

CHAPTER 7. ELECTRICITY AND LIGHTING

PERFORMANCE OBJECTIVES

- 7-1. GENERAL. Project sites and buildings shall be consistent with the MPS and have safe and efficient electrical systems that provide the following:
- a. Safe distribution systems, equipment and related devices that are not a potential source of electrical or material combustion hazards;
 - b. Capacities and wiring for the safe use of public and domestic appliances as determined by current or proposed project demands;
 - c. Capacities of wiring for safe and efficient operation of building systems, such as mechanical system controls, ventilation fans, water pumps, and other needed equipment;
 - d. Illumination of sites and interior spaces for safe and secure use;
 - e. Continuous functioning of lighting systems;
 - f. Equipment that is durable, dependable and maintainable and does not create conditions hazardous to life or property; and
 - g. Operation with energy efficiency.

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SECTION 1: MANDATORY STANDARDS

- 7-2. ELECTRICAL EQUIPMENT AND WIRING. Electrical equipment shall be in safe and sound condition, and used and installed as required by labeling, listed instructions and relevant codes. Equipment and wiring shall be fastened and protected from overheating, fire, wire exposure or decay. Electrical capacity shall prevent overloading. All systems shall be free of potentially hazardous conditions due to equipment or wiring that is missing, broken, deteriorated, corroded, burnt, cracked, split, frayed or physically damaged. Equipment shall not be dirty to a degree of preventing efficient operation. Doors and panels to electrical panels, fuse boxes or other equipment shall not be missing. Electrical equipment and accessible panels not located in controlled spaces shall have tamper-resistant covers. Electrical systems shall be retrofitted with energy conservation devices that are cost-effective, such as:
- o Individual or check metering;
 - o Power factor correction;

- o Load shedding; and
- o Other.

7-3. CONVENIENCE OUTLETS/RECEPTACLES. Convenience outlets shall be provided in dwelling units, management, and community spaces as required by code. Outlets shall be located to allow for convenient and safe use. Outlets in interior and exterior locations shall be grounded and exterior receptacles shall have ground fault protection. Outlet receptacles shall be in safe and sound condition, firmly anchored to contact devices, not subject to sparking and without evidence of scorching. Outlets shall not have exposed wires or missing cover plates.

- a. Habitable Rooms. Habitable rooms in dwelling units shall have convenience outlets to allow for use of lighting, clocks and other electrical items. Outlets shall be located so that it is not necessary to use extension cords

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which cross room circulation or doorways. When conditions require rewiring, grounded duplex receptacles shall be installed in all habitable rooms and hallways in accordance with relevant codes.

- b. Kitchens. Kitchens shall be provided with a minimum of 20 twenty ampere grounded duplex outlets to safely and conveniently operate minor kitchen appliances. Outlets shall not be located over sinks or ovens, or require extension cords to hang freely on counters, near sinks or other areas exposed to water, moisture or heat.
- c. Dwelling Unit Bathrooms. Each bathroom shall be provided with a minimum of one ground fault circuit interrupter (GFCI) outlet above or adjacent to the lavatory.
- d. Reserved.

7-4. INTERIOR LIGHTING. Interior spaces requiring general illumination shall have permanent wall-switch controlled lighting fixtures. When light bulbs are provided for required illumination in public spaces, they shall have, as a minimum, translucent vandal-resistant bulb covers or globes. Naked bulbs are not permitted. Lighting fixtures shall provide light for the intended use, be supported and anchored, and be safely and soundly wired. Globes and fixtures shall not be broken and wires or internal mechanisms shall not be exposed. Controls shall be operable and protected from misuse. Lighting systems shall be retrofitted with energy conservation opportunities or devices determined cost-effective, such as:

- o Lamp wattage reduction;
- o High efficiency ballast installation;
- o Daylighting control;

- o Incandescent conversion to fluorescent;
- o High efficiency lamp installation; or
- o Other.

In dwelling rooms with a minimum of three duplex outlets where one duplex is operated by a wall switch, a permanent over-head lighting fixture is not required. Permanent light fixtures are required for bath, toilet, kitchen and laundry areas.

