SECTION 26 27 26 – WIRING DEVICES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Standard-grade receptacles, 125V, 20A.
2. GFCI receptacles, 125V, 20A.
3. Twist-locking receptacles.
4. Cord and plug sets.
5. Wall plates.
6. Floor service fittings.
7. Poke-through assemblies.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

B. Pigtail: Short lead used to connect device to branch-circuit conductor.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for pre marking wall plates.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Service-Outlet Assemblies: One for every 10, but no fewer than one.
2. Poke-Through, Fire-Rated Closure Plugs: One for every 5 floor service outlets installed, but no fewer than 2.

PART 2 - PRODUCTS

2.1 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by qualified testing agency, and marked for intended location and use.

B. Comply with NFPA 70.

C. RoHS compliant.

D. Comply with NEMA WD 1.

E. Devices for Owner-Furnished Equipment:

1. Receptacles: Match plug configurations.
2. Cord and Plug Sets: Match equipment requirements.

F. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect or Owner unless otherwise indicated or required by NFPA 70 or device listing.
2. Isolated-Ground Receptacles: Orange.

G. Wall Plate Color: For plastic covers, match device color.

H. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 STANDARD-GRADE RECEPTACLES, 125V, 20A

A. Duplex Receptacles, 125V, 20A:

1. Description: Two-pole, 3-wire, and self-grounding.
2. Configuration: NEMA WD 6, Configuration 5-20R.
3. Standards: Comply with UL 498 and FS W-C-596.

B. Isolated-Ground Duplex Receptacles, 125V, 20A:

1. Description: Straight blade; equipment grounding contacts shall be connected only to green grounding screw terminal of device and with inherent electrical isolation from

mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts. Two-pole, 3-wire, and self-grounding.

2. Configuration: NEMA WD 6, Configuration 5-20R.

3. Standards: Comply with UL 498 and FS W-C-596.

C. Tamper-Resistant Duplex Receptacles, 125V, 20A:

1. Description: Two-pole, 3-wire, and self-grounding. Integral shutters that operate only when plug is inserted in receptacle.

2. Configuration: NEMA WD 6, Configuration 5-20R.

3. Standards: Comply with UL 498 and FS W-C-596.

4. Marking: Listed and labeled as complying with NFPA 70, "Tamper-Resistant Receptacles" Article.

D. Weather-Resistant Duplex Receptacle, 125V, 20A:

1. Description: Two-pole, 3-wire, and self-grounding. Integral shutters that operate only when plug is inserted in receptacle. Square face.

2. Configuration: NEMA WD 6, Configuration 5-20R.

3. Standards: Comply with UL 498.

4. Marking: Listed and labeled as complying with NFPA 70, "Receptacles in Damp or Wet Locations" Article.

2.3 GFCI RECEPTACLES, 125V, 20A

A. Duplex GFCI Receptacles, 125V, 20A:

1. Description: Integral GFCI with "Test" and "Reset" buttons and LED indicator light. Two-pole, 3 wire, and self-grounding.

2. Configuration: NEMA WD 6, Configuration 5-20R.

3. Type: Non-feed through.

4. Standards: Comply with UL 498, UL 943 Class A, and FS W-C-596.

2.4 TWIST-LOCKING RECEPTACLES

A. Twist-Lock, Single Receptacles, 250V, 30A:

1. Configuration: NEMA WD 6, Configuration L6-20R.

2. Standards: Comply with UL 498.

2.5 CORD AND PLUG SETS

A. Match voltage and current ratings and number of conductors to requirements of equipment being connected.

B. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and ampacity of at least 130 percent of equipment rating.

C. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.6 WALL PLATES

A. Single Source: Obtain wall plates from same manufacturer of wiring devices.

B. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: 0.035-inch-thick, satin-finished, Type 302 stainless steel.
3. Material for Unfinished Spaces: Galvanized steel.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

C. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant**,** die-cast aluminum with lockable cover.

2.7 FLOOR SERVICE FITTINGS

A. Flap-Type Service Fittings:

1. Description: Type: Modular, flap-type, dual-service units suitable for wiring method used, with flaps flush with finished floor.
2. Compartments: Barrier separates power from voice and data communication cabling.
3. Flaps: Round, die-cast aluminum with finish as selected by Architect or Owner unless otherwise indicated or required by NFPA 70 or device listing.
4. Service Plate: Same finish as flaps.
5. Power Receptacle: NEMA WD 6 Configuration 5-20R, unless otherwise indicated.
6. Data Communication Outlet: Blank cover with bushed cable opening.

2.8 POKE-THROUGH ASSEMBLIES

A. Description: Factory-fabricated and -wired assembly of below-floor junction box with multi-channeled, through-floor raceway/firestop unit and detachable matching floor service-outlet assembly.

B. Standards: Comply with scrub water exclusion requirements in UL 514.

C. Service-Outlet Assembly: Flush type with simplex receptacles and spaces for RJ-45 jacks as indicated, complying with requirements in Section 271513 "Communications Copper Horizontal Cabling."

D. Size: Selected to fit nominal cored holes in floor and matched to floor thickness.

E. Fire Rating: Unit is listed and labeled for fire rating of floor-ceiling assembly.

F. Closure Plug: Arranged to close unused cored openings and reestablish fire rating of floor.

G. Wiring Raceways and Compartments: For minimum four 10 AWG conductors and minimum of four 4-pair cables that comply with requirements in Section 271513 "Communications Copper Horizontal Cabling."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. 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 boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that cover plate does not cross joint unless joint is troweled flush with face of wall.
4. Install wiring devices after wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around conductor using tools designed for purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. Length of free conductors at outlets for devices shall comply with NFPA 70, Article 300, without pigtails.
4. Existing Conductors:
   a. Cut back and pig-tail or replace damaged conductors.
   b. Straighten conductors that remain and remove corrosion and foreign matter.
   c. Pig-tailing existing conductors is permitted, provided outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of way around terminal screw.

6. Use torque screwdriver when torque is recommended or required by manufacturer.
7. When conductors larger than 12 AWG are installed on 15A or 20A circuits, splice 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on device.
9. When mounting into metal boxes, remove fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation: Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to right.

F. 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.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top.

H. Adjust locations of floor service outlets to suit arrangement of partitions and furnishings.

3.2 GFCI RECEPTACLES

A. Install non-feed-through GFCI receptacles.

3.3 IDENTIFICATION

A. Comply with Section 260553 "Identification."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.4 FIELD QUALITY CONTROL

A. Perform following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15A Load: Value of 6 percent or higher is unacceptable.
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 test plug, verify that device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at circuit breaker, poor connections, inadequate fault-current path, defective devices, or similar

problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION