

WAC 296-24-95707 Wiring methods, components, and equipment for general use. (1) **Wiring methods.** The provisions of this section do not apply to conductors that are an integral part of factory-assembled equipment.

(a) **General requirements.**

(i) You must effectively bond metal raceways, cable trays, cable armor, cable sheath, enclosures, frames, fittings, and other metal noncurrent-carrying parts that are to serve as grounding conductors, with or without the use of supplementary equipment grounding conductors, where necessary to ensure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them. You must remove any nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces or be connected by means of fittings designed so as to make such removal unnecessary.

(ii) Where necessary for the reduction of electrical noise (electromagnetic interference) of the grounding circuit, an equipment enclosure supplied by a branch circuit may be isolated from a raceway containing circuits supplying only that equipment by one or more listed nonmetallic raceway fittings located at the point of attachment of the raceway to the equipment enclosure. You must supplement the metal raceway by an internal insulated equipment grounding conductor installed to ground the equipment enclosure.

(iii) No wiring systems of any type may be installed in ducts used to transport dust, loose stock, or flammable vapors. No wiring system of any type may be installed in any duct used for vapor removal or for ventilation of commercial-type cooking equipment, or in any shaft containing only such ducts.

(b) **Temporary wiring.** Except as specifically modified in this subsection, all other requirements of this part for permanent wiring must also apply to temporary wiring installations.

(i) Temporary electrical power and lighting installations of 600 volts, nominal, or less may be used only as follows:

(A) During and for remodeling, maintenance, repair or demolition of buildings, structures, or equipment, and similar activities;

(B) For a period not to exceed ninety days for Christmas decorative lighting, carnivals, and similar purposes; or

(C) For experimental or development work, and during emergencies.

(ii) You must remove temporary wiring immediately upon completion of the project or purpose for which the wiring was installed.

(iii) Temporary electrical installations of more than 600 volts may be used only during periods of tests, experiments, emergencies, or construction-like activities.

(iv) The following requirements apply to feeders:

(A) Feeders must originate in an approved distribution center.

(B) Conductors must be run as multiconductor cord or cable assemblies. However, if installed as permitted in (b)(i)(C) of this subsection, and if accessible only to qualified persons, feeders may be run as single insulated conductors.

(v) The following requirements apply to branch circuits:

(A) Branch circuits must originate in an approved power outlet or panelboard.

(B) Conductors must be multiconductor cord or cable assemblies or open conductors. If run as open conductors, they must be fastened at ceiling height every 10 feet.

(C) No branch-circuit conductor may be laid on the floor.

(D) Each branch circuit that supplies receptacles or fixed equipment must contain a separate equipment grounding conductor if run as open conductors.

(vi) Receptacles must be of the grounding type. Unless installed in a continuous grounded metallic raceway or metallic covered cable, each branch circuit must contain a separate equipment grounding conductor and all receptacles must be electrically connected to the grounding conductor.

(vii) No bare conductors nor earth returns may be used for the wiring of any temporary circuit.

(viii) You must install suitable disconnecting switches or plug connectors to permit the disconnection of all ungrounded conductors of each temporary circuit. You must provide multiwire branch circuits with a means to disconnect simultaneously all ungrounded conductors at the power outlet or panelboard where the branch circuit originated.

Note: Circuit breakers with their handles connected by approved handle ties are considered a single disconnecting means for the purpose of this requirement.

(ix) You must protect all lamps for general illumination from accidental contact or breakage by a suitable fixture or lampholder with a guard. Brass shell, paper-lined sockets, or other metal-cased sockets may not be used unless the shell is grounded.

(x) You must protect flexible cords and cables from accidental damage, as might be caused, for example, by sharp corners, projections, and doorways or other pinch points.

(xi) You must support cable assemblies and flexible cords and cables in place at intervals that ensure that they will be protected from physical damage. Support must be in the form of staples, cables ties, straps, or similar type fittings installed so as not to cause damage.

(c) Cable trays.

(i) Only the following wiring methods may be installed in cable tray systems: Armored cable; electrical metallic tubing; electrical nonmetallic tubing; fire alarm cables; flexible metal conduit; flexible metallic tubing; instrumentation tray cable; intermediate metal conduit; liquid tight flexible metal conduit; liquid tight flexible nonmetallic conduit; metal-clad cable; mineral-insulated, metal-sheathed cable; multiconductor service-entrance cable; multiconductor underground feeder and branch-circuit cable; multipurpose and communications cables; nonmetallic-sheathed cable; power and control tray cable; power-limited tray cable; optical fiber cables; and other factory-assembled, multiconductor control, signal, or power cables that are specifically approved for installation in cable trays, rigid metal conduit, and rigid nonmetallic conduit.

