

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

This section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

Section numbers are from *MasterFormat 2010 Update*.

SECTION 26 27 26.14
WIRING DEVICES: FLOORBOXES

Specifier Notes: Delete any information below in Parts 1, 2 or 3 which is not required or relevant for the project.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush service floor boxes.
- B. Recessed service floor boxes.
- C. Above-floor service fittings.
- D. Fire-rated poke-through systems.
- E. Access floor modules for raised floors.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM Specification A48 Standard Specification for Gray Iron Castings.
 - 2. ASTM A366 Standard Specification for Commercial Steel (CS) Sheet, Carbon (0.15 Maximum Percent) Cold-Rolled.
 - 3. ASTM A386 Specification for Zinc Coating (Hot-Dip) on Assembled Steel Products.
- B. Canadian Electric Code (CEC)
 - 1. CSA C22.1 Canadian Electrical Code, Part I-Safety Standards for Electrical Installations.
 - 2. CSA C22.2 Canadian Electrical Code, Part II-General Requirements.
- C. National Electrical Manufacturer's Association (NEMA).
 - 1. ANSI/NEMA WD-6 Wiring Devices - Dimensional Requirements.
 - 2. NEMA 250 Enclosures for Electrical Equipment.
- D. Underwriter's Laboratory (UL).
 - 1. UL 514A Metallic Outlet Boxes.
 - 2. UL 514C Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
 - 3. UL G-90-U Approved galvanized material for electrical component.
 - 4. UL QMFZ2 Approved plastic material for electrical component.

- E. National Fire Protection Association (NFPA)
 - 1. NFPA 70 National Electrical Code (NEC)

1.03 SUBMITTALS

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Provide diagrams, identifying components with location.
- D. Selection Samples: For each finished product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finished product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Products shall be free of defects in material and workmanship.
- B. Installer Qualifications: Installer shall have a minimum of two years experience in installing similar products.
- C. Provide a mock-up for evaluation of installation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Redo mock-up area as required to produce acceptable work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.06 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.07 WARRANTY

- A. Product is warranted free of defects in material or workmanship.
- B. Product is warranted to perform the intended function within design limits.
- C. Field-applied paint coatings on raceway, boxes, plates or fittings shall be excluded from raceway manufacturer's warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
ABB Installation Products Inc.
860 Ridge Lake Boulevard
Memphis, Tennessee 38120
800-816-7809, 901-252-5000
electrification.us.abb.com
- Product: Steel City® Floor Boxes
Product: Steel City® Poke Throughs

- B. Substitutions: Not permitted.

2.02 DESIGN AND PERFORMANCE REQUIREMENTS: FLUSH SERVICE FLOOR BOXES

- A. General: Flush service floor boxes for multiple services shall deliver power and communications cable from the same device, without interference from electric power delivery.
1. Construction shall be listed in accordance to UL 514A.
 2. Cubic inch capacity shall be as shown on the plans or as required by code to accept number and size of conductors.
 3. Boxes shall accept conduit sizes as indicated or required. Provide bushings where required.
 4. When hinged cover is closed and no services in place, device shall have no obstructions above surface of floor.
 5. Cover assembly shall protect against the ingress of water and foreign material with a gasket and shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
- B. Device plates, faceplates and trims as scheduled or as required as manufactured by ABB Installation Products Refer to Materials Finish Schedule.
- C. Round Flush Service Floor Boxes Series shall deliver power or communications cable.
1. Provide shallow design where scheduled or required.
 2. Product: 68 Series Round Floor Boxes as manufactured by ABB Installation Products shall be stamped steel with a zinc plating minimum 0.0005 inch (0.0127 mm) thick on the outside and 0.00015 inch (0.0038 mm) thick on the inside as scheduled on the plans or as required.
 3. Product: 600 Series Round Floor Boxes as manufactured by ABB Installation Products with cast iron fully adjustable watertight body.
 4. Product: 68P Series Round Floor Box as manufactured by ABB Installation Products fabricated of PVC plastic.
 - a. Provide voltage divider for dual service applications with power receptacle and data jacks as scheduled or required.
 5. Covers: 4 inches (102 mm) diameter, machine finished brass or aluminum with gasket.
 - a. Carpet or tile frame shall be brass or aluminum. Refer to Materials Finish Schedule.
 - b. Cover assembly shall protect against the ingress of water or foreign material with a gasket and shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 6. Product: 68 HP Series Round Floor Boxes as manufactured by ABB Installation Products, Inc fabricated of PVC plastic.
 - a. Provide flush mounting frame with divider for dual service applications with power receptacle(s) and data jacks as scheduled or required.
 - b. Cast Iron and furniture feed options where scheduled or required.
Covers: 6 inches diameter, machine finished brass, aluminum, or black powder-coated aluminum with gasket.
 - c. Cover assembly shall protect against the ingress of water or foreign material with a gasket and

