

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Receptacles, standard, GFCI, and associated device plates.
2. Switches.
3. Wall plates.
4. Occupancy sensors.
5. Plugmold pre wired raceway.

B. **KROGER DIRECT BUY PROGRAM:** Owner supplied/Contractor installed.

1. The Kroger Company will supply the following items for the Contractor to install.
 - a. Occupancy sensors
 - b. Lighting controller and contactors
 - c. Building environmental control
 - d. Cooler and Freezer lighting switches
2. Comply with requirements in Division 00 Section "General Conditions."
3. Contractor supplied items: Accessories as required for a complete installation
4. Contractor installed items: Control devices listed above.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.
- C. The Owner will provide submittals for Owner supplied products for the Contractor's review. The Contractor shall review and return submittals as specified in Division 00 Section "General Conditions."

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
- B. USB Charging Electrical Duplex Outlet: Duplex receptacle with two USB charging ports, LED in use indicator light, 125 V, 20 A: Comply with 2014 NEC Article 406.12 tamper resistant NEMA 5-20R and UL 94.
 - 1. Basis-of-Design Product: Cooper, #TR7746W-BOX.
 - 2. Location: Receptacles in Starbucks, restaurant, and sushi seating areas, employee conference and break room as indicated.
 - 3. Color of Receptacle: Ivory.
- C. Commercial Grade Blade Receptacles: Duplex, straight blade receptacles, 2-pole, 3-wire, grounding, with green hexagonal equipment ground screw. 20 amp, 125 volt, with metal plaster ears; design for side and back wiring with spring loaded, screw activated pressure plate, with NEMA configuration 5-20R, unless otherwise indicated.
 - 1. Manufacturers:
 - a. Hubbell Incorporated Wiring Device-Kellems; (203) 882-4800
 - b. Leviton Mfg. Company Inc.; 800-323-0920
 - c. Bryant Electric, a Division of Hubbell Incorporated; 800-323-2792
 - d. Pass & Seymour/Legrand Wiring Devices & Accessories; 800-611-7277
- D. Color of Receptacles:
 - 1. Ivory, unless otherwise noted.
 - 2. Orange: For isolated ground.
 - 3. Red: For emergency
- E. Locking Receptacles (other than 20 amp, 120 volt): NEMA configuration of proper size for loads indicated on plans or as required for equipment served.
- F. Provide outlets with standard plate, blank, receptacle, switch or cord hole, as required by outlet symbol. Multiple devices mounted on one piece gangplates of appropriate design. No sectionalized plates permitted. Provide plates throughout building of same manufacturer and design.

2.2 PRE-WIRED RACEWAY

- A. Pre-Wired Raceway: With grounded outlets at **6-inches (152-mm)** o.c.
 - 1. Basis-of-Design: The Wiremold Company; Series 2000; 800-621-0049.
 - a. Where duplex and GF receptacles are indicated, provide The Wiremold Company; Series V3000; 800-621-0049.

2. Raceway Color: Ivory.
3. Outlet Color: Ivory.

2.3 GFCI RECEPTACLES

- A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A. Provide with an indicator LED showing that the unit is working properly when lit, and LED off when tripped.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:
 1. Basis of Design Product: Hubbell Incorporated; #GFR5352IA.
- C. GFCI Convenience Receptacles with Weatherproof Receptacle Covers
 1. Product:
 - a. Hubbell Incorporated, #WP826; (203) 882-4800.
 - b. Intermatic Incorporated #WP1010MC; (815)-675-7000.
 2. Receptacles in Meat Preparation Room, Produce Prep and Salad Bar Prep Room, and Seafood Department: GFI type with weatherproof “while-in-use” gray die cast metal covers.
 3. Outdoor receptacles: For vending machines, GFI type with weatherproof “while-in-use” gray die cast metal covers.
- D. Weather Resistant GFCI Convenience Receptacles with Weatherproof Receptacle Covers.
 1. Products:
 - a. Hubbell Incorporated; GFTR20I.
 - b. Legrand North America, Inc.; Pass and Seymour brand, 2095TRWRI.
 - c. Cooper Industries; TWRVGF20V.
- E. Receptacles in Deli, Bakery and Floral Department: GFI type without covers.
- F. Receptacles on Interior Building Columns:
 1. Basis of Design Manufacturer: Hubbell Incorporated; (203) 882-4800.
 - a. 1 Gang Aluminum 3 Outlet Box Gray Hubbell #5320-0.
- G. Color of Receptacles: Ivory, unless otherwise noted.

2.4 WATER TIGHT RECEPTACLES

- A. Watertight receptacles up to, and including, 20 amp (120 volt); coordinate with above:

1. Basis of Design: Hubbell Incorporated; (203) 882-4800. For ampacities larger than the 20 amp, provide Hubbell "Water tight Safety Shroud Twist Lock System" of equivalent.
 - a. Wall Twist Lock Receptacle: Hubbell #HBL2320SW (matching male plug #HBL2311SW).
 - b. Connector Receptacle: Hubbell #HBL2313SW (matching male plug #HBL2311SW).
2. Watertight receptacles: Self-closing covers for wall mounted or interlocking type receptacles and connector cover type if cord mounted receptacles.

