

BuildingName
The Description of the Project
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SPECIFICATION DIVISION 26

NUMBER SECTION DESCRIPTION

DIVISION 26 ELECTRICAL

SECTION 262726 - WIRING DEVICES

END OF CONTENTS TABLE

DIVISION 26 ELECTRICAL
SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

*INCLUDE PARAGRAPH 1.1.A AND B IN EVERY SPECIFICATION SECTION.
EDIT RELATED SECTIONS 1.1.B TO MAKE IT PROJECT SPECIFIC.*

- A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections, in particular the Related Sections listed below, apply to this Section.

*IN 2 BELOW, SELECT PROPER COMMISSIONING SPEC SECTION NUMBER
APPLICABLE TO THE PROJECT.*

- B. Related Sections:

1. Section 017823 - Operation and Maintenance Manual
2. Section 019100/019110 - Commissioning
3. Section 260513 - Medium, Low & Control Voltage Cables
4. Section 260526 - Grounding and Bonding for Electrical
5. Section 260533 - Electrical Materials and Methods
6. Section 260800 - Electrical Acceptance Tests

1.2 SUMMARY

- A. Section Includes:

1. Lighting switches and occupancy sensors.
2. Receptacles.
3. Device cover plates.
4. Receptacle strips and power poles.
5. Floor boxes and floor poke-through devices.
6. Pin and sleeve connectors.

1.3 SUBMITTALS

- A. Product Data: Include manufacturers, catalog illustrations, models, rated capacities, dimensions, rough-in requirements, wiring diagrams and materials of construction. Wiring diagrams shall be project specific and differentiate between factory wiring and field wiring. Include written sequences of operation for all controls.
- B. Installation, Operation, and Maintenance Manuals

1.4 QUALITY ASSURANCE

- A. Manufacturers and Products: The products and manufacturers specified in this Section establish the standard of quality for the Work. Subject to compliance with all requirements, provide specified products from the manufacturers named in Part 2.

- B. Reference Standards: Products in this section shall be built, tested, and installed in compliance with the specified quality assurance standards, latest editions, of all NEMA and UL standards applicable to each type of wiring device.

1.5 WARRANTY

- A. Provide a complete warranty for parts and labor for a minimum of one year from the date of Substantial Completion.

PART 2 - PRODUCTS

CHANGE DEVICE COLORS WHEN NECESSARY TO MATCH EXISTING DEVICES.

2.1 TOGGLE SWITCHES

- A. Toggle switches shall be rated 120/277 volts, 20-amperes, single-pole, double-pole, 3-way or 4-way as shown, heavy-duty, back and side wired, with white handles. Arrow Hart (Cooper), Bryant, Hubbell, Leviton, or Pass & Seymour.

2.2 DIMMER SWITCHES

- A. Dimmer switches shall be rated for the types of lamps being controlled, 1,000 watts minimum, specification grade, heavy-duty, with white slider or knob and radio noise filter, and suitable for use in a single gang box. Leviton, Lithonia, or Lutron.

2.3 OCCUPANCY SENSORS

SHOW OCCUPANCY SENSOR TYPES, LOCATIONS AND AIMING ON PLAN DRAWINGS. PROVIDE SEPARATION BETWEEN OCCUPANCY SENSORS AND SOURCES OF AIR CURRENTS PER MANUFACTURERS INSTRUCTIONS.

- A. Wall mounted occupancy sensors shall be rated 600 watts minimum, 180 degrees coverage minimum, 300 sq. ft. coverage minimum, infrared type, heavy-duty, white color, with SCR power switching devices, adjustable range or sensitivity, adjustable time delay between 5-30 minutes minimum, adjustable setting of manual or auto "on", integral manual override switches, and suitable for mounting in single gang wall mounted boxes. Sensors with triac power switching devices are not acceptable. Cooper Controls (Eaton), Hubbell, Leviton, Lutron, Sensor Switch, Tork, or WattStopper.
- B. Ceiling mounted occupancy sensors shall be rated 1,000 watts minimum, 180-360 degrees coverage as required, 1,000 sq. ft. coverage minimum, infrared type, heavy-duty, white color, with SCR power switching devices, adjustable range or sensitivity, adjustable time delay between 5-30 minutes minimum, adjustable setting of manual or auto "on", and suitable for mounting in ceiling mounted boxes. Sensors shall utilize a low voltage power supply and control circuits, and be interlocked with the switch circuit for local control. Sensors with triac power switching devices are not acceptable. Cooper Controls (Eaton), Hubbell, Leviton, Lutron, Sensor Switch, Tork, or WattStopper.

