

SECTION 27 05 30 - INTERIOR COMMUNICATIONS PATHWAYS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The interior communications pathways shall be in the most direct and efficient path possible. All conduits are to be sized so the cable load does not go beyond 40% fill. Cable paths shall be capable of future use and a string is to be left after cabling has been completed.
- B. The Fire Rating of any structured penetrated during construction will be restored by the Contractor who made the penetration.
- C. All conduit stubs shall terminate with an end connector and plastic bushing. No cable path will have a junction box in a location that is not accessible after the project is complete. Only factory ells (no more than three) are allowed between junction boxes.

1.2 QUALITY ASSURANCE

- A. Industry standards permit the use of EMT for installation of conductors in circuits rated below and above 600 volts, nominal, and in accordance with Article 348 of the National Electric Code.
- B. The National Electric Code® (NEC®) establishes the minimum requirements for a safe electrical installation. Because of the varied environments in which electrical equipment is installed, local amendments are often added. **Always consult local codes prior to any installation.**
- C. ANSI/TIA/EIA – 569-A Commercial Building Standard for Telecommunications Pathways and Spaces.
- D. ANSI/TIA/EIA-606-A Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.
- E. ANSI-J-STD-607-A Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
- F. NEMA – VE-1 – Metal Cable Tray Systems
- G. NEMA – VE-2 – Metal Cable Tray Installation Guidelines
- H. ASTM A 641 – Standard Specification for Zinc Coated (Galvanized) Carbon Steel Wire.
- I. BICSI – Telecommunications Distribution Methods Manual, Latest Edition
- J. NFPA 70 – National Electric Code

1.3 SUBMITTALS

- A. Submit product data describing all equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Any Electric Metallic Tubing manufactured in accordance with the latest edition of the following:
 - 1. American National Standards Institute - C80.3
 - 2. Underwriters Laboratories Standard - UL 797
 - 3. National Electric Code® 2002 - Article 358 (NEC® 1999 Article 348) Federal Specification - WW-C-563A.
- B. Fire Rated Sleeve – Small
 - 1. Heavy gauge galvanized steel pathway lined with intumescent material that will expand when exposed to high temperatures.
 - 2. Finish – orange
 - 3. 1.5" x 1.5" x 10.5" long
 - 4. Allowing cables to removed and installed without effecting or removing firestop material.
 - 5. Fill area to be equivalent to a 2" conduit.
 - 6. STI EZ Path, 22 series or approved equal.
- C. Fire Rated Sleeve - Large
 - 1. Heavy gauge galvanized steel pathway lined with intumescent material that will expand when exposed to high temperatures.
 - 2. Finish – orange
 - 3. 3" x 3" x 10.5" long
 - 4. Allowing cables to removed and installed without effecting or removing firestop material.
 - 5. Fill area to be equivalent to a 4" conduit.
 - 6. STI EZ Path, 33 series or approved equal.
- D. Caddy J-Hooks
 - 1. Material - steel
 - 2. Finish – pre-galvanized
 - 3. Diameter 4"
 - 4. ISO/IEC 14763-2, ANSI/TIA 568 and ANSI/TIA 569
- E. Cable Tray
 - 1. Cable tray will consist of continuous, rigid, welded steel wire mesh cable management system, to allow continuous ventilation of cables and maximum dissipation of heat, with UL Classified splices where tray acts as Equipment Grounding Conductor (EGC). Wire mesh cable tray will have continuous Safe-T-Edge T-welded top side wire to protect cable insulation and installers.
 - 2. Provide splices, supports, and other fittings necessary for a complete, continuously grounded system.
 - 3. Safe-T-Edge: Patented Safe-T-Edge technology on side wire to protect cable insulation and installers' hands.
 - 4. FlexTray, Cablofil, or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Conduit

1. All conduits are to be installed with the most efficient route possible. No cable pathway will have more the 40% fill as recommended by the TIA/EIA Standards, verify cable load prior to installing conduit paths.
2. It is the responsibility of the Contractor that is awarded the project to confirm the schedule for installation with the General Contractor.
3. Conduit paths shall terminate with end connectors and plastic bushings whether in junction boxes or stubs in accessible ceiling space.
4. Any penetrations made for the cable paths will be fire-stopped by the Contractor who made the penetration.
5. Conduits will be installed and supported in a manner that meets or exceeds the requirements of the AHJ.
6. No more than two 90 degree bends per section of conduit, without an access point.
7. Maximum of a 100' of continuous conduit without an access point.
8. Condulets are not to be used, utilize field or factory bends.
9. Provide a pull string in conduits over 10' in length.
10. Conduits will be placed plumb and level. If two or more conduits are installed they are to be parallel and symmetrical.
11. Coordinate conduit routes and elevation with other trades prior to beginning work. Failure to do so will not be justification for additional fees to correct conflicts.

B. Cable Tray

1. Cable tray is to be supported within 2' of each splice for each piece with no more than 6' between supports.
2. Ground cable trays against fault current, noise, lightning, and electromagnetic interference by mounting grounding wire to each 10' cable tray section with grounding clamp, Cablofil Model GNDCL.
3. Install cable tray level and plumb according to manufacturer's written instructions, Coordination Drawings, original design, and referenced standards.
4. Wire mesh cable tray shall be secured to the structural ceiling, building truss system, wall or floor using manufacturer's recommended supports and appropriate hardware as defined by local code or the authority having jurisdiction (AHJ).
5. Wire mesh cable tray shall be bonded to the Telecommunications Grounding Busbar (TGB) using an approved ground lug on the wire basket tray and a minimum #6 grounding wire or as recommended by the AHJ. Verify bonds at splices and intersections between individual cable tray sections and supports. Cable pathway should be electrically continuous through bonding and attached to the TGB.

C. J-hooks

1. For best cable support J-hooks should be placed every 5 feet maximum and at corners as required for a clean and professional install.
2. Non-continuous supports may not exceed spacing of 5' (1.5 m) per TIA 569-C.9.7 and EN 50174-2.

D. Grounding

1. All interior pathways will be grounded per industry standard utilizing a continuous ground. If cable tray/ladder rack is painted a portion will have the paint removed to have the ground lug attached for metal-to-metal contact.

END OF SECTION