2.5 SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Snap: Heavy-duty flush quiet toggle switches, 20 amps, 120-277 volts AC, with mounting yoke insulated from mechanism, with plaster ears, switch handle and back wired clamp pressure plate screw terminals.
2. Basis of Design: Hubbell Incorporated; (203) 882-4800.
 - a. Standard: #1221
 - b. 3-Way: #1223
 - c. 4-Way: #1224.
3. Color: Ivory, unless noted otherwise.

C. Pilot Light Switches, 20 A:

1. Pilot Light: Heavy-duty flush toggle switches, 20 amps, 120-277 VAC, with pilot light handle illuminated when switch is on.
2. Basis of Design: Hubbell Incorporated; (203) 882-4800.
 - a. Single-Pole: #1221-PL
 - b. 2-Pole: #1222-PC
 - c. 3-Way: #1223-PL
3. Color: Ivory, unless noted otherwise.

D. Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors.

1. Basis of Design: Hubbell Incorporated; #HBL1557; (203) 882-4800.
2. Color: Ivory, unless noted otherwise.

E. Cooler and Freezer lighting switches: Refer to Division 01 Section "Vendor Contact List" for information on occupancy sensors.

2.6 OCCUPANCY SENSORS

- A. Refer to Division 01 Section "Vendor Contact List" for information occupancy sensors.

2.7 WALL PLATES

- A. General: Match physical configuration of corresponding wiring devices. (single hole for simplex, two holes for duplex, etc.).
- B. Wall Plates: Provide standard plate, blank, cord hole, switch and duplex outlet wall plates for wiring devices, of types, sizes and ganging, and cutouts, as indicated. Construct with stainless steel screws for securing plates to devices.
 - 1. Material and Finish:
 - a. Brush finished, Type 302, stainless steel.
 - b. Cast metal gasketed, approved for wet locations, with weather-resistant, while-in-use gray die cast metal cover.
 - c. Stamped steel covers for "FS" and "FD" single gang devices boxes.
- C. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with NEMA Type 3R weather-resistant die-cast aluminum with lockable cover.

2.8 MISCELLANEOUS

- A. Lighting Controller and Contactors: Refer to Division 01 Section "Vendor Contact List" for information on lighting controller and contactors.
- B. Wiring between lighting controller and contactors to be provided and installed by Contractor.
- C. Building Environmental Control: Refer to Division 01 Section "Vendor Contact List" for information on building environmental control.
 - 1. The control will be through contactors which turn the power on/off to the lighting panels
- D. Contactors: Mechanically held of proper capacity, with coil clearing contacts. Wire contactors with a relay to properly engage and release the contactor based on one channel switching. See Drawings for proper wiring at the contactor.
- E. Control outside sign and lighting circuits with a photocell control wired through the building environmental control.
- F. Control lighting circuits as indicated on Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.
- B. Coordination with Other Trades:
 - 1. Insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
 - 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 - 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 - 4. Install wiring devices after wall preparation, including painting, is complete.
- C. Conductors:
 - 1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
 - 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 - 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 - 4. Existing Conductors:
 - a. Cut back and pigtail, or replace damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtail existing conductors is permitted provided the outlet box is large enough.
- D. Device Installation:
 - 1. Exterior receptacles to be ground-fault interrupter type.
 - 2. Install wiring devices, as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
 - 3. Coordinate with other work, including painting, electrical boxes and wiring work, as necessary to interface installation of wiring devices with other work.
 - 4. Owner reserves the right to change location of any outlet a distance of **6-feet (1.8-m)** in any direction from plan location, before work is actually roughed-in, at no extra charge.
 - 5. Install wiring devices only in electrical boxes, which are clean, free from excess building materials, dirt and debris.
 - 6. Install brush finish stainless steel wall plates in indoor areas having flush devices, except where marked "WP".
 - 7. Install watertight receptacles in areas marked "WP" with weatherproof "while in use" gray die cast metal covers.
 - 8. Install wiring devices after wiring work is completed.

9. Install wiring devices per proper work phasing.
 10. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A. Use properly scaled torque, indicating hand tool.
- E. Upon installation of wall plates and receptacles, advise other trades regarding proper and cautions use of convenience outlets. At time of Substantial Completion, replace those items which have been damaged, including those burned and scored by faulty plugs.
- F. Receptacle Orientation: Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.
- G. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.
- H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical. Group adjacent switches under single, multigang wall plates.

3.2 IDENTIFICATION

- A. Comply with Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
1. Test Instruments: Use instruments that comply with UL 1436.
 2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.
- B. Tests for Convenience Receptacles:
1. Line Voltage: Acceptable range is 105 to 132 V.
 2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
 3. Ground Impedance: Values of up to 2 ohms are acceptable.
 4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
 5. Using the test plug, verify that the device and its outlet box are securely mounted.
 6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.

END OF SECTION 26 27 26

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