PER PROJECT REQUIREMENTS, DELETE EITHER C OR D BELOW. DUAL TECH MICROPHONIC/PIR OCCUPANCY SENSORS ARE LESS SENSITIVE TO AIR CURRENTS, WHILE DUAL TECH ULTRASONIC/PIR OCCUPANCY SENSORS ARE NOT SENSITIVE TO AUDIBLE SIGNALS

- C. Dual technology microphonic/PIR occupancy sensors shall be rated 1,000 watts minimum, 180-360 degrees coverage as required, 1,000 sq. ft. coverage minimum, and combination microphonic/infrared type. The microphonic component shall be acoustically passive and "listen" for sounds indicating occupant motion. The overall occupancy sensor shall be heavy-duty, white color, with SCR power switching devices, adjustable range or sensitivity, adjustable time delay between 5-30 minutes minimum, adjustable setting of manual or auto "on", and suitable for mounting in ceiling or wall mounted boxes. Sensors shall utilize low voltage power supply and control circuits and be interlocked with the switch circuit for local control. Sensors with triac power switching devices are not acceptable. Sensor Switch.
- D. Dual technology ultrasonic/PIR occupancy sensors shall be rated 1,000 watts minimum, 180-360 degrees coverage as required, 1,000 sq. ft. minimum coverage, and combination ultrasonic/infrared type. The ultrasonic component shall operate at 32 kHz minimum and be compatible with hearing aids. The overall occupancy sensor shall be heavy-duty, white color, with SCR power switching devices, adjustable range or sensitivity, adjustable time delay between 5-30 minutes minimum, adjustable setting of manual or auto "on", and suitable for mounting in ceiling or wall mounted boxes. Sensors shall utilize low voltage power supply and control circuits and be interlocked with the switch circuit for local control. Sensors with triac power switching devices are not acceptable. Cooper Controls (Eaton), Hubbell, Leviton, Lutron, Tork, or WattStopper.

2.4 DUPLEX RECEPTACLES

- A. Duplex receptacles shall be rated 125 volts, 20 amps, 2-pole, 3-wire, NEMA Type 5-20R, heavy duty, back and side wired, grounding type with nylon or Lexan bodies. Except where shown otherwise, normal power receptacles shall have white faces, emergency power receptacles shall have red faces, and "special power" receptacles shall have gray faces. Arrow Hart (Cooper), Bryant or Hubbell 5362, or Leviton or Pass & Seymour 5362A.

2.5 GFCI AND AFCI DUPLEX RECEPTACLES

- A. Ground-fault circuit interrupter (GFCI) and arc-fault circuit interrupter (AFCI) duplex receptacles shall be rated 125 volts, 20 amps, 2-pole, 3-wire straight blade type with nylon or Lexan bodies and white faces. GFCI receptacles shall comply with UL 498 and UL 943 and have a blinking light that indicates the GFCI has malfunctioned and no longer provides protection. GFCI receptacles shall trip when ground currents exceed 5 ma, and shall trip in 25 milliseconds maximum. AFCI receptacles shall recognize characteristics unique to an arcing fault and trip when an arc fault is detected. Receptacles shall have an interrupting rating of 2,000 amps and shall lock out (off) when the protection system fails. Arrow Hart (Cooper), Bryant, Hubbell, Leviton, or Pass & Seymour.

2.6 TVSS AND TAMPER-RESISTANT DUPLEX RECEPTACLES

- A. TVSS and tamper-resistant duplex receptacles shall be rated 125 volts, 20 amps, 2-pole, 3-wire straight blade type with nylon or Lexan bodies and white faces. TVSS receptacles shall clamp at 330 volts or less, and shall have visual indication of the failure of their protective circuitry. Tamper-resistant receptacles shall require the simultaneous insertion of both line and neutral plug blades before power is applied to the receptacle contacts. Arrow Hart (Cooper), Bryant, Hubbell, Leviton, or Pass & Seymour.

2.7 USB CHARGER DUPLEX RECEPTACLES

- A. USB charger duplex receptacles shall be rated 125 volts, 20 amps, with two 2-pole, 3-wire, tamper-resistant receptacles and two USB Type A charger ports. Receptacles shall be NEMA Type 5-20R, heavy-duty, back and side wired or pigtail wired, grounding type with nylon or Lexan bodies and white faces. USB ports shall be 5 volts DC, 3.1 amps minimum combined total, compatible with USB Type 2.0 and 3.0 devices. Arrow Hart (Cooper), Bryant, Hubbell, Leviton, or Pass & Seymour.

2.8 SPECIAL PLUGS AND RECEPTACLES

- A. Special plugs and receptacles including twist-lock devices shall be of the voltage, amperage, number of poles, number of wires, configuration, and NEMA Type shown, heavy-duty, with nylon or Lexan bodies and white or gray faces. Arrow Hart (Cooper), Bryant, Hubbell, Leviton, or Pass & Semour. Provide the required quantity of mating plugs when shown on the drawings.

2.9 DEVICE COVER PLATES

- A. Except where unique cover plates are required (wall box dimmers, occupancy sensors, surface raceways, etc.), cover plates for devices shall be of high quality Type 302 stainless steel unless otherwise indicated.

2.10 RECEPTACLE STRIPS

- A. Surface mounted receptacle strips shall consist of white color surface wireways containing matching receptacles of the types shown. Receptacles shall be heavy duty, specification grade, and shall be grounded by a separate green ground conductor. The receptacles shall be spaced and circuited as shown.