- d. shall meet UL scrubwater exclusion requirements for carpet, wood, and tile floors.
 - d. Cover assembly for furniture feeding power and communications wiring to modular furniture as manufactured by ABB Installation Products, Inc.
 - e. Shall include a concentric 1 inch and 1-1/2 inch threaded hub for conduit connections.
 - f. Cover: Solid brass with brushed finish.
 - g. Cover: Aluminum brushed finish.
 - h. Cover: Aluminum, powder-coated black finish.
 - i. Cover: Aluminum, polymer ceramic coated black (i.e., Cerakote).
- D. Rectangular Flush Service Floor Boxes: Fabricated of cast iron.
- 1. Product: 640 Series (1-4 gangs) as manufactured by ABB Installation Products
 - a. Shall have 35 cubic inch (574 cubic cm) capacity in each gang.
 - b. Shall be fully adjustable.
 - 2. Product: 840 Series (1-3 gangs) as manufactured by ABB Installation Products
 - a. Shall have 16 cubic inch (262 cubic cm) capacity in each gang.
 - b. Shall provide leveling screws for adjustability before the concrete pour.
 - c. Overall height of 2 inches (51 mm).
 - 3. Design:
 - a. Shall accept conduit sizes up to 1 inch (25.4 mm).
 - b. Shall deliver power and communications cable without interference from electric power delivery.
 - c. Shall be painted inside and out with weatherproof paint intended for use on metal as indicated on the plans or as required.
 - 4. Covers:
 - a. Carpet or tile frame shall be brass, aluminum, polycarbonate, nylon. Refer to Materials Finish Schedule.
 - b. Cover assembly shall protect against the ingress of water or foreign material with a gasket and meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
- E. Rectangular Flush Service Floor Boxes: Shall be 16 gauge galvanized stamped steel.
- 1. Product: 740 Series (1-3 gangs) as manufactured by ABB Installation Products.
 - 2. Provide shallow floor box where scheduled or required.
 - 3. Design:
 - a. Shall accept conduit sizes up to 1 inch (25.4 mm).
 - b. Shall deliver power and communications cable without interference from electric power delivery.
 - 4. Covers:
 - a. Carpet or tile frame shall be brass, aluminum, polycarbonate, nylon. Refer to Materials Finish Schedule.
 - b. Cover assembly shall protect against the ingress of water or foreign material with a gasket and meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
- F. Rectangular Flush Service Floor Boxes: Shall be nonmetallic (Noryl plastic).
- 1. Product: 640P Series (1-3 gangs) as manufactured by ABB Installation Products.
 - 2. Design:
 - a. Shall accept conduit sizes up to 1 inch (25.4 mm).
 - b. Shall deliver power and communications cable without interference from electric power delivery.
 - 3. Covers:
 - a. Carpet or tile frame shall be brass, aluminum, polycarbonate, nylon. Refer to Materials Finish Schedule.
 - b. Power receptacle mounting plate constructed of PVC. Data plates constructed of polycarbonate.
 - c. Cover assembly shall protect against the ingress of water or foreign material with a gasket

and meet UL scrubwater exclusion requirements for carpet, wood and tile floors.

- G. Cover Type:
 - 1. Refer to Drawing General Notes for cover type application required.
 - 2. Plug cover for N.P.S size as scheduled or required.
 - 3. Duplex Lift Lid.
 - 4. Hinged Lift Lids.
 - 5. GFCI Lift Lid.

2.03 DESIGN AND PERFORMANCE REQUIREMENTS: RECESSED SERVICE FLOOR BOXES

- A. General: Recessed service boxes for multiple services shall deliver power and communications cable from the same device, without interference from electric power delivery.
 - 1. Construction shall be listed in accordance with UL 514A.
 - 2. Boxes shall accept conduit sizes as indicated or required. Provide bushings where required.
 - 3. When hinged cover is closed and no services in place, device shall have no obstructions above surface of floor.
 - 4. Cover assembly shall protect against the ingress of water and foreign material with a gasket and shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
- B. Device plates, faceplates and trims as scheduled or as required as manufactured by ABB Installation Products. Refer to the Materials Finish Schedule.
- C. Two Compartment Recessed Service Floor Boxes with Round Covers:
 - 1. Product: 663-SC Series as manufactured by ABB Installation Products.
 - 2. Design:
 - a. Stamped electro galvanized 14-gauge sheet steel.
 - b. Shall have 90 cubic inch (1475 cubic cm) total capacity with 25 cubic inch (410 cubic cm) power chambers.
 - c. Shall accept conduit sizes up to 1-1/4 inches (32 mm). Provide flange and adjusting ring where scheduled or required.
 - 3. Cover and Carpet Plate: Shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 - a. Refer to Material Finish Schedule.
 - b. Shall be constructed of brass.
 - c. Shall be constructed of aluminum.
 - d. Polycarbonate Cover Color: Charcoal.
 - e. Polycarbonate Cover Color: Brown.
 - f. Polycarbonate Cover Color: Gold.
- D. Two Compartment Recessed Service Floor Boxes with Rectangular Covers:
 - 1. Product: 664 Series as manufactured by ABB Installation Products.
 - 2. Model Numbers:
 - a. 664-SC: 3-1/4 inches (83 mm) depth. Stamped electro galvanized 14-gauge sheet steel. Shall have 90 cubic inch (1475 cubic cm) total capacity with 24 cubic inch (393 cubic cm) power chambers.
 - b. 664-S: Stamped steel, shallow 2-7/8 inches (73 mm) depth and 70 cubic inch (1147 cubic cm) total capacity.
 - c. 664-CI: 3-1/4 inches (83 mm) depth. Cast Iron. Shall have 90 cubic inch (1475 cubic cm) total capacity with 24 cubic inch (393 cubic cm) power chambers.
 - 3. Design:
 - a. Shall accept conduit sizes up to 1-1/4 inches (32 mm).
 - b. Shall provide 18 square inches (116 square cm) of access with cover open.

