21.2 A lampholder shall be constructed and installed so that uninsulated live parts, other than the screw-shell, will not be exposed to contact by persons removing or replacing lamps.

Exception: This requirement does not apply if, in order to remove or replace a lamp, it is necessary to dismantle the ice cream maker or to remove a cover plate or other part by means of tools.

22 Receptacles

22.1 Receptacles shall comply with the Standard for Attachment Plugs and Receptacles, UL 498.

22.1.1 Unless intended to be connected to a power supply separate from that supplying other loads, a receptacle intended for general use shall be rated 15 or 20 amperes, 125 or 250 volts. All general-use receptacles shall be of the grounding type.

22.2 Receptacles shall be located so that liquid due to overflow, splashing, leakage, cleaning, and defrosting will not enter the receptacle. This will require the face of the receptacle to be mounted not less than 60 degrees from the horizontal.

23 Receptacle And Lighting Circuit Overcurrent Protection

23.1 Overcurrent protection shall be provided for each receptacle or lighting circuit included in the ice cream maker by a circuit breaker(s) or fuse(s) that is intended for branch circuit use, as a part of the ice cream maker.

Exception No. 1: This requirement does not apply if the receptacle or lighting circuit is intended to be connected to a power supply separate from that supplying the ice cream maker, see 68.24.

Exception No. 2: This requirement does not apply if, in accordance with the National Electrical Code, NFPA 70, the ice cream maker can be connected to a branch circuit rated at not more than 20 amperes.

23.2 A 15-ampere protective device shall be provided when a single 15-ampere receptacle outlet is furnished. Two or more 15-ampere receptacles (two separate receptacles or a duplex receptacle) shall be protected by either a 15 or 20-ampere protective device. A 20-ampere receptacle or a combination 15 and 20-ampere receptacle shall be protected by a 20-ampere protective device.

24 Lampholders

24.1 Lampholders and indicating lamps with integral lamp / lampholder (e. g. neon pilot lamp) shall comply with the Standard for Lampholders, UL 496. Lampholders forming part of a luminaire that complies with an appropriate luminaire standard are considered to fulfill this requirement.

25 Valves And Solenoids

25.1 Electrically operated valves shall comply with the:

a) Standard for Electrically Operated Valves, UL 429; or

b) Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Electrically Operated Water Valves, Including Mechanical Requirements, UL 60730-2-8 or

c) Paragraphs 25.1.1 – 25.4.

25.1.1 The coil of an electrically operated valve or solenoid shall not overheat when the ice cream maker is subjected to the Temperature and Pressure Test, Section 43.

25.2 There shall be no risk of fire or electrical shock if an electrically operated valve or solenoid fails to operate. See Burnout Tests – Components, Section 49.

25.3 If a valve must be cleaned periodically, the arrangement shall permit this operation to be performed without damage to the electrical parts of the valve or wiring.

25.4 The coil windings of an electrically operated valve or solenoid shall be impregnated, dipped, varnished, or equivalently treated to resist absorption of moisture.

26 Capacitors

26.0 Motor Capacitors shall comply with the Standard for Capacitors, UL 810 or shall comply with 26.1 – 26.3.

26.1.0 Capacitors shall comply with the Standard for Capacitors, UL 810 or shall comply with 26.1 – 26.4.

26.1 A motor starting or running capacitor shall be housed within an enclosure or container that will protect the plates against mechanical damage and that will reduce the risk of the emission of flame or molten material resulting from capacitor failure. The container shall be of metal that provides strength and protection not less than that of uncoated steel having a thickness of 0.020 inch (0.51 mm) (No. 24 MSG).

Exception: If the capacitor is mounted within the enclosure of the equipment or within an enclosure that houses other parts of the equipment, the individual container of a capacitor may be of sheet metal having a thickness less than that required, or material other than metal.

26.2 If the container of an electrolytic capacitor is metal, the container shall be considered as a live part and shall be provided with moisture-resistant electrical insulation to isolate it from dead metal parts and to reduce the risk of contact during servicing operations. The insulating material shall be not less than 1/32 inch (0.8 mm) thick except as indicated in 29.8.

