

**SECTION 28 05 28****PATHWAYS FOR ELECTRONIC SECURITY****PART 1 - GENERAL****1.1 DESCRIPTION**

- A. This Section covers the Security Pathways (security infrastructure such as conduit, back boxes, etc.).

**1.2 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Additional related specification sections include:
  - 1. Section 26 05 33 Raceways and Boxes for Electrical Systems.
  - 2. Section 28 05 00, Common Work Results for Electronic Security.
  - 3. Section 28 05 13, Conductors and Cables for Electronic Security.
  - 4. Section 28 08 00, Commissioning of Electronic Security.
  - 5. Section 28 10 00, Access Control.
  - 6. Section 28 20 00, Video Surveillance
  - 7. Section 28 31 00, Intrusion Detection

**1.3 SUBMITTALS**

- A. Action Submittals: None.
- B. Informational Submittals: As defined in Section 28 05 00, Common Work Results for Electronic Security.
- C. Closeout Submittals: None.

**PART 2 - PRODUCTS****2.1 RACEWAYS AND BOXES**

- A. Raceways and boxes and cable trays shall be in accordance with Section 26 05 33, Raceways and Boxes for Electrical Systems.
- B. J-Hooks:
  - 1. J-hooks shall be steel, UL listed for a maximum static load of 50 lbs. and shall be rated for use in plenum environments.

**2.2 SLEEVES**

- A. Wall sleeves shall be galvanized rigid metal conduit or electrical metallic tubing.
- B. For floor slabs above grade, plastic core form block-outs shall be used.

**2.3 PENETRATION SEALS**

- A. Firestops:

1. Refer to Section 07 84 00, Firestopping.
- B. Expansion Seals:
  1. Waterproof, modular, mechanical expansion type consisting of synthetic rubber grommets or interlocking links shaped to continuously fill the annular space between the penetrating item and the opening. Sizing of links and sleeve shall be determined by the manufacturer.
  2. Manufacturer: Calpico Pipe Linx, Metraflex MetraSeal, or Thunderline Link Seal.
- C. Seal Assemblies:
  1. Seal assemblies shall consist of a frame, compression mechanism, and insert modules. Assemblies shall be waterproof and shall be designed to allow easy addition or deletion of penetrating items.
  2. Seal assemblies for multicable penetrations of fire- and smoke-rated construction shall comply with the requirements of firestops as specified herein.
  3. Basis of Design: Nelson Multi-Plug.

## **2.4 ACCESS PANELS - BUILDING**

- A. Refer to Section 08 31 00, Access Doors.

## **2.5 UNDERGROUND DUCTS, MANHOLES, AND HANDHOLES**

- A. Underground ducts, manholes, and handholes shall be in accordance with Section 26 05 43, Underground Ducts and Raceways for Electrical Systems.

## **PART 3 - EXECUTION**

### **3.1 GENERAL**

- A. Equipment, except portable equipment, shall be held in place. This shall include equipment, enclosures, components, and cables. Fastenings and supports shall support their loads with a safety factor of at least 3 unless otherwise specified herein.

### **3.2 RACEWAYS AND BOXES**

- A. General:
  1. Install raceways and boxes in accordance with Section 26 05 33, Raceways and Boxes and Section 26 05 36, Cable Trays.
  2. Install wiring or cables in raceways where wiring or cables are installed underground, in concrete, and concealed in walls or in inaccessible ceilings, unless otherwise specified herein.
  3. Install wiring or cables in raceways where wiring or cables are otherwise exposed, including open ceiling spaces.
- B. J-Hooks:
  1. Install maximum 5' on center.
  2. Attach J-hooks to the structure as recommended by the manufacturer, except that J-hooks shall not be installed using drop wires or ceiling support wires. J-hooks shall not be connected to ceiling supports, utilities, or equipment.

### **3.3 SLEEVES**

- A. Provide where conduits pass through elevated floor slabs if conduits are not a part of the slab pour and for future cable or conduit risers.
- B. Install in raised foundations at least 2" high.
- C. Provide where cables pass through walls and elevated floor slabs.
- D. Wall sleeves shall extend 4" from each side of the walls.
- E. Openings through slabs for busway risers shall be finished with a 4" wide x 2" high curb around the opening.
- F. Sleeves shall be secured in place. Provide insulating bushings on both sides of sleeves for cables.
- G. Provide ground bushings on both sides of sleeves containing separate ground conductors.

### **3.4 PENETRATION SEALS**

- A. General:
  - 1. Install in accordance with the manufacturer's published instructions to achieve ratings and classifications specified herein. A copy of these instructions shall be maintained and available on site.
- B. Expansion Seals:
  - 1. Install to seal single conduit or cable penetrations of walls below grade.
- C. Seal Assemblies:
  - 1. Install to seal the penetration of walls below grade by multiple cables in the same opening.

### **3.5 ACCESS PANELS - BUILDING**

- A. Refer to Section 08 31 00, Access Doors.
- B. Where security work is concealed by walls or ceilings, or is inaccessible, provide an access panel to provide access for service and maintenance.
- C. Security work located above ceilings is considered accessible if the ceiling is the accessible type and is arranged for access to the equipment.
- D. Fire rated access panels shall be provided in fire barriers, with ratings to match the construction fire rating.
- E. Access doors providing access to equipment shall allow for service and maintenance of the intended equipment.

### **3.6 UNDERGROUND DUCTS, MANHOLES, AND HANDHOLES**

- A. Underground ducts, manholes, and handholes shall be in accordance with Section 26 05 43, Underground Ducts and Raceways for Electrical Systems.

### **3.7 EXCAVATION AND BACKFILLING**

- A. Determine exact location of existing underground utilities before excavation.
- B. Excavation shall be no longer or deeper than necessary. Backfill material shall be free from rocks and debris.

- C. Compact backfill as the excavation is filled.
- D. Excavation, shoring, bracing, backfilling, compaction, cutting and patching of hardscape, and restoration of landscape shall conform to Division 31.

**END OF SECTION 28 05 28**