4. Nonmetallic Covers
 - a. Shall be constructed of polycarbonate.
 - b. Hinged lid shall be reinforced with a 5/32 inch (4 mm) steel plate.
 - c. Shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 - d. Cover Color: Refer to Materials Finish Schedule.
 - e. Cover Color: BLK (black)
 - f. Cover Color: GRY (gray)
 - g. Cover Color: BRN (brown)
 - h. Cover Color: BGE (beige)
 5. Metallic Covers
 - a. Shall be constructed of solid brass or aluminum.
 1. Solid brass with brushed finish.
 2. Aluminum brushed finish.
 3. Aluminum, powder-coated black finish.
 4. Aluminum, polymer ceramic coated black (i.e. Cerakote).
 - b. Shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 - c. Shall feature reversible cover with no flip lid that raises up above the level of the cover.
 - d. Load rating shall be 2,250 lbs.
- E. Four Compartment Recessed Service Floor Boxes - Galvanized Steel:
1. Box shall be constructed of 0.070 inch (1.8 mm) minimum thickness galvanized steel. Leveling legs shall be provided to allow for 1-1/2 inches (38 mm) adjustment prior to the concrete pour. The box shall be 4-gang with each gang having a capacity of 40 cubic inches (656 cubic cm) for devices and wiring. Each gang shall have (3) 1-1/4 inches (32 mm) KO's and (2) 3/4 inch (19 mm) KO's on the sides and (1) 1-1/4 inches (32 mm) KO and (1) 3/4 inch (19 mm) KO on the bottom. A wiring tunnel shall be provided to allow wiring to pass between adjacent or opposite gangs. The overall dimensions of the box shall be 12-1/8 inches by 12-1/8 inches by 3-1/2 inches (308 mm by 308 mm by 89 mm). Alternate Dimensions for Audio-Visual Box: 12-1/8" by 14" by 4-1/2".
 2. Standard Product Model: 665-SC as manufactured by ABB Installation Products.
 3. Audio-Visual Product Model with 2" KO's: 665-AV2 as manufactured by ABB Installation Products.
 4. Nonmetallic Covers: Covers shall be constructed of high-strength polycarbonate plastic with a 5/32 inch (4 mm) thick steel reinforcement plate. The steel reinforcement plate shall be recessed to accept floor-covering material. Covers shall be available in black, gray, brown, and beige. Refer to Materials Finish Schedule. Covers shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors. The cord door shall lock in the open position to prevent damage to cables while in use. The load rating shall be 1000 lb (4536 kg) minimum.
 5. Metallic Covers
 - A. Shall be constructed of solid brass or aluminum.
 1. Solid brass with brushed finish.
 2. Aluminum brushed finish.
 3. Aluminum, powder-coated black finish.
 4. Aluminum, polymer ceramic coated black (i.e. Cerakote)
 - B. Shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 - C. Shall feature reversible cover with no flip lid that raises up above the level of the cover.
 - D. Load ratings shall be 1,500 lbs.
- F. Four Compartment Recessed Service Floor Boxes - Cast Iron:
1. The box shall be constructed of cast iron. Leveling legs shall be provided to allow for 1-1/2 inches (38 mm) adjustment prior to the concrete pour. The box shall be 4-gang with each gang having a capacity of 45 cubic inches (738 cubic cm) for devices and wiring. Two gangs shall have (2) 1-1/4 inches (32 mm) hubs and (1) 3/4 inch (19 mm) hub, and the other two gangs shall have (1) 3/4 inch (19 mm) hub. Removable voltage dividers shall be provided to allow wiring to pass between adjacent gangs. The overall dimensions of the box shall be 14-13/16 inches by 14-13/16 inches by 3-5/8 inches (376 mm by 376 mm by 92 mm).