(ii) In industrial establishments where conditions of maintenance and supervision assure that only qualified persons will service the installed cable tray system, the following cables may also be installed in ladder, ventilated-trough, or ventilated-channel cable trays:

(A) Single conductor cable; the cable must be No. 1/0 or larger and must be of a type listed and marked on the surface for use in cable trays; where Nos. 1/0 through 4/0 single conductor cables are installed in ladder cable tray, the maximum allowable rung spacing for the ladder cable tray must be 9 inches; where exposed to direct rays of the sun, you must identify cables as being sunlight resistant;

(B) Welding cables installed in dedicated cable trays;

(C) Single conductors used as equipment grounding conductors; these conductors, which may be insulated, covered, or bare, must be No. 4 or larger; and

(D) Multiconductor cable, Type MV; where exposed to direct rays of the sun, you must identify the cable as being sunlight resistant.

(iii) Metallic cable trays may be used as equipment grounding conductors only where continuous maintenance and supervision ensure that qualified persons will service the installed cable tray system.

(iv) Cable trays in hazardous (classified) locations may contain only the cable types permitted in such locations. (See WAC 296-24-95711.)

(v) Cable tray systems may not be used in hoistways or where subjected to severe physical damage.

(d) **Open wiring on insulators.**

(i) Open wiring on insulators is only permitted on systems of 600 volts, nominal, or less for industrial or agricultural establishments, indoors or outdoors, in wet or dry locations, where subject to corrosive vapors, and for services.

(ii) You must rigidly support conductors smaller than No. 8 on noncombustible, nonabsorbent insulating materials and may not contact any other objects. You must install supports as follows:

(A) Within 6 inches from a tap or splice;

(B) Within 12 inches of a dead-end connection to a lamp-holder or receptacle; and

(C) At intervals not exceeding 4 feet 6 inches, and at closer intervals sufficient to provide adequate support where likely to be disturbed.

(iii) In dry locations, where not exposed to severe physical damage, conductors may be separately enclosed in flexible nonmetallic tubing. The tubing must be in continuous lengths not exceeding 15 feet and secured to the surface by straps at intervals not exceeding 4 feet 6 inches.

(iv) You must separate open conductors from contact with walls, floors, wood cross members, or partitions through which they pass by tubes or bushings of noncombustible, nonabsorbent insulating material. If the bushing is shorter than the hole, you must insert a waterproof sleeve of nonconductive material in the hole and an insulating bushing slipped into the sleeve at each end in such a manner as to keep the conductors absolutely out of contact with the sleeve. You must carry each conductor through a separate tube or sleeve.

(v) Where open conductors cross ceiling joints and wall studs and are exposed to physical damage (for example, located within 7 feet of the floor), you must protect them.

(2) **Cabinets, boxes, and fittings.**

(a) **Conductors entering boxes, cabinets, or fittings.**

(i) You must protect conductors entering cutout boxes, cabinets, or fittings from abrasion, and you must effectively close openings through which conductors enter.

(ii) You must effectively close unused openings in cabinets, boxes, and fittings.

(iii) Where cable is used, you must secure each cable to the cabinet, cutout box, or meter socket enclosure. However, where cable with an entirely nonmetallic sheath enters the top of a surface-mounted enclosure through one or more nonflexible raceways not less than 18 inches or more than 10 feet in length, the cable need not be secured to the cabinet, box, or enclosure provided all of the following conditions are met:

(A) Each cable is fastened within 12 inches of the outer end of the raceway, measured along the sheath;

(B) The raceway extends directly above the enclosure and does not penetrate a structural ceiling;

(C) A fitting is provided on each end of the raceway to protect the cable from abrasion, and the fittings remain accessible after installation;

(D) The raceway is sealed or plugged at the outer end using approved means so as to prevent access to the enclosure through the raceway;

(E) The cable sheath is continuous through the raceway and extends into the enclosure not less than 0.25 inches beyond the fitting;

(F) The raceway is fastened at its outer end and at other points as necessary; and

(G) Where installed as conduit or tubing, the allowable cable fill does not exceed that permitted for complete conduit or tubing systems.

