



## DESIGN REQUIREMENTS

### SURFACE RACEWAYS AND WIREWAYS

#### GENERAL INFORMATION

- 1.1 This section applies to surface-mounted wireways and raceways.

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- 2.1 Install a separate green ground conductor in surface raceway. Do not rely on the raceway as the means for grounding.
- 2.2 Surface raceway and wireway in close proximity of other trades, shall be arranged to allow for proper clearance for servicing and headroom. Work shall be installed parallel to walls, floors and ceilings in a neat workmanlike manner and routed so as to minimize exposure to view.
- 2.3 Surface raceways shall be cut with a manufacturer's approved cutting tool only and properly reamed and de-burred with all sharp edges removed.
- 2.4 Provide two-piece surface raceway with outlets at all lab benches and to serve computer type classrooms to allow for maximum flexibility for future changes. Use aluminum raceway at Lab benches and similar areas prone to require frequent cleaning for durability. Use steel raceway in other applications and paint to match adjacent surfaces.
- 2.5 Provide one-piece surface raceway wherever it is not possible to conceal branch circuiting within building finishes. Wherever one-piece raceway is used, provide the corresponding surface raceway boxes and fittings. Run raceway in a manner that minimized exposure to view instead of shortest possible run and paint to match adjacent surfaces.
- 2.6 Equipment Requirements
- a. One-piece raceway: Steel with scratch resistant surface but suitable for painting with latex paint and painted to match adjacent surfaces. One piece with base and cover factory assembled.
  - b. Single-cell, two-piece steel raceway: Steel, gray enamel finish but suitable for painting. Two-piece design with 0.04-inch thick metal base and snap-on cover.
  - c. Multi-cell, two-piece steel raceway: Steel, gray enamel finish but suitable for painting. Two-piece design with 0.04-inch thick metal base and snap-on cover. Base shall be divided

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- by a removable barrier section. Provide duplex receptacles mounted in top cell and communication outlets in the bottom cell. Coordinate communications jack requirements with Columbia IT personnel.
- d. Single-cell, two-piece aluminum raceway: Aluminum, satin anodized finish. Two-piece design with 0.06-inch thick extruded aluminum base and snap-on cover.
  - e. Multi-cell, two-piece aluminum raceway: Aluminum, satin anodized finish. Two-piece design with 0.078-inch thick extruded aluminum base and snap-on cover. Base shall be divided by a removable barrier section. Provide duplex receptacles mounted in top cell and communication outlets in the bottom cell. Coordinate communications jack requirements with Columbia IT personnel.
  - f. Fittings: Surface raceway fittings and accessories include but are not limited to couplings, device brackets, wire clips, offsets, elbows, adapters, two-hole hold-down straps, and end caps shall match and mate with wireway as required for complete system.
  - g. Steel wireway with Code gauge steel enclosure and screw-on cover that spans entire wireway. Provide environmental rating to match the installation location. Coordinate appropriate raceway selection with Columbia University Project Manager.
- 2.7 Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed fixtures. Maintain maximum headroom.
- 2.8 Do not install flush mounting boxes back-to-back in walls. Provide a minimum 6 inches separation. Provide a minimum 24 inches separation in acoustic or fire rated walls.
- 2.9 Interior Dry Locations: Use galvanized sheet steel, NEMA Type 1.
- 2.10 Floor Mounted Boxes: In slabs on grade and wet locations use NEMA type 4, cast iron boxes. At other locations in slabs, use concrete-tight NEMA 1, sheet steel boxes.
- 2.11 Minimum Size: Outlet boxes for connection to light fixtures, where wiring is concealed, shall be 4 inches square by 1-1/2-inches deep, minimum. Device boxes for receptacles and switches shall be 4 inches square deep type box and for telecommunications or coax cable systems shall be 5 inch square deep type box.
- 2.12 Gasketed Boxes: At the following locations use cast metal, threaded hub type boxes with gasketed weatherproof covers:
- a. Exterior locations.
  - b. Where surface mounted on unfinished walls, columns or pilasters. (Cover gaskets may be omitted in dry locations).



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- c. Where exposed to moisture laden atmosphere.
- d. Any Central Energy Plant location.

## **CONSTRUCTION REQUIREMENTS**

- 3.1 Outlet or junction boxes are designed with covers and code dictates that covers are to be installed. During construction inspections for turnover, any boxes with no cover will be ground for non-acceptance

## **REFERENCE**

- 4.1 The applicable CSI Specification Section is 260503.