2. Product: Model: 665-CI as manufactured by ABB Installation Products.
 3. Nonmetallic Covers: Covers shall be constructed of high-strength polycarbonate plastic with a 5/32 inch (4 mm) thick steel reinforcement plate. The steel reinforcement plate shall be recessed to accept floor-covering material. Covers shall be available in black, gray, brown, and beige. Refer to Material Finish Schedule. Covers shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors. The cord door shall lock in the open position to prevent damage to cables while in use. The load rating shall be 1000 lb (4536 kg). minimum.
 4. Metallic Covers
 - A. Shall be constructed of solid brass or aluminum – no plating or painting permitted.
 1. Solid brass with brushed finish.
 2. Aluminum brushed finish.
 3. Aluminum, powder-coated black finish.
 4. Aluminum, polymer ceramic coated black (i.e. Cerakote)
 - B. Shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors.
 - C. Shall feature reversible cover with no flip lid that raises up above the level of the cover.
 - D. Load ratings shall be 1,500 lbs.
- G. Compartment Recessed Service Floor Boxes - Ultra-Shallow:
1. Box: The box shall be constructed of 0.070 inch (1.8 mm) minimum thickness galvanized steel. Leveling legs shall be provided to allow for 1-1/2 inches (38 mm) adjustment prior to the concrete pour. The box shall be 4-gang with two gangs having a capacity of 55 cubic inches (900 cubic cm) and the other 2 gangs having a capacity of 41 cubic inches (672 cubic cm) for devices and wiring. Each gang shall have (4) 1 inch (25.4 mm) KO's and (1) 3/4 inch (19 mm) KO's on the sides. On the bottom, the two large gangs shall have (1) 2 inch (51 mm) KO and (1) 3/4 inch (19 mm) KO, and the two smaller gangs shall have (1) 1 inch (25.4 mm) KO and (1) 3/4 inch (19 mm) KO. Removable voltage dividers shall be provided to route wiring between adjacent gangs. The overall dimensions of the box shall be 15-1/4 inches by 13-1/4 inches by 2-1/2 inches (387 mm by 387 mm by 64 mm).
 2. Product: Model 668-S as manufactured by ABB Installation Products.
 3. Covers shall be constructed of die cast zinc. Covers shall be powder coated and available in brass, aluminum, black, brown, and beige colors. Refer to Materials Finish Schedule.
 4. Covers shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors. The cord door shall lock in the open position to prevent damage to cables while in use. The load rating shall be 1000 lb (4536 kg) minimum.
- H. Compartment Recessed Service Floor Boxes: Each compartment shall accept up to 2 power devices as required.
1. Product: 667-SC Series stamped electro galvanized 14-gauge sheet steel as manufactured by ABB Installation Products.
 2. Design:
 - a. Shall have 128 cubic inch (2098 cubic cm) total capacity with 40 cubic inch (656 cubic cm) power chamber.
 - b. Shall accept conduit sizes up to 1-1/4 inches (32 mm).
 - c. Shall afford 74 square inches (477 square cm) of access with cover open.
 - d. Shall have a depth of 3 inches (76 mm).
 3. Covers:
 - a. Shall be constructed of polycarbonate.
 - b. Hinged lid shall be reinforced with a 5/32 inch (4 mm) steel plate.
 - c. Shall meet UL scrubwater exclusion requirements.
 - d. Refer to Materials Finish Schedule.
 - e. BLK (black).
 - f. GRY (gray).
 - g. BRN (brown).
 - h. BGE (beige).

- I. Round Recessed Service Covers for Floor Box Applications:
 1. Product: 68R Series as manufactured by ABB Installation Products.
 2. The covers shall be listed in accordance to UL 514A and certified to CSA C22.2 No. 18.
 3. Design:
 - a. The cover shall be round and shall incorporate a recessed cavity with a lid that can be closed to conceal all plugs and receptacles below floor level. The lid shall rotate to expose a small opening for cords to exit the box. The lid shall close completely flush with the floor, even with cords plugged into the box.
 - b. The cover shall include two set screws for securing the cover in the floor - no gluing required. The cover shall be removable for modifications.
 - c. The cover shall meet UL scrubwater exclusion requirements for carpet, wood and tile floors when not in use.
 4. Concrete Applications: The 68R covers shall be used with a Steel City 68P round PVC floor box.
 5. Wood Sub-Floor Applications: The 68R covers shall be used with an appropriate Steel City 3 inches by 2 inches (76 mm by 51 mm) metal switch box with mounting ears.
 6. Raised Floor Applications: The 68R covers shall be used with an appropriate Steel City 3 inches by 2 inches (76 mm by 51 mm) metal switch box with mounting ears.
 7. Construction:
 - a. Voltage Divider: The voltage divider shall be constructed of polycarbonate.
 - b. The recessed housing shall be constructed of PVC.
 - c. Covers: The flange and lid shall be constructed of polycarbonate.
 - d. Refer to Material Finish Schedule.
 - e. Covers shall be gray.
 - f. Covers shall be black. Black covers shall have optional brass or aluminum carpet flanges.
 - g. Covers shall be brown.
 - h. Covers shall be beige
 - i. Device Plates: The power receptacle mounting plate shall be constructed of PVC. Data plates shall be constructed of polycarbonate.

2.04 DESIGN AND PERFORMANCE REQUIREMENTS: ABOVE-FLOOR SERVICE FITTINGS

- A. Product: Series SFH as manufactured by ABB Installation Products.
 1. Shall be sized as indicated on drawings or as required by code for size and quantity of Conductors.
 2. Shall be brushed aluminum service fitting heads.
 3. Shall deliver electrical power from receptacles as designated on the plans.
 4. Shall deliver telephone/data through precut bushed opening.
 5. Shall be furnished standard with required receptacles.
 6. Shall be furnished standard with conduit nipple for direct screw threading into cover assembly.
 7. Shall be UL listed.