26.3 A capacitor employing a liquid dielectric medium more combustible than askarel shall be protected against expulsion of the dielectric medium when tested in accordance with the applicable performance requirements of this standard, including faulted overcurrent conditions based on the circuit in which it is used. See Short-Circuit Test, Section 55.

Exception: If the available fault current is limited by other components in the circuit, such as a motor start winding, the capacitor may be tested using a fault current less than the test current specified in Table 55.1 but not less than the current established by dividing the circuit voltage by the impedance of the other component(s).

26.4 Capacitors intended for connection directly across the line shall comply with the requirements of the Standard for Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains, UL 60384-14.

26.5 In reference to 26.4, if a capacitor complies with the Standard for Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains, UL 60384-14, it shall have specifications as follows:

a) Operating voltage – Not less than 110 percent of the rated voltage of the appliance.

b) For capacitors connected across the line (phase-to-phase) – Subclass X1 (≤ 4.0 kV) or X2 (≤ 2.5 kV) for impulse voltage (based on minimum Overvoltage Category of II).

c) For capacitors connected from line to ground – Subclass Y1 or Y2 for any appliance having a rated voltage not exceeding 500 volts; or as an alternate, subclass Y4 if the appliance has a rated voltage not exceeding 150 volts.

d) Upper category temperature – Based on the maximum capacitor surface temperature measured during the Temperature Test in Section 43, but not less than 185ºF (85ºC).

e) Lower category temperature – Based on the minimum surface temperature for which the capacitor has been designed to operate when installed within the appliance as intended, but not greater than 14ºF (minus 10ºC).

f) Duration of the damp-heat steady-state test – Not less than 21 days.

g) Passive flammability category B or C. As an alternate, a polymeric capacitor case shall have a V-0 flame rating as described in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

26A Outlet Boxes, Electrical Cable, Conduit and Tubing

26A.1 Outlet boxes shall comply with the Standard for Metallic Outlet Boxes, UL 514A or the Standard for Nonmetallic Outlet Boxes, Flush Device Boxes, and Covers, UL 514C. Fittings shall comply with the Standard for Conduit, Tubing, and Cable Fittings, UL 514B. Cover plates shall comply with the Standard for Cover Plates for Flush-Mounted Wiring Devices, UL 514D.

26A.2 Aluminum or steel armored cable shall comply with the Standard for Armored Cable, UL 4. Nonmetallic sheathed cables shall comply with the Standard for Nonmetallic Sheathed Cables, UL 719.

26A.3 Flexible metal conduit shall comply with the Standard for Flexible Metal Conduit, UL 1. Rigid steel conduit shall comply with the Standard for Electrical Rigid Metal Conduit – Steel, UL 6.

26A.4 Electrical steel tubing shall comply with the Standard for Electrical Metallic Tubing – Steel, UL 797.

26B Electromagnetic Interference Filters

26B.1 Electromagnetic interference filters shall comply with the Standard for Electromagnetic Interference Filters, UL 1283.

26C Relays and Contactors

26C.1 Electromagnetic relays and contactors shall comply with:

a) The Standard for Industrial Control Equipment, UL 508; or

b) The Standard for Low-Voltage Switchgear and Controlgear, – Part 1: General Rules, UL 60947-1, and the Standard for Low-Voltage Switchgear and Controlgear, – Part 4-1: Contactors and Motor-Starters – Electromechanical Contactors and Motor-Starters, UL 60947-4-1.

26D Optical Isolators and Semiconductor Devices

26D.1 An optical isolator shall comply with the Standard for Optical Isolators, UL 1577 if it is relied upon to provide isolation between:

a) Primary and secondary circuits;

b) Extra-low-voltage safety circuits; or

c) Other high-voltage circuits.

26D.2 A power switching semiconductor device that is relied upon to provide isolation to ground shall comply with the Standard for Electrically Isolated Semiconductor Devices, UL 1557.

26E Terminal Blocks

26E.1 Terminal blocks shall comply with the Standard for Terminal Blocks, UL 1059, and, if applicable, be suitably rated for field wiring.

Exception: A fabricated part performing the function of a terminal block need not comply with UL 1059 if the part complies with the requirements of Section 10.3 (Terminals and leads), Section 15 (Current-carrying parts), Section 16 (Insulating material), and Sections 29, 30, and 31 (spacings) of this end product standard.

