PART 1 - GENERAL

1.1. SUMMARY

A. The work covered under this Section shall consist of a design, furnishing of all material, labor, and installation for completion of an operable end to end structured cabling system. This includes pathways for distribution and protection of cabling and components.

1.2. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with UL 467.

C. General Requirements: Comply with ANSI/TIA-569-B.

D. Cable Support: NRTL labeled for support of Category 6A cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.

1. Support brackets with cable tie slots for fastening cable ties to brackets.
2. Lacing bars, spools, J-hooks, and D-rings.
3. Straps and other devices.
4. Bridle rings not permissible unless furnished with cable saddles.

1.3. RELATED DOCUMENTS

A. General and Supplementary Conditions

1.4. RELATED SECTIONS

A. Division 26 - Grounding and Bonding

B. Division 26 - Raceway and Boxes

C. Division 26 - Wiring Devices

D. Division 27 – Communications

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by approved manufacturers listed in Division 26 section, “Grounding and Bonding for Electrical Systems.”

2.2. CONDUIT AND ELECTRICAL BOXES

A. Comply with requirements in Division 16 Section “Raceways and Boxes.” Flexible metal conduit shall not be used, except as indicated in Contract Drawings. Coordinate with layout and sizing details and requirements as indicated in Contract Drawings.

1. Outlet boxes shall be no smaller than 5 inches wide, 5 inches high and 2-7/8 inches deep.
2. Minimum conduit to telecom outlet locations: Trade Size 1-1/4”, unless otherwise noted in Contract Drawings
3. Provide 5 Square box by Siemon, Randl, or equal subject to review.

2.3. CABLE TRAY

A. Wire cable tray shall have the following characteristics:

1. Solid bottom type.

2. Interior loading capacity of minimum 12” wide and 4” depth.
3. Steel.
4. Standard galvanized finish with ability to be painted and re-finished.
5. If tray is to be painted to match neighboring infrastructure it must be painted prior to installation. Cable within the tray cannot have paint.

2.4. LADDER RACK

A. Cable runway shall be ladder type and designed for use in telecommunications rooms.

B. Cable runway shall be aluminum construction, minimum 12” wide and 1.5” side rails.

C. Provide all parts and pieces to create a continuous pathway for cables within telecommunication rooms. Provide parts to support cable continuously from the sleeves entering the TR to the equipment racks and backboards.

D. Finish should be powder coated, black.

2.5. FLEXIBLE NON-METALLIC INNERDUCT

A. Innerduct shall be corrugated plastic.

B. Nominal duct size shall be minimum 1-1/4 inch.

C. Innerduct shall be riser, plenum, or OSP rated as required by the installation environment.

2.6. CABLE TIES

A. Bundle and support all cables and to provide a neat and orderly cabling installation.

B. Velcro tie wraps shall be used in the telecom room. Zip ties and wraps that cannot be adjusted once installed are not acceptable.

C. Velcro tie wraps shall be used for bundling all horizontal cabling which shall be supported by J-hooks.

D. Velcro tie wraps shall be provided at 3 ft. intervals minimum. On completion of installation, all cable bundles shall be neatly run and re-tied.

E. Provide a minimum of 30% overlap of wrap for each tie.

F. Wraps shall be Black in color.

G. Velcro wraps shall be plenum rated in all areas outside the telecom rooms.

2.7. DISTRIBUTION RINGS (D-RINGS).

A. Must be used to support and dress out cables on plywood backboards vertically and horizontally. Cables shall not be supported by cable ties alone on backboard.

B. Individual D-rings shall be sized to allow a minimum of 50% spare capacity for future cable installation.

PART 3 - EXECUTION

3.1. GENERAL

A. Cable shall be neatly dressed out in telecom rooms.

B. Secure cabling with Velcro type cable wraps only.

C. Install distribution rings on plywood backboards to support cables.

3.2. CABLE TRAY

A. Install cable trays level, straight, and parallel to walls.

B. Support cable trays minimum every 5 feet.

C. Install cable tray system with 12 inches clearance measured from top most surface of tray. Access from both sides shall be 12 inches minimum. Install with 12 inches clearance measured from bottom of tray.

D. Remove burrs and sharp edges from cable trays.

E. Cut cable tray wires in accordance with manufacturer's instructions.

F. Cable tray wires must be cut with side-action bolt cutters with offset head to ensure integrity of protective galvanic layer.

G. Provide conduit to tray fitting at each conduit entrance to tray.

H. Ground cable trays according to manufacturer's written instructions.

I. Cable trays shall not pass through any firewall or fire-rated soffits without appropriate firestop pillows per applicable codes.

J. Provide necessary supports and accessories for cable trays as required to make a complete job.

3.3. LADDER RACK

A. Provide dropouts at all equipment rack and backboard locations.

B. Install straight, level and perpendicular to walls and ceiling.

C. Install 3" to 6" above racks.

D. Cables shall be secured to the runway using reusable cable ties to arrange cable in logical bundles.

E. Ground cable runway according to manufacturer's written instructions.

3.4. J-HOOKS

A. Provide J-hooks to support communications cables at locations where cable tray and/or conduit is not provided.

B. Provide J-hooks assemblies on 4-foot intervals to support all outlet cables. Install J-hooks approximately 12 inches above lay-in ceiling. Use J-hooks to support not more than 50 cables per hook. Provide additional hooks in rows as required to support more than 50 cables.

C. Individual J-hooks shall be a minimum of 1" in width and sized and arranged to allow a minimum of 50% spare capacity for future cable installation.

D. Secure J-hooks to concrete slab using threaded expansion anchor bolts. Drill slab and install expansion bolt.

E. Coordinate location with HVAC duct and lights. Do not install above fluorescent lighting fixtures.

3.5. FLEXIBLE NON-METALLIC INNERDUCT

A. Innerduct segments shall be spliced using couplings designed for that purpose.

B. All vacant innerduct shall be equipped with a pull cord and capped at both ends.

C. Innerduct shall extend to the ladder rack above the termination enclosure.

D. All exposed innerduct shall be labeled at 50-foot intervals with tags indicating the cable type it contains.

END OF SECTION