(b) **Covers and canopies.**

(i) You must provide all pull boxes, junction boxes, and fittings with covers identified for the purpose. If metal covers are used, you must ground them. In completed installations, each outlet box must have a cover, faceplate, or fixture canopy. You must provide covers of outlet boxes having holes through which flexible cord pendants pass with bushings designed for the purpose or they must have smooth, well-rounded surfaces on which the cords may bear.

(ii) Where a fixture canopy or pan is used, you must cover any combustible wall or ceiling finish exposed between the edge of the canopy or pan and the outlet box with noncombustible material.

(c) **Pull and junction boxes for systems over 600 volts, nominal.** In addition to other requirements in this section, the following requirements apply to pull and junction boxes for systems over 600 volts, nominal:

(i) Boxes must provide a complete enclosure for the contained conductors or cables.

(ii) You must close boxes by suitable covers securely fastened in place.

Note: Underground box covers that weigh over 100 pounds meet this requirement.

(iii) Covers for boxes must be permanently marked "HIGH VOLTAGE." The marking must be on the outside of the box cover and must be readily visible and legible.

(3) **Switches.**

(a) **Single-throw knife switches.** You must place single-throw knife switches so that gravity will not tend to close them. You must provide single-throw knife switches approved for use in the inverted position with a locking device that will ensure that the blades remain in the open position when so set.

(b) **Double-throw knife switches.** Double-throw knife switches may be mounted so that the throw will be either vertical or horizontal. However, if the throw is vertical, you must provide a locking device to ensure that the blades remain in the open position when so set.

(c) **Connection of switches.**

(i) You must connect single-throw knife switches and switches with butt contacts so that the blades are deenergized when the switch is in the open position.

(ii) You must connect single-throw knife switches, molded-case switches, switches with butt contacts, and circuit breakers used as switches so that the terminals supplying the load are deenergized when the switch is in the open position. However, blades and terminals sup-

plying the load of a switch may be energized when the switch is in the open position where the switch is connected to circuits or equipment inherently capable of providing a backfeed source of power. For such installations, you must install a permanent sign on the switch enclosure or immediately adjacent to open switches that read, "WARNING—LOAD SIDE TERMINALS MAY BE ENERGIZED BY BACKFEED."

(d) **Faceplates for flush-mounted snap switches.** Snap switches mounted in boxes must have faceplates installed so as to completely cover the opening and seat against the finished surface.

(e) You must effectively ground snap switches, including dimmer switches, and you must provide a means to ground metal faceplates, whether or not a metal faceplate is installed. However, if no grounding means exists within the snap-switch enclosure, or where the wiring method does not include or provide an equipment ground, a snap switch without a grounding connection is permitted for replacement purposes only. You must provide such snap switches shall be provided with a faceplate of nonconducting, noncombustible material if they are located within reach of conducting floors or other conducting surfaces.

(4) **Switchboards and panelboards.**

(a) **Switchboards with exposed live parts.** Switchboards that have any exposed live parts must be located in permanently dry locations and must be accessible only to qualified persons.

(b) **Panelboard enclosures.** You must mount panelboards in cabinets, cutout boxes, or enclosures designed for the purpose and they must be dead front. However, panelboards other than the dead front externally operable type are permitted where accessible only to qualified persons.

(c) **Knife switches mounted in switchboards or panelboards.** Exposed blades of knife switches mounted in switchboards or panelboards must be dead when open.

(5) **Enclosures for damp or wet locations.**

(a) **Cabinets, cutout boxes, fittings, boxes, and panelboard enclosures.** You must install cabinets, cutout boxes, fittings, boxes, and panelboard enclosures in damp or wet locations so as to prevent moisture or water from entering and accumulating within the enclosures and you must mount them so there is at least 0.25 inches airspace between the enclosure and the wall or other supporting surface. However, nonmetallic enclosures may be installed without the airspace on a concrete, masonry, tile, or similar surface. The enclosures must be weatherproof in wet locations.

(b) **Switches, circuit breakers, and switchboards.** You must enclose switches, circuit breakers, and switchboards installed in wet locations in weatherproof enclosures.

(6) **Conductors for general wiring.**

(a) **Insulation.** You must insulate all conductors used for general wiring unless otherwise permitted in this part.