26F Printed-Wiring Boards

26F.1 A printed-wiring board shall comply with the Standard for Printed-Wiring Boards, UL 796, and shall have a flammability level of at least V-1 when tested in accordance with the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

Exception: This requirement does not apply to a printed-wiring board that contains only Class 2 non-safety circuits.

27 Transformer Protection

27.1 High-voltage transformers

27.1.1 General

27.1.1.1 A transformer (including an autotransformer), other than one as described in 27.1.3.4 is considered to be a high-voltage transformer and shall:

a) Be provided with thermal overload protection in accordance with the requirements in 27.1.2.1,

b) Be protected by an overcurrent device in accordance with the requirements in 27.1.2.2, or

c) Comply with the Burnout Test – High-Voltage Transformers, Section 49.

Exception: A transformer rated less than 50 volt-amperes that supplies only a motor control circuit and is located in the same enclosure as the motor controller need not comply with this requirement.

27.1.1.2 Transformers complying with the Standard for Low Voltage Transformers – Part 1: General Requirements, UL 5085-1, and the Standard for Low Voltage Transformers – Part 2: General Purpose Transformers, UL 5085-2, are considered to fulfill the requirements of 27.1.1.1.

27.1.2 Thermal protection

27.1.2.1 If a high-voltage transformer is provided with a thermal overload protective device, the device shall be arranged to interrupt primary current and shall limit temperatures of the transformer windings,

under overload conditions, to that permitted for the class of insulation employed in the windings. See Overload Test – High-Voltage Transformers, Section 51.

Exception: If the thermal overload protective device provided is a nonrenewable thermal cutoff, a burnout test is to be conducted in place of the overload test. See Burnout Test – High-Voltage Transformers, Section 50.

27.1.2.2 A thermal cutoff shall comply with the Standard for Thermal-Links – Requirements and Application Guide, UL 60691. A manual or automatic resetting thermal protector shall have an endurance rating of not less than 6000 cycles and shall comply with the requirements for a type-2 action thermal cut-out, as specified in the Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1 and the Standard for Automatic Electrical Controls – Part 2-9: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9.

27.1.3 Overcurrent protection

27.1.3.1 If a high-voltage transformer is protected by an overcurrent device, such protection shall comply with the requirements specified in 27.1.3.2, 27.1.3.3, and 27.2.1 – 27.2.3.

27.1.3.2 Except as noted in 27.1.3.3, a high-voltage transformer shall be protected by an overcurrent device(s) located in the primary circuit and rated or set as indicated in Table 27.1. See 27.2.1.

Exception: If the rated primary current of the transformer is 9 amperes or more and 125 percent of this current does not correspond to a standard rating of fuse or circuit breaker, the next higher standard rating of protective device may be used. Standard ratings of protective devices are specified in Section 240.6 of the National Electrical Code, NFPA 70.

Table 27.1
Rating of overcurrent devices

Rated primary current, amperes		Maximum rating of overcurrent device, percent of transformer primary current rating
Transformer other than an autotransformer	Autotransformer	
Less than 2	–	300[a]
2 or more, less than 9	Less than 9	167
9 or more	9 or more	125

[a] May be increased to 500 percent if transformer supplies a motor control circuit.

27.1.3.3 If the circuit supplying a transformer other than an autotransformer is provided with overcurrent protection rated or set at not more than 250 percent of the rated primary current of the transformer, additional overcurrent protection is not required in the primary circuit provided the secondary circuit is protected at not more than 125 percent of the rated secondary current of the transformer. See 27.2.2.

Exception No. 1: If the rated secondary current of the transformer is 9 amperes or more and 125 percent of this current does not correspond to a standard rating of fuse or circuit breaker, the next higher standard rating of protective device may be used in the secondary circuit. Standard ratings of protective devices are specified in Section 240.6 of the National Electrical Code, NFPA 70.

Exception No. 2: If the rated secondary current of the transformer is less than 9 amperes, the overcurrent device(s) in the secondary circuit may be rated or set at not more than 167 percent of the rated secondary current.

27.1.3.4 A transformer that directly supplies a National Electrical Code, NFPA 70, Class 2 circuit (see 3.3) shall, in accordance with one of the Standards referenced in 12.2.1, either limit the output current (inherently limited transformer) or be equipped with an overcurrent device (not inherently limited transformer).