2.05 DESIGN AND PERFORMANCE REQUIREMENTS: FIRE-RATED POKE THROUGH SYSTEMS

- A. General:
 1. The device shall be listed in accordance to UL 514A.
 2. The minimum spacing of 2 feet (610 mm) on center and not more than one unit per each 65 square feet (6 square meters) of floor area in each span.
 3. UL File Number: E2969.
 4. UL Fire Resistance Directory: R9140.
 5. Provide City of Chicago approved base units where scheduled or required for poke through style specified.
- B. Fire Rating Application:
 1. 1-Hour Rated Floor:

- a. 2-1/4 inches (57 mm) minimum concrete over steel decking required.
 - b. 3 inches (76 mm) minimum concrete for reinforced slab required.
 - c. 7-1/2 inches (191 mm) maximum concrete thickness required.
2. 2-Hour Rated Floor:
- a. 3-1/4 inches (86 mm) minimum concrete over steel decking.
 - b. 4 inches (102 mm) minimum concrete for reinforced slab.
 - c. 7-1/2 inches (191 mm) maximum concrete thickness.
- C. Provide a flush power and communications poke through for use in a 4 inch (102 mm) hole.
1. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 2. Conduit Hubs: Cast Iron.
 3. Cover: Solid Brass with brushed finish.
 4. Cover: Aluminum, brushed finish
 5. Cover: Aluminum, powder-coated black finish
 6. Cover: Aluminum, powder-coated brown finish
 7. Cover: Aluminum, powder-coated beige finish
 8. Cover: Aluminum, gray finish
 9. Product: FPT4-4P-4C Flush Poke Through Series as manufactured by ABB Installation Products.:
 - a. Shall accommodate four 20A receptacles on 2 circuits, each circuit can be wired as isolated ground.
 - b. Shall accommodate up to four communications devices.
 - c. Separation of services shall be maintained throughout.
 - d. Integral 1/2 inch (12 mm) hub for power wiring and an integral 1 inch (25 mm) hub for communications cabling.
 10. Product: FPT4-2P-6C Flush Poke Through Series as manufactured by ABB Installation Products.:
 - a. Shall accommodate (2) 20A receptacles on the same circuit, the circuit can be wired as isolated ground.
 - b. Shall accommodate up to (6) communications devices.
 - c. Separation of services shall be maintained throughout.
 - d. Integral 1/2 inch (12 mm) hub for power wiring and an optional 1 inch (25 mm) hub for communications cabling.
 11. Product: FPT4-8C Flush Poke Through Series as manufactured by ABB Installation Products:
 - a. Shall accommodate up to 8 communications devices.
 - b. Optional 1-1/4 inch (32 mm) hub for communications cabling.
 12. Product: FPT4-1TL-2C Flush Poke Through Series as manufactured by ABB Installation Products:
 - a. Shall accommodate one locking receptacle (20A-125V, 20A-250V, 30A-125V or 30A-250V) as scheduled or required.
 - b. Shall accommodate up to two communications devices.
 - c. Separation of services shall be maintained throughout.
 - d. Integral 1/2 inch (12 mm) hub for power wiring and an optional 1/2 inch (12 mm) hub for communications cabling.
 13. Communication Device Plates:
 - a. Communication device plates shall be constructed of galvanized steel and shall be powder-coated black.
 - b. Plates shall be available to accommodate specialty communications devices from common manufacturers.
 - c. All plates shall be removable through the top of the poke-through without exposing power compartment(s).
 14. Junction Box:
 - a. The box shall be constructed of 0.062 inch (1.6 mm) minimum thickness galvanized steel.
 - b. The box shall have a capacity of 27 cubic inches (442 cubic cm).
 - c. The box shall be connected to the body with a 6 inches (152 mm) piece of 1/2 inch (12 mm) EMT conduit.

- d. The box shall be factory-installed and shall drop through the 4 inch (102 mm) core-drilled hole during installation.
- D. Provide a flush power and/or communications poke through for use in a 3 inch (76 mm) hole.
- 1. Product: FPT3 Series Flush Poke Through as manufactured by ABB Installation Products.
 - a. Capacity shall be one duplex receptacle and two data jacks.
 - b. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 - c. Junction Box: Galvanized steel.
 - d. Cover: Solid brass with brushed finish.
 - e. Cover: Aluminum brushed finish
 - f. Cover: Aluminum, powder-coated black finish
 - g. Cover: Aluminum, powder-coated brown finish
 - h. Cover: Aluminum, powder-coated beige finish
 - i. Cover: Aluminum, gray finish
 - 2. Product: FPT Series Flush Poke Through as manufactured by ABB Installation Products.
 - a. Capacity shall be one duplex receptacle.
 - b. Metallic Cover: Solid brass or aluminum with brushed finish.
 - c. Cover: Nonmetallic black color
 - d. Cover: Nonmetallic, brown color
 - e. Cover: Nonmetallic, beige color
 - f. Cover: Nonmetallic, gray color
 - g. Base: phenolic, galvanized steel and intumescent fire-stop material.
 - h. Junction Box: 27 cubic inch capacity with 1/2 inch (12 mm) and 3/4 inch (19 mm) KO's for power conduit connections.
- E. Provide furniture feed poke through service fitting for use in a 4 inch (102 mm) hole.
- 1. Product: FFPT4 Series Furniture Feed Poke Through as manufactured by ABB Installation Products.
 - a. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 - b. The base shall include a 1-1/4 inch (32 mm) EMT conduit stub for communications cable entry.
 - c. The base shall include a 3/4 inch (19 mm) EMT conduit stub connecting the poke through to the junction box.
 - d. The base shall maintain separation of power and communications services throughout.
 - e. Cover: Shall include a concentric 2 inch (51 mm) and 1-1/4 inch (32 mm) threaded hub for conduit connections.
 - f. Cover: Solid brass with brushed finish
 - g. Cover: Aluminum brushed finish
 - h. Cover: Aluminum, powder-coated black finish
 - i. Cover: Aluminum, powder-coated brown finish
 - j. Cover: Aluminum, powder-coated beige finish
 - k. Cover: Aluminum, gray finish
- F. Provide furniture feed poke through service fitting for use in a 3 inch (76 mm) hole.
- 1. Product: FFPT3 Series Furniture Feed Poke Through as manufactured by ABB Installation Products.
 - a. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 - b. The base shall include a 2 inch (51 mm) EMT conduit stub for cable entry.
 - c. Cover: Shall include a concentric 2 inch (51 mm) and 1-1/4 inch (32 mm) threaded hub for conduit connection.
 - d. Cover: Solid brass with brushed finish.
 - e. Cover: Aluminum brushed finish
 - f. Cover: Aluminum, powder-coated black finish

