

SECTION 26 27 26 WIRING DEVICES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide wiring devices in accordance with the Contract Documents.

1.2 QUALITY ASSURANCE

- A. Switches, receptacles and wallplates shall be of the same manufacturer.
- B. Occupancy sensors shall be certified for operation with specific ballasts utilized in controlled lighting fixtures.
- C. Occupancy sensors shall have a minimum three-year warranty.
- D. Equipment shall be certified for use in the State of **Utah** and shall meet the **Utah** Energy Code and local energy ordinances.
- E. Coordinate service fittings with electrified furniture system supplier.
- F. Floor boxes shall comply with UL scrub water tests for carpet, wood and tile floors.

1.3 REFERENCE STANDARDS

- A. Federal Specifications
 - 1. W-S-896F Switches, Toggle (Toggle and Lock), Flush Mounted
 - 2. W-C-596D Electrical Receptacle Connector
- B. NEMA – National Electrical Manufacturers Association
 - 1. NEMA WD 1 General Color Requirements for Wiring Devices
- C. UL – Underwriters Laboratories Inc.
 - 1. UL 498 Standard for Attachment Plugs and Receptacles
 - 2. UL 2043 Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces
 - 3. UL 20 General-Use Snap Switches
 - 4. UL 943 Ground-Fault Circuit Interrupters
- D. ANSI/IEEE
 - 1. C62.41-1991 IEEE Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits

1.4 SUBMITTALS

- A. Manufacturer's product data sheets.
- B. Occupancy sensor layout drawings, $\frac{1}{16}$ inch scale, including interwiring of switchpacks and control devices.
- C. Plugload Control System: Layout drawings including interwiring of switchpacks with occupancy sensors and control devices, together with identification and location of controlled devices.

1.5 COLORS

- A. Device and coverplate colors shall be as selected by Architect. Catalog numbers, where included in this Specification, are not to be used to determine colors of devices and coverplates.
- B. Switches and receptacles connected to the emergency power system shall be red.

- C. Receptacles controlled by plugload control system shall be marked with the NEMA approved permanent marking on the face showing half or full control.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Catalog numbers shall not be used to determine colors of devices and coverplates. Catalog numbers are used to establish minimum acceptable standard.
- B. Switches and Receptacles: Cooper, Hubbell, Leviton, or Legrand Pass & Seymour (P&S).
- C. Wall Dimmers: Leviton, Lutron, or P&S.
- D. Occupancy Sensors: Hubbell Automation/Mytech, Leviton, Novitas, Watt Stopper, or Legrand, Pass and Seymour (P&S).
- E. Floor Boxes and Fittings:
 - 1. Poke through type: Walker/Wiremold or Hubbell
 - 2. Recessed flush floor box type: Hubbell, Steel City, or Walker/Wiremold
- F. Plugstrip and Surface Raceways: Wiremold or Hubbell.
- G. Plugload Control Relays and Receptacles: P&S, Hubbell HMOSS, or Lutron Load Logic.

