

**(B) Construction.** Plugs and receptacles shall be constructed so that differently rated devices cannot be connected together. Alternating-current multipole connectors shall be polarized and comply with the requirements of 406.7 and 406.10.

*Exception: 125-volt, 20-ampere, nonlocking (T-slot) receptacles shall be permitted to accept a 15-ampere attachment plug of the same voltage rating.*

**(C) Interchangeability.** Plugs and receptacles used in portable professional motion picture and television equipment shall be permitted to be interchangeable for ac or dc use if they are on the same premises, listed for ac and dc use, and clearly marked to identify the system to which they are connected.

The studio set lighting and associated equipment, both fixed and portable, must be as flexible as possible. Connectors are often used for different purposes and are therefore marked on a show-by-show basis to designate the voltage, current, and type of current actually employed. The receptacle loads on studio set lighting are known and are not casually connected as they might be at a typical general-use wall receptacle. Care is taken to ensure that circuits are not overloaded, thereby avoiding nuisance tripping.

### 530.10 Single-Pole Separable Connectors.

**(A) General.** Single-pole separable connectors shall comply with the requirements of 406.13. Sections 400.14, 406.7, and 406.8 shall not apply to listed single-pole separable connectors.

**(B) Paralleled Input Devices.** Where paralleled sets of current-carrying single-pole separable connectors are provided as input devices, they shall be prominently labeled with a warning indicating the presence of internal parallel connections. All paralleled input devices other than primary input devices shall be guarded against accidental contact.

**(C) Supply Feed-Through Outlets.** Where portable equipment contains a feed-through outlet of the same rating as its supply inlet, the feed-through outlet shall not require overcurrent protection in the equipment.

**530.11 Branch Circuits.** A branch circuit of any size supplying one or more receptacles shall be permitted to supply stage set lighting loads.

The GFCI requirements of 210.8(B), excluding 210.8(B)(6), shall apply.

Branch circuits supplying egress lighting, life-critical stunts, life-critical special effects, or any other condition where a nonorderly shutdown might introduce additional or increased hazards shall not be protected by GFCIs.

Outdoor circuits are often dimmed and are exempt from the GFCI requirement of 210.8(B)(6) because dimmer-rated GFCI devices are not readily available. Due to the unique requirements of motion picture production, the use of GFCIs for outdoor circuits

must be evaluated on a case-by-case basis. For example, one popular way to perform a high fall stunt from a building is for the stunt performer to land onto an air bag. The air bag must be constantly inflated by a high power fan which is supplied by a dedicated generator; that circuit is thus a life-critical circuit and should not be protected by a GFCI, even if a rain effect is part of the stunt.

### 530.12 Enclosing and Guarding Live Parts.

**(A) Live Parts.** Parts of electrical equipment that are live or are likely to become energized shall be enclosed, guarded, or located so persons cannot accidentally come in contact with them or bring conductive material into contact with them.

**(B) Switches.** All switches shall be of the externally operable type.

## Part II. Portable Equipment In Production Areas of Studios and Remote Locations

### 530.21 Portable Equipment.

**(A) Listing.** Portable stage and studio electrical equipment shall be listed or approved. Field-assembled extension cords and multiconductor cable assemblies consisting of listed connectors and cable shall be permitted in production areas.

**(B) Outdoor Use.** Portable stage and studio equipment and portable power distribution equipment not identified for outdoor use shall be permitted for temporary use if the equipment is supervised by qualified personnel while energized and barriered from the general public.

Informational Note No. 1: See ANSI/ESTA E1.58, *Electrical Safety Standard for Portable Stage and Studio Equipment Used Outdoors*, for requirements covering temporary outdoor use of equipment not identified for outdoor use.

Informational Note No. 2: See ANSI/ESTA E1.19-2015, *Recommended Practice for the use of Class A Ground-Fault Circuit Interrupters (GFCIs) intended for personnel protection in the Entertainment Industry*, for guidance on the use of GFCIs in wet locations.

Portable indoor stage or studio equipment is permitted to be temporarily used outdoors, provided it is supervised by a qualified person and not accessible to the general public. If it rains, the equipment is typically de-energized and covered. At the end of the day, the equipment is either de-energized and protected or dismantled and stored.

### 530.22 Portable Wiring.

**(A) Stage Set Wiring.** The wiring for stage set lighting and other supply wiring not fixed in place shall use listed hard usage flexible cords and cables. Where subject to physical damage, such wiring shall use listed extra-hard usage flexible cords and cables. Splices and taps in cables shall be permitted if the total connected load does not exceed the maximum ampacity of the cable.