27.2 Overcurrent protective devices

27.2.1 Overcurrent protection in the primary circuit of a transformer, as described in 27.1.3.2, need not be provided as part of the ice cream maker if, based on the marked rating or ratings of the ice cream maker, the rating of the branch circuit overcurrent protective device or devices does not exceed the values specified in 27.1.3.2.

27.2.2 Overcurrent protection in the secondary circuit of a transformer, as required by 27.1.3.3, shall be provided as part of the ice cream maker.

27.2.3 A required transformer overcurrent protective device(s) provided as part of the ice cream maker shall:

a) Be provided for all ungrounded conductors,

b) Be sized in accordance with requirements in 27.1.3.2 and 27.1.3.3, as applicable, and

c) Have a voltage rating not less than the circuit in which it is used.

The device(s) shall be:

a) A circuit breaker acceptable for branch circuit protection, or

b) A fuse acceptable for branch circuit protection, such as a Class CC, G, H, J, K, L, R, or T cartridge fuse or Type S plug fuse. See 67.19.

Exception: If a transformer supply is tapped from a circuit supplying other loads in the ice cream maker, a device used for overcurrent protection may be of the supplementary type provided it has a short-circuit rating acceptable for the circuit in which it is used. See Table 55.1. If the supplementary type device used is a fuse, the ice cream maker shall be marked in accordance with the requirements in the Exception to 67.19.

28 High-Voltage Control Circuit Conductor Overcurrent Protection

28.1 General

28.1.1 For the purpose of these requirements, a “control circuit” is one that carries electric signals directing the performance of a controller which, in turn, governs power delivered to a motor or other load in the ice cream maker. A control circuit does not carry main power current. If a control-circuit is supplied through a transformer provided as part of the ice cream maker, see Transformer Protection, Section 27, for additional requirements.

28.2 Direct-connected, high-voltage control circuits

28.2.1 For the purpose of these requirements, a “direct-connected high-voltage control circuit” is one that is supplied from a branch circuit separate from a branch circuit that supplies other loads within the ice cream maker. It is not tapped from the load side of the overcurrent device or devices of any controlled circuit within the ice cream maker. See 68.23.

28.3 Tapped high-voltage control circuits

28.3.1 For the purpose of these requirements, a “tapped, high-voltage control circuit” is one that is tapped within the ice cream maker from the load side of the overcurrent device or devices for the controlled load.

28.3.2 A tapped, high-voltage control circuit conductor shall be provided with overcurrent protection. The rating of the overcurrent protective device or devices shall not exceed the applicable value specified in Table 28.1.

Exception No. 1: An 18, 16, and 14 AWG (0.82, 1.3, and 2.1 mm^2) conductor that does not exceed 4 feet (1.2 m) in length between points of opposite polarity may be protected by a fuse or circuit breaker rated 60 amperes or less.

Exception No. 2: An overcurrent protective device of a higher rating may be used if the conductors withstand short-circuiting when tested as specified in the Limited Short-Circuit Test, Section 55.

Exception No. 3: A lead 12 inches (305 mm) or less in length need not be provided with overcurrent protection.

Exception No. 4: A control-circuit conductor, supplied from the secondary of a single-phase transformer that is connected so that only a 2-wire (single voltage) secondary is used, may be protected by an overcurrent device(s) located on the primary side of the transformer provided:

a) This protection is in accordance with requirements specified in Transformer Protection, Section 27, and

b) The rating of the device does not exceed the applicable value specified in Table 28.1 multiplied by the ratio of secondary-to-primary rated transformer voltage.

Exception No. 5: A control circuit conductor that is tapped from the main power circuit at a point outside of the control equipment enclosure shall be protected as specified in Column A of Table 430.72(b) of the National Electrical Code, NFPA 70.

Table 28.1
Overcurrent protective device rating for control circuit conductors

Tapped control-circuit conductor size, AWG	Maximum rating of overcurrent protective device, amperes			
	Conductors contained in control equipment enclosure		Conductors extending beyond control equipment enclosure	
	Copper	Aluminum[a]	Copper	Aluminum[a]
18	25	–	7	–
16	40	–	10	–
14	100	–	45	–
12	120	100	60	45
10	160	140	90	75
Larger than 10	b	b	c	c

[a] Includes copper-clad aluminum.