2.2 SWITCHES

- A. General:
 - 1. Switches shall be of the type indicated on the Drawings.
 - 2. Switches shall be commercial specification grade, 20A, 120/277V, 1HP rated at 120V, 2HP rated at 240V, back- and side-wired, silent handle operation.
 - 3. Pre-terminated plug style switches and sensors are permitted.
- B. Lighting Switches:
 - 1. Toggle handle type:
 - a. Single pole: Leviton 1221-2; Hubbell HBL1221; Cooper 2221, P&S 20AC1, P&S PT20AC1
 - b. Double pole: Leviton 1222-2; Hubbell HBL1222; Cooper 2222, P&S PS20AC2, P&S PT20AC2
 - c. 3 way: Leviton 1223-2; Hubbell HBL1223; Cooper 2223, P&S P20AC3, P&S PT20AC3
 - d. 4 way: Leviton 1224-2; Hubbell HBL1224; Cooper 2224, P&S P20AC4
 - 2. Rocker handle type:
 - a. Single pole: Leviton Decora 5621-2; Hubbell HBL2121; Cooper 7621, P&S 2612
 - b. Double pole: Leviton Decora 5622-2; Hubbell HBL2122; Cooper 7622, P&S 2622
 - c. 3 way: Leviton Decora 5623-2; Hubbell HBL2123; Cooper 7623, P&S 2623
 - d. 4 way: Leviton Decora 5624-2; Hubbell HBL2124; Cooper 7624, P&S 2624
- C. Illuminated Handle Switches:
 - 1. Toggle handle type:
 - a. Single pole: Leviton 1221-LHC; Hubbell HBL1221-ILC; Cooper 2221LTW, P&S PS20AC1CSL
 - b. 3 way: Leviton 1223-LHC; Hubbell HBL1223-ILC; Cooper 2223LTW, P&S PS20AC3CSL
 - 2. Rocker handle type:
 - 3. Single pole: Leviton Decora 5631; Hubbell HBL2121-IL; Cooper 7631, P&S 2625
 - 4. 3 way: Leviton Decora 5633; Hubbell HBL2123-IL; Cooper 7633, P&S 2626
- D. Transfer Fan Switches:
 - 1. Toggle handle type, single pole: Leviton 1221-2, P&S PS20AC1, coverplate engraved FAN.

2. Rocker handle type, single pole: Leviton Decora 5601-2, P&S TM870, coverplate engraved FAN, or equivalent by Cooper, Hubbell, or Pass & Seymour.
- E. Momentary Contact Switches:
 1. Toggle handle type, three position, two circuit, center off: Leviton 1285; P&S 1225; Hubbell HBL1557; Cooper 1995 (20A)
- F. Pilot Light Switches:
 1. Toggle handle, single pole, neon pilot light: Leviton 1221-LHC; Hubbell HBL1221-PL; Cooper 2221-PL; P&S PS20AC1XPL
- G. Key Switches:
 1. Single pole: Leviton 1221-2L; Hubbell 1221-L; Cooper 2221L; P&S PS20AC1L
- H. Weatherproof Switches:
 1. Weatherproof handle/coverplate.
- I. Electronic or Digital Timer Switches:
 1. Five button time interval: 5, 10, 15 and 30 minutes plus OFF button.
 2. Ratings:
 - a. 1000W, 120VAC, incandescent
 - b. 20A, 120VAC, inductive
 - c. 1HP, 120VAC, motor
 3. Leviton Decora 6230M series or P&S RT series

2.3 RECEPTACLES

- A. General:
 1. Receptacles shall be of the type indicated on the Drawings.
 2. Receptacles shall be commercial specification grade, 125V, grounding type, back- and side-wired.
 3. Receptacles shall have a single piece, heavy duty brass ground contact and mounting strap.
 4. Receptacles shall have a nylon face and heat resistant base.
 5. Pre-terminated plug style receptacles are permitted.
- B. Receptacles:
 1. Single, 15A: Leviton 5261; Hubbell HBL5261; Cooper 5261; P&S 5261
 2. Duplex, 15A: Leviton 5262; Hubbell HBL5262; Cooper 5262; P&S 5262
 3. Duplex, 20A: Leviton 5362; Hubbell HBL5362; Cooper 5362; P&S 5362
 4. Designer style single, 15A: Leviton Decora 16251; Hubbell RRD151; Cooper 6250; P&S 26261
 5. Designer style duplex, 15A: Leviton Decora 16252; Hubbell HBL2152; Cooper 6262; P&S 26262
 6. Designer style duplex, 20A: Leviton Decora 16352; Hubbell HBL2162; Cooper 6362; P&S 26352
- C. Isolated Ground Receptacles:
 1. Single, 15A: Leviton 5261-IG; Hubbell IG5261; Cooper IG5261; P&S IG5261
 2. Duplex, 15A: Leviton 5262-IG; Hubbell IG5252; Cooper IG5262; P&S IG5262
 3. Duplex, 20A: Leviton 5362-IG; Hubbell IG5352; Cooper IG5362; P&S IG5362
 4. Designer style duplex, 15A: Leviton Decora 16252-IG; Hubbell IG2152; Cooper IG8262RN; P&S IG26262
 5. Designer style duplex, 20A: Leviton Decora 16352-IG; Hubbell IG2162; Cooper IG8362RN; P&S IG26362
- D. Isolated Ground Surge Suppressor Receptacles:
 1. Duplex, 15A: Leviton 5280-IG; Hubbell IG5262 SA; Cooper 5250S; P&S IG6262SP
 2. Duplex, 20A: Leviton 5380-IG; Hubbell IG5362 SA; Cooper 5350S; P&S IG5362SP