- g. Cover: Aluminum, powder-coated brown finish
 - h. Cover: Aluminum, powder-coated beige finish
 - i. Cover: Aluminum, gray finish
2. Product: FPT Series Furniture Feed Poke Through as manufactured by ABB Installation Products.
- a. Base: phenolic, galvanized steel and intumescent fire-stop material.
 - b. The base shall include an opening for communications cable with capacity equivalent to two 3/4 inch (19 mm) conduits.
 - c. Junction Box: 27 cubic inch capacity with 1/2 inch (12 mm) and 3/4 inch (19 mm) KO's for power conduit connections.
 - d. Cover: Shall include two 1/2 inch (12 mm) threaded hubs and one 3/4 inch (19 mm) threaded hubs for conduit connection.
 - e. Cover: Nonmetallic, black color
 - f. Cover: Nonmetallic, brown color
 - g. Cover: Nonmetallic, beige color
 - h. Cover: Nonmetallic, gray color
- G. Provide an above floor pedestal power and communications poke through service fitting for use in a 3 inches (76 mm) hole.
1. Product: FPT3 Series as manufactured by ABB Installation Products.
- a. Covers: Brushed Aluminum.
 - b. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 - c. Junction Box: Galvanized Steel.
 - d. Capacity: 2 and 4 compartment for power and/or communications.

- H. Provide a recessed power and/or communications poke through for use in a 6 inch (152 mm) hole.
 - 1. Product: RPT6 Series Recessed Service, 3-Gang Poke Through as manufactured by ABB Installation Products.
 - a. Shall accommodate one locking receptacle (20A-125V, 20A-250V, 30A-125V or 30A-250V) as scheduled or required.
 - b. Shall accommodate a combination of up to three devices (Gangs?) for power, data and/or communications.
 - c. Base: Die-cast zinc, Galvanized steel, and intumescent fire-stop material.
 - d. Configurable Junction Box: Galvanized steel, 56 cubic inch capacity with 1¼ inch (32 mm), 1½ inch (38 mm) and 2 inch (51 mm) KO's for power conduit connections.
 - e. Cover: Solid brass with brushed finish.
 - f. Cover: Aluminum brushed finish
 - g. Cover: Aluminum, powder-coated black finish

- I. Provide furniture feed poke through service fitting for use in a 6 inch (152 mm) hole.
 - 1. Product: FFPT6 Series Furniture Feed Poke Through as manufactured by ABB Installation Products.
 - a. Base: Die-cast zinc, galvanized steel and intumescent fire-stop material.
 - b. The base shall include a 1-1/4 inch (32 mm) EMT conduit stub for communications cable entry.
 - c. The base shall include a 3/4 inch (19 mm) EMT conduit stub connecting the poke through to the junction box.
 - d. The base shall maintain separation of power and communications services throughout.
 - e. The integral Junction Box shall be constructed of galvanized steel and include (5) ½ inch and (5) ¾ inch knockouts and 27 cubic inch capacity.
 - f. Cover: Shall include a concentric 2 inch (50.8 mm) and 1-1/4 inch (32 mm) threaded hub for conduit connections.
 - g. Cover: Solid brass with brushed finish
 - h. Cover: Aluminum brushed finish
 - i. Cover: Aluminum, powder-coated black finish

- J. Provide a recessed power and/or communications poke through for use in an 8 inch (203 mm) hole.
 - 1. Product: RPT8 Series Recessed Service, 5-Gang Poke Through as manufactured by ABB Installation Products.
 - a. Shall accommodate one receptacle (20A-125V, 20A-250V, 30A-125V or 30A-250V, 50A-250V) as scheduled or required.
 - b. Shall accommodate a combination of up to five devices (Gangs) for power, data and/or communications.
 - c. Base: Die-cast zinc, Galvanized steel, and intumescent fire-stop material.
 - d. Configurable Junction Box: Galvanized steel, 124 cubic inch capacity with 1¼ inch (32 mm) KO, 1½ inch (38 mm) KO, 2 inch (51 mm) KO and 1 inch threaded for power conduit connections.
 - e. Cover: Solid brass with brushed finish.
 - f. Cover: Solid brass with satin nickel finish
 - g. Cover: Aluminum, powder-coated black finish
 - h. Cover: Aluminum brushed finish