[b] 400 percent of value specified for 60°C conductors in Table 310.17 of National Electrical Code, NFPA 70.

[c] 300 percent of value specified for 60°C conductors in Table 310.16 of National Electrical Code, NFPA 70.

28.4 Overcurrent protective devices

28.4.1 Overcurrent protection for a tapped high-voltage control circuit conductor, as required by 28.3.2, shall be provided as part of the ice cream maker.

Exception: The overcurrent device(s) need not be provided as part of the ice cream maker if, based on the marked rating(s) of the ice cream maker, the rating of the branch circuit overcurrent protective device(s) does not exceed the values specified in Table 28.1.

28.4.2 A control circuit overcurrent protective device(s) shall:

a) Be provided for all ungrounded conductors,

b) Be sized in accordance with requirements in 28.3.2, and

c) Have a voltage rating not less than the circuit in which it is used.

The device(s) shall be:

a) A circuit breaker acceptable for branch circuit protection, or

b) A fuse acceptable for branch circuit protection, such as a Class CC, G, H, J, K, L, R, or T cartridge fuse or Type S plug fuse. See 67.19.

Exception: If the control-circuit is tapped from a circuit supplying other loads in the ice cream maker, a device used for overcurrent protection may be of the supplementary type provided it has a short-circuit rating acceptable for the circuit in which it is used. See Table 55.1. If the supplementary type device used is a fuse, the ice cream maker shall be marked in accordance with the exception to 67.19.

SPACINGS

29 High-Voltage Circuits

29.1 The following electrical spacing requirements apply to high-voltage circuits, as defined in 3.3(a).

29.2 Unless specifically noted otherwise, the spacings between uninsulated live parts of opposite polarity and between an uninsulated live part and a dead metal part shall be not less than the values indicated in Table 29.1.

29.3 The “Through air” and “Over surface” spacings specified in Table 29.1 and Table 29.2 at an individual component part are to be based on the total volt-ampere consumption of the load or loads that the component controls. For example, the spacings at a component that controls only the compressor motor are based on the volt-amperes of the compressor motor. Spacings at a component that controls loads in addition to the compressor motor are to be based on the sum of the volt-amperes of the loads so controlled. Spacings at a component that independently controls separate loads are to be based on the volt-amperes of the largest load. The volt-ampere values for the loads referred to above are to be determined by the marked rating of the loads. For loads that are not required to have a marked rating, the measured input is to be used in determining the volt-ampere values.

29.4 The spacings indicated in Table 29.2 are applicable only to electrical components mounted in totally enclosed nonrefrigerated and/or nonair handling compartments which are free of moisture, including that caused by condensation. At wiring terminals and for circuits over 250 volts or over 2000 volt-amperes, spacings in Table 29.1 apply.

Table 29.1
Minimum spacings

Ratings		Inches (mm)					
Volt-amperes	Volts	Through air[c]		Over surface[c]		To enclosure[b]	
2000 or less	300 or less	1/8[a]	(3.2)	1/4	(6.4)	1/4	(6.4)
2000 or less	301 – 600	3/8	(9.5)	1/2	(12.7)	1/2	(12.7)
More than 2000	150 or less	1/8[a]	(3.2)	1/4	(6.4)	1/2	(12.7)
	151 – 300	1/4	(6.4)	3/8	(9.5)	1/2	(12.7)
	301 – 600	3/8	(9.5)	1/2	(12.7)	1/2	(12.7)

[a] The spacings between wiring terminals of opposite polarity, or between a wiring terminal and ground shall be not less than 1/4 inch (6.4 mm), except that if short-circuiting or grounding of such terminals will not result from projecting strands of wire, spacing need not be greater than that given in the above table. Wiring terminals are those connected in the field and not factory wired.

[b] Includes fittings for conduit or metal-clad cable.