- E. Ground Fault Circuit Interrupter Receptacles:
 - 1. Duplex, 15A: Leviton 8598; Hubbell GF15; Cooper VGF15; P&S 1595
 - 2. Duplex, 20A: Leviton 8898-HG; Hubbell GF20; Cooper VGF20; P&S 2095
 - F. Special Use Receptacles: USB Combination Charger
 - 1. USB Charging minimum 3 Amp, 5VDC Dual Ports:
 - a. Complies with battery charging specification USB BC1.2
 - b. Compatible with USB 1.1/2.0/3.0 devices, including Apple products
 - c. Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, UL 498 and Federal Specification W-C-59615 Amp and 20 Amp 125 Volt Tamper Resistant Duplex
 - d. 2P 3W grounding straight blade
 - e. Complies with Part 16 of the FCC rules
 - 2. Hubbell 15 Amp 125Volt Series Cat #USB15X2, Hubbell 20 Amp 125 Volt Series Cat #USB20X2; P&S TR535USB (single); P&S TR5362USB (double)
 - G. Plugload controlled identified receptacles: Duplex devices shall be identified with the NEMA approved permanent marking on the face showing half or full control
 - 1. P&S 20A duplex Receptacle for half control: 26352CH
 - 2. P&S 20A duplex Receptacle for full control: 26352CD
 - 3. Hubbell DR20
 - H. Dwelling Unit Receptacles (For 2011 NEC Compliance): All 125-volt, 15- and 20-ampere receptacles installed in dwelling units shall be listed tamper-resistant.
 - 1. Duplex, 15A: Leviton TWR15; Cooper TR270; P&S 3232TR Decorator Style: Leviton T5325; Cooper TR117; Hubbell RRD 15 STR; P&S 885TR
 - 2. Duplex, Ground Fault Interrupter, 15A: Leviton T7599; Cooper TWRVGF15; Hubbell GFTR 15; P&S 1595TR; P&S PT1595TR
 - 3. Duplex, Ground Fault Interrupter, 20A: Leviton T7899; Cooper TWRVGF20; Hubbell GFTR 20; P&S 2095TR; P&S PT2095TR
 - I. Tamper Resistant Arc Fault Interrupter (AFCI) Receptacles
 - 1. 5-15R NEMA configuration 15A, P&S AF15TR; Cooper TRAFCI15; Hubbell AFR15TR
 - 2. 5-20R NEMA configuration 20 A, P&S AF20TR; Cooper TRAFCI20; Hubbell AFR20TR
 - J. Special Purpose Receptacles: Rating as indicated on the Drawings.
 - K. Clock Receptacles:
 - 1. Simplex, 15A: Leviton 5261-CH; Hubbell 5235; P&S S3733SS
 - L. Weatherproof Receptacles:
 - 1. Duplex, weatherproof while-in-use rated coverplate with hinged door.
 - 2. All 15- and 20-ampere, 125- and 250-volt non-locking receptacles located in damp or wet locations shall be a listed weather-resistant type. Listed devices shall bear a "WR" marking on the face that is visible when installed.
 - M. Power Connection to Electrified Furniture System:
 - 1. Single gang stainless steel coverplate with factory-cut hole suitable for connection or electrified furniture system wiring whip.
- 2.4 WALL DIMMERS
- A. Wall dimmers shall be suitable for control of the load type (incandescent, low-voltage magnetic, low-voltage electronic, solid state, or fluorescent), load capacity, and branch circuit voltage of the lighting fixtures controlled.
 - B. The Contractor is responsible for coordinating loads, load types, and ganging of wall dimmers.
 - C. Dimmers shall be ganged with adjacent switches to allow for a multi-gang coverplate where multiple devices are installed in a common wall. Where ganged, Contractor shall ensure the de-rated