(b) **Type.** The conductor insulation must be of a type that is approved for the voltage, operating temperature, and location of use.

(c) **Distinguishable.** Insulated conductors must be distinguishable by appropriate color or other suitable means as being grounded conductors, ungrounded conductors, or equipment grounding conductors.

(7) **Flexible cords and cables.**

(a) **Use of flexible cords and cables.**

(i) Flexible cords and cables must be approved for conditions of use and location.

(ii) Flexible cords and cables may be used only for:

(A) Pendants;

- (B) Wiring of fixtures;
- (C) Connection of portable lamps or appliances;
- (D) Portable and mobile signs;
- (E) Elevator cables;
- (F) Wiring of cranes and hoists;
- (G) Connection of stationary equipment to facilitate their frequent interchange;
- (H) Prevention of the transmission of noise or vibration;
- (I) Appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair;
- (J) Data processing cables approved as a part of the data processing system;
- (K) Connection of moving parts; and
- (L) Temporary wiring as permitted in subsection (1)(b) of this section.

(iii) If used as permitted in (a)(ii)(C), (G), or (I) of this subsection, the flexible cord must be equipped with an attachment plug and must be energized from an approved receptacle outlet.

(iv) Unless specifically permitted otherwise in (a)(ii) of this subsection, flexible cords and cables may not be used:

- (A) As a substitute for the fixed wiring of a structure;
- (B) Where run through holes in walls, ceilings, or floors;
- (C) Where run through doorways, windows, or similar openings;
- (D) Where attached to building surfaces;
- (E) Where concealed behind building walls, ceilings, or floors;

or

(F) Where installed in raceways, except as otherwise permitted in this part.

(v) Flexible cords used in show windows and showcases must be Type S, SE, SEO, SEOO, SJ, SJE, SJEO, SJEOO, SJO, SJOO, SJT, SJTO, SJTOO, SO, SOO, ST, STO, or STOO, except for the wiring of chain-supported lighting fixtures and supply cords for portable lamps and other merchandise being displayed or exhibited.

(b) Identification, splices, and terminations.

(i) A conductor of a flexible cord or cable that is used as a grounded conductor or an equipment grounding conductor must be distinguishable from other conductors. You must durably mark Types S, SC, SCE, SCT, SE, SEO, SEOO, SJ, SJE, SJEO, SJEOO, SJO, SJT, SJTO, SJTOO, SO, SOO, ST, STO, and STOO flexible cords and Types G, G-GC, PPE, and W flexible cables on the surface at intervals not exceeding 24 inches with the type designation, size, and number of conductors.

(ii) Flexible cords may be used only in continuous lengths without splice or tap. Hard-service cord and junior hard-service cord No. 12 and larger may be repaired if spliced so that the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.

(iii) You must connect flexible cords and cables to devices and fittings so that strain relief is provided that will prevent pull from being directly transmitted to joints or terminal screws.

(8) **Portable cables over 600 volts, nominal.** This subsection applies to portable cables used at more than 600 volts, nominal.

(a) **Conductor construction.** Multiconductor portable cable for use in supplying power to portable or mobile equipment at over 600 volts, nominal, must consist of No. 8 or larger conductors employing flexible stranding. However, the minimum size of the insulated ground-check conductor of Type G-GC cables must be No. 10.

(b) **Shielding.** You must shield cables operated at over 2,000 volts for the purpose of confining the voltage stresses to the insulation.

(c) **Equipment grounding conductors.** You must provide grounding conductors.

(d) **Grounding shields.** You must ground all shields.

(e) **Minimum bending radii.** The minimum bending radii for portable cables during installation and handling in service must be adequate to prevent damage to the cable.

(f) **Fittings.** Connectors used to connect lengths of cable in a run must be of a type that lock firmly together. You must make provisions to prevent opening or closing these connectors while energized. You must provide strain relief at connections and terminations.

(g) **Splices.** Portable cables may not be operated with splices unless the splices are of the permanent molded, vulcanized, or other approved type.

(h) **Terminations.** You must suitably mark termination enclosures with a high voltage hazard warning, and terminations must be accessible only to authorized and qualified employees.

(9) **Fixture wires.**

(a) **General.** Fixture wires must be approved for the voltage, temperature, and location of use. You must identify a fixture wire which is used as a grounded conductor.