2.11 POWER POLES

- A. Power poles shall be white color painted steel unless shown otherwise, with an internal barrier to separate power wiring from telecommunications wiring. Poles shall utilize a Velcro pad at the bottom for attachment to carpeting or tile, and an adjustable T-bar assembly with trim plate for attachment to the ceiling. Receptacles shall be rated 125 volts, 20 amps, 2-pole, 3-wire, NEMA Type 5-20R, heavy-duty, white color, and shall be grounded by a separate green ground conductor. Hubbell, Steelcase, or Wiremold.

COORDINATE WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE REGARDING SIZE, COVER TYPE AND FINISH. EDIT ACCORDINGLY.

2.12 FLOOR BOXES

- A. Floor boxes shall be of the flush, multi-service type, UL listed for fire resistance. Boxes shall be of stamped, galvanized steel, fully adjustable, with a minimum capacity of 80 [50, 30] cubic inches, split into 2 [3] compartments of equal capacity by removable partitions. Boxes shall include polycarbonate [brass] gasketed and watertight covers with integral carpet flanges, dual locking flip lids on the power side and four concentric breakouts on the telecommunications side. FSR, Hubbell, or Wiremold.

COORDINATE WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE REGARDING COVER TYPE AND FINISH.

2.13 FLOOR POKE-THROUGH DEVICES

- A. Floor poke-through devices shall be of the flush type, with two duplex 20A power receptacles and two telecom outlets. Unit shall include two blank inserts for unused telecom openings and the "Communication Adapter" for connecting two 1/2" conduits to the assembly. Flange shall be of brushed brass finish. Unit shall be UL listed for fire resistance. Wiremold RC9 Series or Hubbell PT9 Series.

2.14 PIN AND SLEEVE CONNECTORS

- A. Pin and sleeve connectors shall comply with IEC Standard 309. They shall consist of nylon housings with integral locking rings and cord grips that are color coded by voltage. Pins and sleeves shall be sized, arranged, and keyed to prevent incorrect assembly. Pins or sleeves shall be staggered so that the ground conductor mates first, the neutral conductor mates second, and the energized conductors mate last. Provide integral safety switch interlocks where shown. Crouse-Hinds, Hubbell, Leviton, or Pass & Seymour.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide hospital-grade receptacles in patient care areas.
- B. Except where necessary to match existing receptacles, install receptacles with their ground slots below or to the left of the line and neutral slots.
- C. Provide a minimum No. 10 AWG wire to NEMA Type 6-20R receptacles serving freezers, window air conditioners, or other large appliances.
- D. For each new 120 volt or 277 volt branch circuit, provide a dedicated neutral. Neutrals of branch circuits shall not be shared or daisy-chained.

- E. Receptacles installed in surface raceways being fed by multiple circuits, shall have adjacent receptacles from alternate circuits.
- F. Provide GFCI receptacles or GFCI-protected branch circuits for new and existing 120 volt duplex receptacles located outdoors, in garages, on rooftops, in toilet rooms, in unfinished basements, in kitchens, and within 6 feet of water sources including sinks, cup sinks, fume hood sinks, faucets, and hose bibs. Provide GFCI receptacles for water coolers and vending machines. Standard receptacles protected by an upstream GFCI receptacle or a GFCI circuit breaker are not acceptable.
- G. Provide AFCI receptacles or AFCI-protected branch circuits for new and existing 120 volt duplex receptacles located in dwelling unit common rooms, dining rooms, living rooms, bedrooms, closets, hallways, and similar rooms or areas. Standard receptacles protected by an upstream AFCI receptacle are acceptable only when shown on the drawings.
- H. Provide tamper-resistant receptacles for new and existing 120 volt duplex receptacles located in dwelling units, guest rooms, guest suites, and child care facilities.
- I. Provide waterproof enclosures for receptacles located outdoors or when designated "waterproof" in special indoor applications. Enclosures shall remain watertight even while in use. Cantex, Carlon, Leviton, or TayMac Corporation.
- J. Provide a nametag on each cover plate of new and existing light switches and receptacles identifying the panel and circuit number feeding the device. Trace the existing circuits using an electronic circuit tracer if necessary. Nametags shall consist of black text permanently laminated to adhesive backed clear nylon or Mylar tape. Brother P-Touch. Embossed plastic tape labels are not acceptable.
- K. Color code junction boxes and box covers of emergency circuits with red paint.
- L. Mark junction box covers in indelible ink with the panel and breaker numbers of the circuits contained within.
- M. Set occupancy sensors as follows:
 1. Classrooms, labs: Set for "auto on" and timer for 20-30 minutes.
 2. Offices: Set for "manual on" and timer for 20-30 minutes.
 3. Storage rooms, janitor closets, telecommunication rooms, copy rooms, kitchenettes: Set for "auto on" and timer for 5 minutes.
 4. Toilet rooms and locker rooms: Set for "auto on" and timer for 10 minutes.
 5. Corridors: Set timer for 20-30 minutes.

3.2 FIELD QUALITY CONTROL

- A. Perform testing in accordance with Specification Section 260800 and submit a test report.

3.3 COMMISSIONING

- A. Perform commissioning activities in accordance with Related Sections.

END OF SECTION 262726

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