dimmer (where heat fins are removed) is suitable for the load controlled.

- D. Dimmers shall incorporate solid state Triac dimming rated for a minimum of 150 percent of the control's capacity.
- E. Dimmers shall incorporate surge protection to withstand surges of 6000V, 200A meeting ANSI/IEEE standard C62.41-1980.
- F. Dimmers shall include voltage compensation to stabilize light output from variations in the AC line-voltage. Dimmers in which the light output is not held constant with varying AC line-voltage shall not be acceptable.
- G. Dimmers shall utilize a large toroidal choke to minimize radio frequency interference. Dimmers shall not be susceptible to damage due to 16kV static discharges.
- H. Dimmer slide position shall indicate perceived light level, using the square law power curve in the IESNA Lighting Handbook, 9th edition. Dimmers shall provide smooth and continuously variable control of light intensity.
- I. Three-way dimmers shall be capable of operating in either 3-way switch location.
- J. Plastic parts shall not fade or yellow with prolonged exposure to sunlight. Visible parts shall exhibit ultraviolet stability as defined in ASTM D4674-89.

2.5 OCCUPANCY SENSORS

- A. Occupancy sensors shall be suitable for control of the load type (incandescent, low voltage, or fluorescent), load capacity, and branch circuit voltage of the lighting fixtures controlled.
- B. Ceiling-mounted devices shall be dual-technology type with self-adjusting time delay and sensitivity. Wall switch devices shall be passive infrared.
- C. Bi-Level PIR Wall Switch:
 - 1. Manual or Auto ON options.
 - 2. Auto adjustable time delays, 5, 10, 15, 20, 25, 30 minutes
 - 3. Single level control switch or matching dual-level switching type as indicated on the Drawings.
 - 4. Bypass override ON switch in the event of product failure.
 - 5. 120/277V operation.
 - 6. Provide sensors appropriate for the room size coverage
 - 7. Hubbell Wiring Systems AD 2000 series, Novitas Model 01-400 series, or Watt Stopper WA-200 series, or P&S OSR series.
- D. Ceiling Mounted:
 - 1. One-way type: Hubbell/Wiring Systems ATD 2000 series, Novitas Model 01-100 series, or Watt Stopper DT-200 series.
 - 2. Two-way types: Hubbell Wiring Systems ATD 2000 series, Novitas Model 01-310 series, or Watt Stopper DT-300 series.
 - 3. Corridor type: Hubbell Wiring Systems ATD 2000 series, Novitas Model 01-180 (one way) and 01-190 (two way) series.
- E. Switchpacks:
 - 1. Provide switchpacks as required for circuiting and control as shown on the Drawings.
 - 2. 120/277V operation.
 - 3. Hubbell Wiring Systems CU 300, Novitas Model 13-051, or Watt Stopper BZ-150.

2.6 FLOOR BOXES AND FITTINGS

- A. General:
 - 1. Provide floor boxes and fittings of the types, ratings, and configurations as shown on the

Drawings.

2. Floor boxes and fittings shall be suitable for the fire rating and thickness of the floor.
 3. Combination power/telecom outlets shall have barrier to separate power and telecom wiring.
- B. Poke-Through Pedestal Type Floor Box:
1. Fire-rated insert, junction box, and service fitting. Service fittings shall be diecast aluminum, satin finish.
 2. Single receptacle outlet, 125V, 15A: Walker/Wiremold FIT-200-H/BTC-FIFP-R; Hubbell FR280/PT27A.
 3. Duplex receptacle outlet, 125V, 15A: Walker/Wiremold FIT-200-H/BTC-FIFP-R/FIFP-R; Hubbell FR480/PT27A.
 4. Duplex receptacle outlet, 125V, 20A: Walker/Wiremold FIT-200-H/BTC-FIFP-R; Hubbell FR280/PT27A.
 5. Double duplex receptacle outlet, 125V, 15A: Walker/Wiremold FIT-200-H/BTC-FIFP-R/H/BTC-FIFP-R; Hubbell FR480/PT27A.
 6. Special purpose receptacle outlet: Walker/Wiremold RCI FIT-200; Hubbell System One FR280/PT27A. NEMA outlet type as indicated on the Drawings.
 7. Combination duplex receptacle/telecom outlet, 125V, 15A: Walker/Wiremold RC9FFS/291-H/BTC; Hubbell FR480/PT7XC. Fitting with grommeted hole (coordinate modular jack types with Owner).
 8. Combination double duplex receptacle/telecom outlet, 125V, 15A: Walker/Wiremold RC9FFS/292-H/BTC; Hubbell FR480/PT7XC. Fitting with grommeted hole and modular jacks (coordinate modular jack types with Owner).
 9. Telecom outlet: Walker/Wiremold RCI FIT-200-H/BTC-FIFP-75/FIFP-B; Hubbell FR280/PT7XC. With grommeted hole (coordinate modular jack types with Owner).
 10. Power connection to electrified furniture system: Walker/Wiremold RCI FIT-200-H/BTC-FIFP-75/FIFP-B, or Hubbell FR280/PT27A with blank plate service fitting with factory-cut hole for connection of furniture system wiring whip.
 11. Telecom connection to electrified furniture system: Walker/Wiremold RCI FIT-200-H/BTC/FIFP-B/FIFP-75, or Hubbell FR280/PT27A.
- C. Poke-Through Flush Type Floor Box:
1. Fire-rated insert, junction box, and service fitting. Combination power/telecom outlets shall have barrier to separate power and telecom wiring. Carpet flange shall be diecast aluminum with finish as selected by Architect.
 2. Units shall be field-configurable and -modifiable to accommodate the power, and/or low-voltage requirements as noted on the Drawings.
 3. All components of the poke-through shall be from the same manufacturer.
 4. Combination duplex receptacle with four telecom outlets, 125V, 20A: Hubbell System One S1PT 4X4, RC or AT models by Legrand, Walker/Wiremold.
 5. Combination double duplex receptacle with four telecom outlets, 125V, 20A: Hubbell System OneS1PT 4X4, RC or AT models by Legrand, Walker/Wiremold.
- D. Recessed Poke-Through Type Floor Box:
1. Large size fire-rated insert junction box and service fitting. 3 compartment power/telecom/audio visual outlets to have barrier to separate circuit voltage from low voltage. Carpet flange to be metal with metal plated finish as noted on the drawings.
 2. Device activations shall be recessed with cover closed while in use.
 3. All components of poke through shall be of same manufacturer.
 4. Three compartment poke through Legrand, Wiremold 6AT series, or Hubbell System One S1R6PT series.
 5. Five compartment poke through Legrand, Wiremold 8AT series, or Hubbell System One S1R8PT series.
- E. Recessed Flush Type Floor Box:

1. Cast iron box, multiple gang, 2-inch shallow depth, brass carpet flange and coverplates.
2. Single receptacle outlet, 125V, 15A: Walker/Wiremold 880CM1 floor box, 817C carpet flange, and 828DLR single coverplate; Hubbell B2414 floor box, SB3083 carpet flange, S2825 single coverplate.
3. Duplex receptacle outlet, 125V, 15A: Walker/Wiremold 880CM1 floor box, 817C carpet flange, and 828R coverplate; Hubbell B2414 floor box, SB3083 carpet flange, S3825 duplex coverplate.
4. Duplex receptacle outlet, 125V, 20A: Walker/Wiremold 880CM1 floor box, 817C carpet flange, and 828R coverplate; Hubbell B2414 floor box, SB3083 carpet flange, S3825 duplex coverplate.
5. Double duplex receptacle outlet, 125V, 15A: Walker/Wiremold 880CM2 floor box, 827C carpet flange, and 828R coverplates; Hubbell B4214 floor box, SB 3084 carpet flange, S3825 coverplate.
6. Combination duplex receptacle/telecom outlet, 125V, 15A: Walker/Wiremold 880CM2 floor box, 827C carpet flange, and 828R power coverplate and 828GFITC telecom coverplate; Hubbell B4214 floor box, SB3084 carpet flange, S3825 power coverplate, S3826 telecom coverplate.
7. Combination double duplex receptacle/telecom outlet, 125V, 15A: Walker/Wiremold 880CM3 floor box, 837C carpet flange, and 828R power coverplates and 828GFITC telecom coverplate; Hubbell B4314 floor box, SB3085 carpet flange, S3825 power coverplate, S3826 telecom coverplate.
8. Telecom outlet: Walker/Wiremold 880CM1 floor box, 817C carpet flange, and 828GFITC coverplate; Hubbell B2414 floor box, SB3083 carpet flange, S3826 coverplate.
9. Fire Classified (FC) floor boxes for use in new construction for above grade applications.

2.7 PLUGSTRIP AND SURFACE RACEWAYS

- A. Provide plugstrip and surface-mounted raceway system in lengths shown and suitable for the branch circuiting shown on the Drawings.
- B. Plugstrip shall be grounding type, painted color as selected by Architect. Provide isolated ground type plugstrip where served by an isolated grounding conductor.
- C. All surface telecom raceways shall have full capacity corner elbows to accept fiber cable installations.
- D. Power type:
 1. Single-compartment surface metal raceway with removable cover.
 2. Single receptacle outlets mounted on 12 inch centers.
 3. Wiremold 2000 series, or Hubbell 2000 series.
- E. Power/Telecom type:
 1. Two-compartment surface metal raceway with internal divider and removable cover.
 2. Duplex receptacle outlets and telecom fittings mounted on **12**-inch centers.
 3. Steel Wiremold V-4000 series or Hubbell 4750 IV series, with combination type covers.
 4. Aluminum: Legrand, Wiremold AL series or Hubbell HBLALU series.
- F. Power/Telecom type:
 1. Three-compartment surface metal raceway with internal dividers and removable cover.
 2. Duplex receptacle outlets and telecom fittings mounted on **12** inch centers.
 3. Steel Raceway: Legrand, Wiremold N1-834 134-3 2-XX series or Hubbell 6750 IV series, with 67473 series faceplates.
 4. Aluminum Raceway: Legrand, Wiremold AL5200, AL7320, AL 7450, or Hubbell HBLALU series.
 5. Each channel shall be capable of housing a standard device.

2.8 COVERPLATES

- A. Provide coverplates for wiring devices. Provide multiple gang coverplates where multiple devices are installed in a common location.
- B. Provide stainless steel, smooth-face coverplates in equipment rooms. Provide nylon thermoplastic, smooth-face coverplates in other areas. Thermoset coverplates are not acceptable.

PART 3 - EXECUTION

3.1 GENERAL

- A. General:
 - 1. Verify the exact location of wiring devices with Architect.
 - 2. Devices mounted above counters shall be two inches above the top of the backsplash to the bottom of the coverplate.
 - 3. Provide a number 12 grounding conductor from the device grounding terminal to the panelboard ground bus. Bond wiring device to the outlet box.
 - 4. Switches that control devices that are connected to the emergency power system shall be the illuminated handle type.
 - 5. Connect electrified furniture system wiring whip to furniture feed power outlet. Provide adaptor as required for connection of whip to outlet. Provide approved handle ties for circuit breakers feeding multiwire branch circuits as required for disconnecting means.
 - 6. Receptacles mounted in boxes shall be installed so that the mounting yoke or strap of the receptacle is held rigidly against the surface of the wall. Drywall or plaster surfaces shall be repaired so there are no gaps greater than $\frac{1}{8}$ inch from the edge of the box or fitting.
 - 7. Receptacle faces shall project a minimum of 0.015 inches from the faceplate. Faceplates shall be installed so as to completely cover the opening and seat against the mounting surface.
 - 8. Receptacles for wall-mounted monitors, displays, or televisions shall be mounted behind monitor, adjacent to final wall bracket mounting location, unless otherwise required by monitor manufacturer's instructions. Coordinate with manufacturer's instructions and Architectural drawings.
- B. Switches:
 - 1. Mount switches vertically with the ON position on top.
 - 2. Mount switches on the strike side of doors.
 - 3. Provide toggle handle type lighting switches in equipment rooms. Provide rocker handle type lighting switches in other areas.
- C. Receptacles:
 - 1. Mount receptacles vertically with the grounding pin on bottom.
 - 2. Provide conventional style duplex receptacles in equipment rooms. Provide designer style type duplex receptacles to match rocker handle type lighting switches in other areas.
- D. Occupancy Sensors:
 - 1. It shall be the Contractor's responsibility to locate and aim sensor(s) in the correct location required for complete and proper volumetric coverage within the range of coverage(s) of controlled areas per the manufacturer's recommendations, as the range of coverage of occupancy sensors may vary from one manufacturer to another.
 - 2. Rooms shall have 90 to 100 percent coverage to completely cover the controlled area to accommodate all occupancy habits of single or multiple occupants at any location within the room(s). The locations and quantities of sensors shown on the Drawings are diagrammatic and indicate only the rooms which are to be provided with sensors. The Contractor shall provide additional sensors if required to properly and completely cover the respective room. Where two or more occupancy sensors are indicated within a room or space, they shall be

- arranged so that the coverage overlaps an adjacent sensor's coverage by not less than 25 percent.
3. It is the Contractor's responsibility to arrange a pre-installation meeting with the manufacturer's factory-authorized representative, at the Owner's facility, to verify placement of sensors and installation criteria.
 4. Proper judgment must be exercised in executing the installation so as to ensure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structural components.
 5. Face plate color to be selected by Architect. Submit samples of standard colors to Architect for review.
 6. Provide switchpacks as required for multiple sensor locations and multiple control circuits.
 7. Provide override switch at wall for ceiling-mounted occupancy sensor locations.
- E. Plugstrip:
1. Provide a 1 inch empty conduit home run to the nearest telecommunications terminal board for each 12 linear feet of telecommunications plugstrip.
- F. Coverplates:
1. Install device plates in full contact with wall surface. Plates shall not project out from the wall.
 2. Coverplates for multiple gang wall dimmers shall be continuous flush type tailored to match wall dimmer physical dimensions.
- G. Control Device Commissioning
1. Upon completion of the installation, all control systems and devices shall be commissioned. Occupancy sensors shall be completely commissioned by the manufacturer's factory-authorized technician who will verify all adjustments and sensor placement to ensure a trouble-free occupancy-based lighting control system.
 2. The electrical contractor shall provide both the manufacturer and the electrical engineer with ten working days' written notice of the scheduled commissioning date.
 3. Upon completion of the controls system fine-tuning, the factory-authorized technician shall provide the training necessary to familiarize the Owner's personnel with the operation, use, adjustment, and problem-solving diagnosis of the occupancy sensing devices and systems.

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