2.06 DESIGN AND PERFORMANCE REQUIREMENTS: ACCESS FLOOR MODULES

- A. Device panels shall be power or data / telephone as shown on drawings.
- B. Design:
1. Data panels shall be designed to mount the data connectors and telephone connectors as shown on the drawings.
 2. Shall provide concealed service access to power and communications outlets in a raised floor installation.
 3. Shall deliver power and telephone/data cable without interference from electric power delivery.
 4. The raceway meets the requirements of UL 514A and CSA C22.2 No. 18.
- C. Product:
1. Accepts up to 2 power receptacles. 7-1/8 inches by 4-1/8 inches by 4 inches deep (181 mm by 105 mm by 102 mm). Provides a minimum interior capacity of 75 cubic inches (1229 cubic cm).
 - a. Product: AFM-2 as manufactured by ABB Installation Products.
 2. Accepts up to 3 power receptacles. 7-15/16 inches by 7-15/16 inches by 4 inches deep (202 mm by 202 mm by 102 mm). Provides a minimum interior capacity of 150 cubic inches (2458 cubic cm).
 - a. Product: AFM-4 as manufactured by ABB Installation Products.
 3. Accepts up to 6 power receptacles. 7-15/16 inches by 10 inches by 4 inches deep (202 mm by 254 mm by 102 mm). Provides a minimum interior capacity of 225 cubic inches (3687 cubic cm).
 - a. Product: AFM-6 as manufactured by ABB Installation Products.
 4. Accepts up to 2 power receptacles. 7-15/16 inches by 10 inches by 2-1/2 inches deep (202 mm by 254 mm by 64 mm). Provides a minimum interior capacity of 172 cubic inches (2819 cubic cm).
 - a. Product: AFM-6S as manufactured by ABB Installation Products.
 5. Accepts up to 6 power receptacles. 7-15/16 inches by 10 inches by 4-11/16 inches deep (202 mm by 254 mm by 119 mm). Provides a minimum interior capacity of 201 cubic inches (3294 cubic cm).
 - a. Product: AFM-6V as manufactured by ABB Installation Products.
 6. Accepts up to 10 power receptacles. 9-5/8 inches by 9-5/8 inches by 5-5/8 inches deep (245 mm by 245 mm by 143 mm). Provides a minimum interior capacity of 325 cubic inches (5326 cubic cm).
 - a. Product: AFM-8 as manufactured by ABB Installation Products.
 7. Box: 3-compartment floor box for raised access floors.
 - a. Product: AFM-4R Access Floor Module as manufactured by ABB Installation Products.
- D. Construction:
1. Main box shall be made of 14 gauge cold rolled steel, .070 inch (1.8 mm) minimum thickness, conforming to ASTM A366.
 2. Device panels shall be made of 16 gauge cold rolled steel, .056 inch (1.4 mm) minimum thickness, conforming to ASTM A366.
 3. Device plates shall be constructed of galvanized steel and shall accommodate standard power and data devices.
 4. Hinged outer cover shall be reinforced with a 5/32 inch (4 mm) steel plate.
 5. Steel components to have an electrogalvanized zinc finish conforming to ASTM A386. Sheet metal steel fabrications shall be made of UL approved component G-90-U material.
 6. Nonmetallic cover components shall be nylon, UL recognized component QMFZ2.
- E. Cover:
1. Shall be gray, brown, black or beige. Refer to Material Finish Schedule.
 2. Shall accept floor covering material as required.
 3. Shall be self-leveling when installed.
 4. Cover, when closed, shall protect exiting cables and cords from abuse and abrasion by retractable cable exits. Cover shall install flush with floor and be 180 degree reversible.
 5. Carpet edge shall be protected from fraying by a carpet trim ring of a matching color.

- F. Collar shall be constructed of aluminum. The collar shall couple together the cover and the box while creating a recessed area below floor level for electrical and communications plugs. The collar shall feature locking tabs to hold the recessed box securely in the raised floor tile. The locking tabs shall be actuated by thumbscrews located in the interior of the collar for easy removal.

