

SECTION 16134

UNDERFLOOR RACEWAY ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes underfloor raceway assemblies and associated junction boxes and fittings. Section also includes installation of wire and cable in the raceways.

B. RELATED WORK:

1. Section 16050 – Basic Electrical Materials Methods: Bonding.
2. Section 16134 – Underfloor Conduit; and Wall Duct

1.2 REFERENCES

A. NECA (National Electrical Contractor's Association) – Standard of Installation

1.3 SUBMITTALS

A. Shop Drawings: Indicate component details and assembly drawings.

B. Include floor plans, drawn to accurate scale, to show relationships between raceway and structural elements.

C. Show raceway layout

1. Indicate components and accessories such as expansion joint assemblies, inserts, outlets, and fittings.

D. Product Data: Submit underfloor raceway, fittings, and accessories; show components, dimensions, and finishes.

E. Samples: Submit two service fittings and flush outlet covers illustrating required finish.

1.4 CLOSEOUT SUBITTALS

A. Project Record Documents: Record actual locations of underfloor raceway, junction boxes, inserts, and service outlet fittings. Indicate type and circuiting of outlets.

B. Operation and Maintenance Data: Submit instructions on how to locate preset inserts, and install outlets and afterset inserts.

## 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years (documented) experience.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Materials: Materials shall be new and shall be delivered to the job site in the original packaging.

## 1.7 COORDINATION

- A. Coordinate Work with structural reinforcing.
  - 1. Coordinate fittings and trim with floor finishes
  - 2. Coordinate component heights to ensure adequate concrete slab and floor fill thickness. Coordinate to obtain thickened slabs where required for underfloor raceway.
- B. Convene pre-installation coordination minimum two weeks prior to commencing work of this section.

## 1.8 SYSTEM DESCRIPTION

- A. Underfloor Raceway System: Single-level or Two-level underfloor raceway, grouped in runs of 1, 2, or 3 each for distributing power branch circuits, telephone circuits and data circuits; connected with header raceway.
- B. Poser Service Raceway: Standard-width underfloor raceway with preset inserts for surface mounted single service outlet fittings.
- C. Telephone and Data Service Raceway: Extra-width underfloor raceway with preset inserts for surface-mounted signal service outlet fittings.
- C. Header Raceway: 1) Extra-width, flat-top underfloor raceway, one for each service, with preset access inserts or junction box connection at each distribution raceway. 2) Trench-type underfloor raceway with internal compartments for power, telephone, and signal wiring.
- D. Underfloor Raceway Assemblies: Cellular underfloor raceway assembly, with individual cells for power branch circuits, telephone circuits and data circuits connected with header raceway.

- E. Header Raceway: Extra-width, flat-top underfloor raceway, one for each service, with preset access inserts or junction box connection at each active cell. 2) Trench-type underfloor raceway with internal compartments for power, telephone, and signal wiring.

## 1.9 EXTRA MATERIALS

### A. Requirements for extra materials

1. Supply 5 afterset inserts for each 200 feet of distribution raceway.
2. Supply 2 service fittings for each 100 feet of distribution raceway.
3. Supply 20 outlet blanking covers.
4. Supply 2 of each special tool required to locate preset inserts.
5. Supply 2 of each special tool required to install afterset inserts.

## PART 2 - PRODUCTS

### 2.1 FLAT-TOP UNDERFLOOR RACEWAY

- A. Product Description: Steel underfloor raceway with corrosion-resistant finish.
- B. Standard Size: 1.5 x 3 inches nominal
- C. Extra Width Size: 1.5 x 6 inches nominal
- D. Inserts: Distribution lengths to be determined by application and design preset inserts on centers.
- E. Single Level Junction Boxes: Rectangular or Round cover and trim, adjustable height. Provide internal barriers, conduit and underfloor raceway entrances, and extension rings as required.
- F. Two Level Junction Boxes: Rectangular or Round cover and trim, adjustable height; separate enclosures for each service to allow feeder raceways to cross under distribution raceways. Provide conduit and raceway entrances and extension rings as required.
- G. Junction Box Cover Plate: Provide tile trim plate flush with finished floor or smooth cover plate flush with concrete floor, carpet trim holders of proper depth as required by design.
- H. Supports: Adjustable before concrete topping placement.

I. Underfloor Raceway Markers: Corrosion resistant marker screws with escutcheon.

J. Fittings and Accessories: Manufacturer's standard.

## 2.2 FLUSH-TYPE UNDERFLOOR RACEWAY

A. Product Description: Steel underfloor raceway with corrosion-resistant finish.

B. Standard Size: 1.5 x 3 inches nominal

C. Extra Width Size: 1.5 x 6 inches nominal

D. Inserts: Provide precut 1-1/4 inch diameter holes minimum on 24 inch centers applicable to design. Close with metal screw plugs.

