinc ASTM F1136 Gr. 3.]

b. Pre-galvanized Steel: Strut shall be made from steel meeting the minimum mechanical properties of ASTM A653 SS, Grade 33, and mill galvanized in accordance with coating designation G90. Fittings shall be manufactured from steel meeting the minimum requirements of ASTM A907 SS, Grade 33. All fittings and hardware shall be zinc plated in accordance with ASTM B633 (SC3 for fittings, SC1 for threaded hardware).

PART 3 - EXECUTION

3.01 NON-CONTINUOUS CABLE SUPPORT SYSTEMS

A. Follow manufacturer's instructions and recommended industry standards and guidelines for installation.

B. The installed non-continuous support system must be an independent support structure for the communications system.

C. Draping cables over other structures in the ceiling is unacceptable. Water pipes, ceiling grid, sprinkler system, electrical supports, air ducts or any other in-ceiling structure may not be used for cable support.

D. Non-continuous supports shall be used to supplement the main cable support system when any cabling leaves the main support system or is unsupported for more than three and one half feet (3'-6").

E. Non-continuous supports shall be installed with ceiling wire or threaded rod secured to the slab above to support the communications cable infrastructure parallel to the slab throughout the cable plant, unless site conditions dictate a non-parallel installation.

F. Non-continuous supports must be routed to follow existing corridors and parallel or 90 degree angles from all walls and the cable tray whenever possible.

G. Non-continuous support system is a method of supporting horizontal network cabling between the communications intermediate distribution rooms (IDFs) and the work area outlet where cable tray assemblies are not installed.

H. Non-continuous support system shall consist of a scalable pathway system able to accommodate a 50% increase in future cable counts.

I. Under no circumstances shall the non-continuous support pathway be obstructed by other structural obstructions for example, fire sprinkler pipes, mechanical ductwork, structural beams, electrical junction boxes and/or conduits, ceilings etc.

J. Under no circumstances shall the non-continuous supports be spaced further than the allowed 4'-0" or at such intervals as to allow cable bundles supported to rest on any structural obstructions for example, fire sprinkler pipes, mechanical ductwork, structural beams, electrical junction boxes and/or conduits, ceilings etc.

K. The non-continuous support system shall at all times allow for EIA/TIA standards compliant cable bend radii to accommodate copper and fiber station cabling.

L. The non-continuous supports system shall be installed in a structured grid pattern perpendicular to the existing cable tray pathways and shall make use of a modular assembly method to support a scalable pathway system for future needs.

M. Cable bundles inside the non-continuous supports system shall at all times be bundled neatly to lay inside the hook system with no excessive cable slack or loop overhang.

N. The non-continuous supports system shall be suspended off ¼" threaded rod supported off the slab above with approved anchors. Provide bracing wires and steel straps at minimum every 25', at all directional changes in the non-continuous support system pathway and at all intersections of the non-continuous support system pathways.

O. Other approved methods of supporting the non-continuous supports are with structural beam clamps, flange clips, C and Z purlin clips.

P. Installation and configuration shall conform to the requirements of ANSI/TIA-568-C.0, ANSI/TIA-568-C.1 & ANSI/TIA-569-B, NFPA 70 (National Electrical Code), applicable local codes, and to the manufacturer's installation instructions.

Q. Install cables using techniques, practices, and methods that are consistent with Category 5e or higher requirements and that supports Category 5e or higher performance of completed and linked signal paths, end to end.

R. Install cables without damaging conductors, shield, or jacket.

S. Do not bend cables, in handling or in installing, to smaller radii than minimums recommended by manufacturer.

T. Pull cables without exceeding cable manufacturer's recommended pulling tensions. Use pulling means that will not damage media.

U. Do not exceed load ratings specified by manufacturer.

V. Adjustable non-continuous support sling shall have a static load limit of 100 lbs.

W. To avoid electromagnetic interference (EMI), pathways shall provide minimum clearances of four feet from motors or transformers, one foot from conduit and cables used for electrical power distribution, and five inches from fluorescent lighting. Pathways shall cross perpendicular to fluorescent lighting and electrical power cables or conduits.

3.02 STRUCTURAL SUPPORT SYSTEMS

A. Slotted strut supports
   1. Leftover construction dust, metal filings and debris from drilling, cutting, sawing and any other construction activity can be detrimental to electronic equipment in production communications room environments. The Contractor shall be required to place dust protective plastic covers at all times over HVAC systems, UPS power systems and any other equipment or furniture that is occupying the space during construction when the Contractor is doing construction work in the immediate vicinity of this equipment. This will prevent dust, metal filings and debris collection in the equipment during construction. Dust protection covers to be approved by the Owner prior to installation.

2. The Contractor shall do vacuuming, mopping and cleaning of immediate environment around any area where drilling, cutting, and sawing and any other construction activity is taking place at the same time of the construction activity.
3. The Contractor shall do vacuuming, mopping and cleaning of the entire communications room environment prior to termination of cabling and prior to electronic hardware being installed inside the technology rooms.
4. Install cable trays as indicated on the drawings, in accordance with the manufacturer's instructions, and with recognized industry practices to ensure compliance with requirements of NEC.
5. Drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Verify exact location of slotted strut support system with installed utilities and other existing obstructions.
6. Check actual site conditions prior to start of any work. Ensure all preceding trade work associated with the communications system is accurate and complete before proceeding with installation or use of products specified in this section.
7. Installation of slotted strut support systems shall provide minimum workable space clearances to the following:
    a. Ensure that slotted strut support system do not interfere with or restrict access to lighting fixtures, other structural supports, air ducts, conduits, piping, cable trays or raceways and other trades installations.
8. Installation of slotted strut support systems must at all times provide a clear cable pathway to accommodate the installation of communications cable types and conform to the telecommunications industry standard bend radii for these cables.
9. Openings through fire partitions, fire walls or walls and floors shall be laid out in advance and fully coordinated with other trades.
10. All field-cut struts shall be de-burred prior to placement.
11. Provide external grounding straps locations where strut continuity is interrupted.
12. Install trapeze, post and grid strut support systems level and straight.
13. Provide all hardware, accessories, fasteners, anchors, threaded rods and strut supports required to provide a complete system.
14. The installed slotted strut support system must be an independent support structure for the communications system.
15. The slotted strut support grid & post system shall be bonded and grounded to the telecom ground bar with a continuous #6 AWG cable and the terminal ground support.

3.03 CLOSEOUT AND ACCEPTANCE

A. No additional burden to the Owner regarding costs, network down-time and/or end user interruption shall result from the re-installation of specified components. Scheduling for reinstallation work shall be coordinated, in writing, with the Owner prior to beginning the work.

B. All specified Communications systems indicated on the drawings and specifications shall be complete.

C. Specified shop drawings and product submittals shall have been submitted for review and all review comments and deficiencies shall have been resolved. Final shop drawings and product submittals shall have been submitted, reviewed and found to meet the requirements of the specifications.

D. Issues and deficiencies identified in field reports and punch lists shall have been resolved. Final as-built drawings shall have been submitted, reviewed and found to meet the requirements of the specifications.

E. Contractor shall provide written notice of final completion of the telecom infrastructure. Upon receipt, the Owner's Representative will review/observe the completed installation. Once the Owner's Representative is satisfied that all work is in accordance with the Contract Documents, the Contractor will be notified in writing.

END OF SECTION