7-5. OUTDOOR LIGHTING. Outdoor lighting shall be provided for safe and convenient site access, circulation, and building entry.

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a. Site Lighting. Site lighting shall not cast uncomfortable light directly into dwelling units. Tall trees or shrubbery that cast shadows, preventing lighting of entrance doors or other vulnerable areas, shall be trimmed. Lighting fixtures shall provide light for intended use, be supported and anchored, be vandal-resistant and be safely and soundly wired. Globes and fixtures shall not be broken and wires or internal mechanisms shall not be exposed. Controls shall be operable and protected from misuse. Outdoor lighting shall be retrofitted with energy conservation devices that are cost-effective, such as:

- o Sodium vapor conversion;
- o Photo-cell or time clock control; or
- o Other.

b. Entrance Lighting. Building, service, and exterior dwelling unit entrances shall have permanent, vandal-resistant lighting fixtures. Dwelling unit entrance lights shall be wall-switch operated from the unit interior. Public and service entrance door lights shall have tamper-resistant operations accessible only to authorized personnel.

7-6. EMERGENCY LIGHTING. Twenty-four hour emergency lighting shall be provided for all fire exits, public stairways and corridors, and elevators.

7-7. ELECTRIC UTILITIES. An underground utility system shall not be substituted for an existing overhead utility requiring replacement, except where mandated by local code.

7-8. RESERVED.

7-9. RESERVED.

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SECTION 2: PROJECT SPECIFIC STANDARDS.

7-2B. ELECTRICAL EQUIPMENT AND WIRING. Electrical panels subject to continued abuse may be provided with lockable metal cases or moved to locations 7 ft. or more above the ground.

7-3B. CONVENIENCE OUTLETS/RECEPTACLES.

- a. Reserved.
- b. Kitchens. When electrical installations are to be upgraded, or kitchens are to be substantially rehabilitated, a minimum of one convenience duplex outlet at each counter space wider than 12 inches should be provided. Countertop spaces separated by appliances should be considered separately. Receptacles rendered inaccessible by major appliances should not be considered as required outlets.
- c. Bathrooms. All 125 volt 15 and 20 ampere outlets may have ground fault circuit interrupter protection.
- d. Equipment and Appliance Outlets. When newly installed, outlets for special appliances such as laundry or kitchen equipment should be placed for adequate support within 6 ft. of the intended location of the appliances. Heavy duty fixed equipment or appliances should have individual branch outlets with a minimum capacity of 20 amperes. 120/240 single phase outlets should be provided when window air-conditioners are permitted or through-the-wall sleeves for air conditioning are installed.

7-4B. INTERIOR LIGHTING.

- a. When adding or replacing lighting fixtures, accessibility for relamping should be considered. Suspended lighting fixtures that will collect dust and create a cleaning or maintenance problem should not be used.
- b. When replacement is required and vandalism is a problem, glass light globes should be replaced with high impact plastic or other vandal-resistant fixtures in all spaces, excluding those within dwelling units, where permanent fixtures are provided.

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7-5B. OUTDOOR LIGHTING.

- a. Site Lighting. In areas where lighting systems have been vandalized and abused, the following should be considered:
 - o Provision of high intensity lighting such as mercury vapor, metal halide and high or low pressure sodium in outdoor areas requiring high visibility;
 - o Use of keyed switches to prevent unauthorized manipulation; and

- o Use of building mounted outdoor lighting.
 - b. Entrance Lighting. Dwelling unit entrance lights may be provided to make an entrance more secure.
 - c. Lighting Levels. Lighting levels for areas requiring security and surveillance generally should be a maximum of 5 to 10 footcandles.
- 7-6B. RESERVED.
- 7-7B. RESERVED.
- 7-8B. EMERGENCY CALL SYSTEMS. Where required by local code, emergency call systems may be provided in dwelling units where elderly or disabled tenants are living alone.
- 7-9B. TELEVISION ANTENNAS. A master-television antenna system may be provided in multi-family projects consisting of 20 dwelling units or more, or in buildings with greater than two floors that do not have cable service (CATV) and where existing television reception is unsatisfactory. The cable television system is the responsibility of the CATV company and the individual resident.