E. Junction Boxes: Rectangular or Round cover and trim, adjustable height.

F. Junction Box Cover Plate: Provide tile trim plate flush with finished floor.

G. Supports: Adjustable before concrete topping placement

H. Fittings and Accessories: Manufacturer's standard.

## 2.3 TRENCH-TYPE UNDERFLOOR RACEWAY

A. Product Description: Closed bottom, steel trench-type underfloor raceway with corrosion resistant finish.

B. Size: To be determined by design

C. Compartments: Provide adjustable compartment dividers.

D. Supports: Adjustable before and after concrete topping placement.

E. Cover Plates: 1/4 inch thick steel removable cover plates with gasketed joints; smooth cover plate flush with concrete floor or recessed cover plate with tile trim depending on design.

F. Fittings and Accessories: Manufacturer's standard

2.4 PEDESTAL CONVENIENCE RECEPTACLE

- A. Housing: Satin Aluminum
- B. Device Plate: Stainless Steel
- C. Configuration: One duplex or two duplex, back-to-back depending on design requirements.

2.5 FLUSH COVER CONVENIENCE RECEPTACLE

- A. Material: Aluminum, Brass or Stainless Steel depending upon design requirements.
- B. Configuration: Duplex flap or threaded opening depending upon design requirements.
- C. Receptacles: NEMA WD 6, type 5-15R, single receptacle.

2.6 PEDESTAL COMMUNICATION OUTLET

- A. Housing: Satin Aluminum
- B. Device Plate: Stainless Steel
- C. Configuration: One bushed opening, 1 inch inside diameter

2.7 FLUSH COVER COMMUNICATION OUTLET

- A. Material: Aluminum, Brass or Stainless Steel depending upon design requirements.
- B. Configuration: 2-1/8 x 1 inch combination threaded opening

2.8 PEDESTAL COMBINATION FITTING

- A. Housing: Satin Aluminum
- B. Device Plate: Stainless Steel
- C. Configuration: One duplex convenience receptacle with one bushed opening, 1 inch inside diameter.

2.9 FLUSH COVER COMBINATIN FITTING

- A. Material: Aluminum, Brass or Stainless Steel

- B. Configuration: Duplex flap or threaded opening with 2-1/8 x 1 inch combination threaded opening.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Locate raceway in structural slab or concrete topping as design requires.
- B. Provide expansion fittings with suitable bonding jumper where raceway crosses building expansion joints.
- C. Securely hold junction boxes and raceways in place during installation to avoid floating or other movement.
- D. Close unused raceway or conduit entrances to junction boxes. Seal raceway terminations at junction boxes.
- E. Ground and bond raceway under provisions of Section 16050.
- F. Special Techniques – Flat-top and Flush-type Raceway.
- G. Install underfloor raceway with tops of preset inserts below finished floor line at depth required by design finishes. Locate raceways.
  - 1. Install top of flush-type raceway flush with finished floor.
  - 2. Place schedule on the inside of cover plate of each junction box indicating distance to first insert in each direction, measured from the center of the box. Use self-adhesive labels for schedule.
  - 3. If design requires use blank raceway in permanent corridors, vestibules, passages, lobbies, for connecting parallel raceways less than 6 feet apart, for feeder raceway from cabinet or panelboard to first junction box, and where indicated.
  - 4. Support Couplers and Supports: Join raceway lengths using combination support couplers where practical. Provide additional supports at intervals of not over 5 feet, within 30 inches each side of junction boxes, and as close as practical to elbows, bends, and terminations.
  - 5. Install insert within 12 inches of edge of junction box. Align inserts on same centers for all services.

6. Do not extend inserts into special floor finishes, such as terrazzo, marble, or wood.
7. Install a raceway marker in each insert adjacent to junction box, at end of each raceway run, on both sides of permanent partitions, and on both sides of change of direction of raceway. Install markers flush with finished floor material. In carpeted areas, install marker screws level with carpet backing.
8. Install surface service fittings after installation of floor finishes. Cut floors as necessary, following raceway manufacturer's recommendations. Replace damaged floor construction and finish.

H. Special Techniques – Trench-type Raceway:

1. Install trim flush with cover plates; maintain covering of factory-applied tape for protection.

I. Special Techniques - Wire and Cable Installation:

1. Clean raceways and fittings of debris and dust before installing wire and cable.
2. Pull wire and cable from outlet insert toward junction boxes.
3. Install branch circuit conductors continuous between junction box and farthest fitting. Do not cut conductor to make connections to receptacle devices.

END OF SECTION