(b) **Uses permitted.** Fixture wires may be used only:

(i) For installation in lighting fixtures and in similar equipment where enclosed or protected and not subject to bending or twisting in use; or

(ii) For connecting lighting fixtures to the branch-circuit conductors supplying the fixtures.

(c) **Uses not permitted.** Fixture wires may not be used as branch-circuit conductors except as permitted for Class 1 power limited circuits and for fire alarm circuits.

(10) **Equipment for general use.**

(a) **Lighting fixtures, lampholders, lamps, and receptacles.**

(i) Fixtures, lampholders, lamps, rosettes, and receptacles may have no live parts normally exposed to employee contact. However, rosettes and cleat-type lampholders and receptacles located at least 8 feet above the floor may have exposed terminals.

(ii) Handlamps of the portable type supplied through flexible cords must be equipped with a handle of molded composition or other material identified for the purpose, and a substantial guard must be attached to the lampholder or the handle. Metal shell, paper-lined lampholders may not be used.

(iii) Lampholders of the screw-shell type must be installed for use as lampholders only. Where supplied by a circuit having a grounded conductor, the grounded conductor must be connected to the screw shell. Lampholders installed in wet or damp locations must be of the weatherproof type.

(iv) Fixtures installed in wet or damp locations must be identified for the purpose and must be so constructed or installed that water cannot enter or accumulate in wireways, lampholders, or other electrical parts.

(b) **Receptacles, cord connectors, and attachment plugs (caps).**

(i) All 15- and 20-ampere attachment plugs and connectors must be constructed so that there are no exposed current-carrying parts except the prongs, blades, or pins. The cover for wire terminations must be a part that is essential for the operation of an attachment plug or con-

necter (dead-front construction). You must install attachment plugs so that their prongs, blades, or pins are not energized unless inserted into an energized receptacle. No receptacles may be installed so as to require an energized attachment plug as its source of supply.

(ii) Receptacles, cord connectors, and attachment plugs must be constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended. However, a 20-ampere T-slot receptacle or cord connector may accept a 15-ampere attachment plug of the same voltage rating.

(iii) Nongrounding-type receptacles and connectors may not be used for grounding-type attachment plugs.

(iv) A receptacle installed in a wet or damp location must be suitable for the location.

(v) A receptacle installed outdoors in a location protected from the weather or in other damp locations must have an enclosure for the receptacle that is weatherproof when the receptacle is covered (attachment plug cap not inserted and receptacle covers closed).

Note: A receptacle is considered to be in a location protected from the weather when it is located under roofed open porches, canopies, marquees, or the like and where it will not be subjected to a beating rain or water runoff.

(vi) A receptacle installed in a wet location where the product intended to be plugged into it is not attended while in use (for example, sprinkler system controllers, landscape lighting, and holiday lights) must have an enclosure that is weatherproof with the attachment plug cap inserted or removed.

(vii) A receptacle installed in a wet location where the product intended to be plugged into it will be attended while in use (for example, portable tools) must have an enclosure that is weatherproof when the attachment plug cap is removed.

(c) **Appliances.**

(i) Appliances may have no live parts normally exposed to contact other than parts functioning as open-resistance heating elements, such as the heating elements of a toaster, which are necessarily exposed.

(ii) Each appliance must have a means to disconnect it from all ungrounded conductors. If an appliance is supplied by more than one source, you must group and identify the disconnecting means.

(iii) You must provide each electric appliance with a nameplate giving the identifying name and the rating in volts and amperes, or in volts and watts. If the appliance is to be used on a specific frequency or frequencies, you must mark it so. Where motor overload protection external to the appliance is required, the appliance shall be so marked.

(iv) You must locate marking so as to be visible or easily accessible after installation.

(d) **Motors.** This subsection applies to motors, motor circuits, and controllers.

(i) If specified that one piece of equipment must be "within sight of" another piece of equipment, the piece of equipment must be visible and not more than 50 feet from the other.

(ii) You must provide an individual disconnecting means for each controller. You must locate a disconnecting means within sight of the controller location. However, a single disconnecting means may be located adjacent to a group of coordinated controllers mounted adjacent to each other on a multimotor continuous process machine. The controller disconnecting means for motor branch circuits over 600 volts, nominal, may be out of sight of the controller, if the controller is

marked with a warning label giving the location and identification of the disconnecting means that is to be locked in the open position.

(iii) The disconnecting means must disconnect the motor and the controller from all ungrounded supply conductors and must be so designed that no pole can be operated independently.

(iv) The disconnecting means must plainly indicate whether it is in the open (off) or closed (on) position.

(v) The disconnecting means must be readily accessible. If more than one disconnect is provided for the same equipment, only one need be readily accessible.

(vi) You must provide an individual disconnecting means for each motor, but a single disconnecting means may be used for a group of motors under any one of the following conditions:

(A) If a number of motors drive several parts of a single machine or piece of apparatus, such as a metal or woodworking machine, crane, or hoist;

(B) If a group of motors is under the protection of one set of branch-circuit protective devices; or

(C) If a group of motors is in a single room within sight of the location of the disconnecting means.

(vii) You must protect motors, motor-control apparatus, and motor branch-circuit conductors against overheating due to motor overloads or failure to start, and against short-circuits or ground faults. These provisions do not require overload protection that will stop a motor where a shutdown is likely to introduce additional or increased hazards, as in the case of fire pumps, or where continued operation of a motor is necessary for a safe shutdown of equipment or process and motor overload sensing devices are connected to a supervised alarm.

(viii) Where live parts of motors or controllers operating at over 150 volts to ground are guarded against accidental contact only by location, and where adjustment or other attendance may be necessary during the operation of the apparatus, you must provide suitable insulating mats or platforms so that the attendant cannot readily touch live parts unless standing on the mats or platforms.

(e) **Transformers.**

(i) This subsection covers the installation of all transformers except the following:

(A) Current transformers;

(B) Dry-type transformers installed as a component part of other apparatus;

(C) Transformers that are an integral part of an X-ray, high frequency, or electrostatic-coating apparatus;

(D) Transformers used with Class 2 and Class 3 circuits, sign and outline lighting, electric discharge lighting, and power-limited fire-alarm circuits; and

(E) Liquid-filled or dry-type transformers used for research, development, or testing, where effective safeguard arrangements are provided.

(ii) You must indicate the operating voltage of exposed live parts of transformer installations by signs or visible markings on the equipment or structure.

(iii) Dry-type, high fire point liquid-insulated, and askarel-insulated transformers installed indoors and rated over 35 kV must be in a vault.

(iv) You must install oil-insulated transformers indoors in a vault.

(v) You must safeguard combustible material, combustible buildings and parts of buildings, fire escapes, and door and window openings from fires that may originate in oil-insulated transformers attached to or adjacent to a building or combustible material.

(vi) Transformer vaults must be constructed so as to contain fire and combustible liquids within the vault and to prevent unauthorized access. Locks and latches must be so arranged that a vault door can be readily opened from the inside.

(vii) Any pipe or duct system foreign to the electrical installation may not enter or pass through a transformer vault.

Note: Piping or other facilities provided for vault fire protection, or for transformer cooling, are not considered foreign to the electrical installation.

(viii) Material may not be stored in transformer vaults.

(f) **Capacitors.**

(i) You must provide all capacitors, except surge capacitors or capacitors included as a component part of other apparatus, with an automatic means of draining the stored charge after the capacitor is disconnected from its source of supply.

(ii) The following requirements apply to capacitors installed on circuits operating at more than 600 volts, nominal:

(A) You must use group-operated switches for capacitor switching and they must be capable of the following:

(I) Carrying continuously not less than 135% of the rated current of the capacitor installation;

(II) Interrupting the maximum continuous load current of each capacitor, capacitor bank, or capacitor installation that will be switched as a unit;

(III) Withstanding the maximum inrush current, including contributions from adjacent capacitor installations; and

(IV) Carrying currents due to faults on the capacitor side of the switch;

(B) You must install a means to isolate from all sources of voltage each capacitor, capacitor bank, or capacitor installation that will be removed from service as a unit. The isolating means must provide a visible gap in the electric circuit adequate for the operating voltage;

(C) Isolating or disconnecting switches (with no interrupting rating) must be interlocked with the load interrupting device or you must provide it with prominently displayed caution signs to prevent switching load current; and

(D) For series capacitors, you must ensure the proper switching by use of at least one of the following:

(I) Mechanically sequenced isolating and bypass switches;

(II) Interlocks; or

(III) Switching procedure prominently displayed at the switching location.

(g) **Storage batteries.** You must make provisions for sufficient diffusion and ventilation of gases from storage batteries to prevent the accumulation of explosive mixtures.

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