2.07 DESIGN AND PERFORMANCE REQUIREMENTS: PRE-SET INSERT

- A. GAB Multiple Service Floor Outlet Assembly as manufactured by ABB Installation Products, Memphis, TN, (trade name, Steel City) consisting of:
1. Pre-set insert, Series GAB.
 2. Activating unit shall be AFM-4, AFM-6 and AFM-8 as manufactured by ABB Installation Products.
- B. Pre-Set shall be installed with conduit sizes as shown on the drawings.
1. GAB-4 has standard 3/4 inch (19 mm) conduit thread on power side, in and out. Standard 1-1/4 inches (32 mm) conduit thread on data side, in and out. Special drilling and tapping up to 1-1/2 inches (38 mm) conduit size. Reducing bushings shall be provided to downsize conduit.
 2. GAB-6 has standard 3/4 inch (19 mm) conduit thread on power side, in and out. Standard 1-1/4 inches (32 mm) conduit thread on data side, in and out. Special drilling and tapping up to 1-1/2 inches (38 mm) conduit size. Reducing bushings shall be provided to downsize conduit.
 3. GAB-8-S has 3/4 inch (19 mm) KO on power side, in and out. 1-1/4 inches (32 mm) KO on data side, in and out.
 4. Conduits for power shall enter and leave in-line and on same side so as to maintain separation of services.
 5. Foam blocks or a steel cover shall exclude concrete from the interior.
 - a. Foam blocks or steel cover shall permit a minimum of 1-1/4 inches (32 mm) of concrete over opening prior to activation.
 6. Pre-set: GAB-4.
 - a. 9 inches by 16 inches by 4-1/4 inches (229 mm by 406 mm by 108 mm) high.
 - b. 8 inches by 8 inches (203 mm by 203 mm) nominal concrete opening. (Refer to GAB-4)
 - c. Cast-iron components to be gray iron per ASTM Specification A48, Class 20A.
 - d. Cast-iron components shall be protected with a painted coating as specified in U.L. 514A.
 - e. Steel components to be fabricated from cold rolled steel, .070 inch (1.8 mm) minimum thickness, conforming to ASTM A366.
 - f. Steel components to have an electrogalvanized zinc finish conforming to ASTM A386. Sheet metal steel fabrications shall be made of U.L. approved component G-90-U material.
 - g. Nonmetallic components shall be glass-filled polyimide nylon, U.L. recognized component QMFZ2.
 7. Pre-set: GAB-6.
 - a. 9 inches by 16 inches by 4-1/4 inches (229 mm by 406 mm by 108 mm) high.
 - b. 8 inches by 10 inches (203 mm by 254 mm) nominal concrete opening. (Refer to GAB-6)
 - c. Cast-iron components to be gray iron per ASTM Specification A48, Class 20A.
 - d. Cast-iron components shall be protected with a painted coating as specified in U.L. 514A.
 - e. Steel components to be fabricated from cold rolled steel, .070 inch (1.8 mm) minimum thickness, conforming to ASTM A366.
 - f. Steel components to have an electrogalvanized zinc finish conforming to ASTM A386. Sheet metal steel fabrications shall be made of U.L. approved component G-90-U material.
 - g. Nonmetallic components shall be glass-filled polyimide nylon, U.L. recognized component QMFZ2.
 8. Pre-set: GAB-8-S
 - a. 10 inches by 10 inches (254 mm by 254 mm) nominal concrete opening (Refer to GAB-8-S).
 - b. 9-3/4 inches by 16-3/8 inches by 5-7/8 inches (248 mm by 416 mm by 149 mm) high.

- c. Steel components to be fabricated from cold rolled steel, .070 inch (1.8 mm) minimum thickness, conforming to ASTM A366.
 - d. Steel components to have an electrogalvanized zinc finish conforming to ASTM A386. Sheet metal steel fabrications shall be made of U.L. approved component G-90-U material.
 - e. Nonmetallic components shall be glass-filled polyimide nylon, U.L. recognized component QMFZ2.
- C. Activation Unit:
- 1. Sizes shall match pre-set insert opening as shown on drawings.
 - a. 8 inches by 8 inches (203 mm by 203 mm) nominal size steel box (Refer to AFM-4). Provides a minimum interior capacity of 150 cubic inches (2458 cubic cm).
 - b. 8 inches by 10 inches (203 mm by 254 mm) nominal size steel box (Refer to AFM-6). Provides a minimum interior capacity of 225 cubic inches (3687 cubic cm). If two duplex power receptacles are required on a single panel, the pre-set insert and activation unit shall be GAB-6 and AFM-6 respectively.
 - c. 10 inches by 10 inches (254 mm by 254 mm) nominal size steel box (Refer to AFM-8). Provides a minimum interior capacity of 325 cubic inches (5326 cubic cm).
 - 2. Device panels may be data or telephone as shown on drawings.
 - 3. Data panels shall be designed to mount the data connectors and telephone connectors as shown on the drawings.
 - 4. Cover shall be gray, brown, black or beige as indicated on the Materials Finish Schedule or specified on the drawings.
 - a. Shall accept floor covering material as required.
 - b. Shall be self-leveling when installed.
 - 5. Cover, when closed, shall protect exiting cables and cords from abuse and abrasion by retractable cable exits. Cover shall install flush with floor and be 180 degree reversible.
 - 6. Carpet edge shall be protected from fraying by a carpet trim ring of a matching color.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates and supporting structures have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

- A. Installation shall be in accordance to the NEC, CEC and manufacturer's instructions.

3.03 QUALITY CONTROL - RACEWAY TESTING

- A. Verify layout of system to contract drawings.
- B. Raceway system shall be free of open gaps and exposed uneven cuts.
- C. All outlets, boxes, and enclosures shall be fastened securely to walls or permanent structures.
- D. Verify power wires and data cables are separated by a physical barrier. CAUTION: Power wires and data cables shall not be combined in any channel.

3.04 PROTECTION

- A. Protect installed products until completion of project.



- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION