

SECTION 262726 – WIRING DEVICES

1. ASHRAE 90.1 Compliance: University of Pennsylvania buildings shall comply with the Commercial Energy Efficiency Requirements of ASHRAE Standard 90.1-2016. The ASHRAE 90.1-2016 compliance paths shall be followed instead of the International Energy Conservation Code (IECC) requirements as permitted by 2018 IECC Section 401.2 Application.
2. ASHRAE 90.1-2016 Compliance Requirement: Automatic Receptacle Control.
 - a. At least 50% of all 125V, 15 and 20 amp receptacles in all private offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, classrooms, and individual workstations.
 - b. At least 25% of branch circuit feeders installed for modular furniture not shown on the construction documents.
 - c. This control shall function on a scheduled basis using a time-of-day control device that turns receptacles off at specific programmed times – an independent program schedule shall be provided for controlled areas of no more than 5000 ft² and not more than one floor (the occupant shall be able to manually override the control device for up to two hours); an occupant sensor that shall turn receptacles off within 20 minutes of all occupants leaving a space; or automated signal from another control or alarm system that shall turn receptacles off within 20 minutes after determining the area is unoccupied.
 - d. All controlled receptacles shall be permanently marked to visually differentiate them from uncontrolled receptacles and are to be uniformly distributed throughout the space. Plug-in devices shall not be used to comply with this requirement.
 - e. Receptacles specifically designated for equipment requiring continuous operation (24/day, 365 days/year) or spaces where an automatic control would endanger the safety or security of the room or building occupants are excluded from this requirement.



3. Wiring devices shall be used in accordance with NFPA70. The devices shall be in accordance with the applicable UL, NEMA, and ANSI/IEEE Standards.
4. All wiring devices shall be commercial grade, minimum. Hospital grade devices shall be used for healthcare occupancies.

6. In addition to normal building applications, the requirements defined herein shall also apply to the following:
 - a. Fume Hoods.
 - b. Laboratory Casework.
7. Design Professional is responsible for selecting devices that are appropriate for the environment and the usage. (i.e. GFCI, IG, Surge Suppression, watertight, weatherproof while in use, etc.).
8. No more than six (6) duplex receptacles shall be placed on a branch circuit. No more than four (4) duplex receptacles serving desktop computers shall be on a single branch circuit.
9. Where multiple receptacles or flexibility of wiring is required, devices shall be installed in surface metal raceway such as Wiremold ALA 4800 series or equivalent as approved by the University Engineering Department.
10. Design Professional is responsible for closely coordinating the needs of the user with the architect and the University. The layout of the receptacles shall be such that these needs are met, as well as complying with all applicable code requirements.
11. Receptacles shall be located adjacent to equipment requiring regular maintenance. Duplex receptacles for floor polishers/steamers will be provided every fifty (50) feet on centers in corridors. Branch circuits feeding corridor receptacles shall not be shared with receptacles in other rooms.
12. Snap switches for motor duty shall be rated for 2HP at 277V, 1HP at 120V and shall meet UL 20 requirements.
13. Wall mounted dimmer switches shall be compatible with dimmable lighting features.
14. Occupancy sensors shall be provided for all spaces except where automatic shutoff is a safety concern. As required by and in accordance with Energy Code requirements. Occupancy sensors (mounting location, technology type, etc.) shall be applied in accordance with manufacturer's guidelines considering ceiling heights, furniture or equipment placement, room shape vs line(s) of sight, air flow, presence of moving equipment, HVAC controls, etc.
15. Wireless devices are to be used only with permission from the University Engineering Department, for the specific instances under consideration. These shall consist of battery-powered wireless remote control devices that communicate via RF link with one or more wired receiver devices, for the purpose of controlling lighting fixtures. In no case shall the RF communications be allowed to interfere with any other building systems or equipment located in or near the building.
16. Wiring device and faceplate colors and finishes shall be coordinated with the architect.
17. Approved Manufacturers: Hubbell, P&S/Legrand, Leviton.
18. Welding receptacles shall be Leviton EDSR-23, with 30A 3-pole, 4 wire grounding type locking receptacle (L16-30R for 480V applications, L15-30R for 208V applications), or equal as approved by the University Engineering Department.



20. Occupancy sensors shall be as manufactured by Wattstopper, or University Engineering Department approved equivalent.
21. Wireless devices shall be as manufactured by Lutron or Wattstopper, or University Engineering Department approved equivalent. Battery life expectancy shall be 10 years minimum.
22. The ground pin shall be up for vertically mounted receptacles, on the left side for horizontally mounted receptacles.
23. All wiring devices shall be labeled with the associated branch circuit panelboard and circuit number – use pre-printed pressure sensitive labels.
24. Receptacles installed for dedicated loads shall be single outlet type (no duplexes) and shall be served by a dedicated branch circuit. Cover plate shall be labeled with the name of the intended load.
25. All receptacles shall be tested for proper polarity, integrity of ground connection, and GFCI operation.