[c] At points other than field-wiring terminals, the spacings for heater elements only may be as indicated below provided the elements are not subject to moisture, such as may result from condensation on cooled surfaces:

1/16 inch (1.6 mm) through air and over surface for heaters rated 0 – 300 volts

1/4 inch (6.4 mm) through air and over surface for heaters rated 301 – 600 volts

Table 29.2
Spacings in non-refrigerated and/or non-air handling compartments

Ratings		Minimum spacing in inches (mm)					
Volt-amperes	Volts	Through air		Over surface		To enclosure[a]	
0 – 2000	0 – 125	1/16	(1.6 mm)	1/16	(1.6 mm)	1/4	(6.4 mm)
	125 – 250	3/32	(2.4 mm)	3/32	(2.4 mm)	1/4	(6.4 mm)

Note – See 29.4.

[a] Includes fittings for conduit or metal-clad cable.

29.5 All uninsulated live parts connected to different circuits shall be spaced from one another as though they were parts of opposite polarity in accordance with the requirements indicated above and shall be based on the highest voltage involved.

29.6 With reference to 29.2 and 29.3, the “To enclosure” spacings given in Table 29.1 are not to be applied to an individual enclosure of a component part within an outer enclosure or cabinet.

29.7 The above spacing requirements are not to apply to the inherent spacings of a component part of the ice cream maker, such as a hermetic motor-compressor, motor, snap switch, controller, attachment-plug cap, and the like, for which spacing requirements are given in a standard for the component. However, the electrical clearance resulting from the assembly of the components into the complete product, including clearance to dead metal or enclosures, shall be those indicated.

29.8 If higher than rated potential is developed in a motor circuit through the use of capacitors, the rated voltage of the system shall be employed in applying the spacings indicated in this section.

Exception: If the developed steady-state potential as determined in the Temperature and Pressure Test, Section 43, exceeds 500 volts, the developed potential is to be used in determining the spacings for the parts affected.

29.9 An insulating lining or barrier of fiber or similar material, employed where spacings would otherwise be less than the required values, shall be no less than 0.028 inch (0.7 mm) thick and shall be so located or of such material that it will not be deteriorated by arcing.

Exception No. 1: Fiber not less than 0.013 inch (0.3 mm) thick may be used in conjunction with an air spacing of no less than 50 percent of the spacing required for air alone.

Exception No. 2: Thinner material may be used if it has equivalent insulating, mechanical, and flame-resistance properties when compared with materials in thicknesses specified above.

29.10 The spacing between uninsulated live terminals of the components in an electric-discharge lamp circuit and a dead metal part or enclosure shall not be less than 1/2 inch (21.7 mm) if the potential is 600 volts or less and not less than 3/4 inch (19.1 mm) if the potential is 601 – 1000 volts.

30 Low-Voltage Circuits

30.1 The following electrical spacing requirements apply to low-voltage circuits, as defined in 3.3(b).

30.2 A circuit derived from a source of supply classified as a high-voltage circuit, having resistance connected in series with the supply circuit as a means of limiting the voltage and current, is not considered to be a low-voltage circuit.

30.3 The spacings for low-voltage electrical components that are installed in a circuit that includes a pressure-limiting device, motor overload protective device, or other protective device, where a short or grounded circuit may result in a risk of fire, electric shock, or injury to persons shall comply with (a) - (c):

a) The spacing between an uninsulated live part and the wall of a metal enclosure, including fittings for the connection of conduit or metal-clad cable, shall be not less than 1/8 inch (3.2 mm). See 29.5.

b) The spacing between wiring terminals regardless of polarity and between the wiring terminal and a dead metal part, including the enclosure and fittings for the connection of conduit, that may be grounded when the device is installed, shall be not less than 1/4 inch (6.4 mm).

c) The spacing between uninsulated live parts regardless of polarity and between an uninsulated live part and a dead metal part, other than the enclosure, that may be grounded when the device is installed, shall be not less than 1/32 inch (0.8 mm) provided that the construction of the parts is such that spacings will be maintained.

30.4 The spacings in low-voltage circuits that do not contain devices such as indicated in 30.3 are not specified.

31 Alternate Spacings – Clearances and Creepage Distances

31.1 As an alternative to the specified spacing requirements of Sections 25 and 26, Spacings, the spacing requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, are applicable. The spacing requirements in UL 840 shall not be used for spacings between field wiring terminals or between uninsulated live parts and a metal enclosure. In determining the pollution degree and overvoltage category, the environmental conditions to which the appliance is subjected in the end-use application shall be applied and those characteristics given in 31.2 and 31.3 modified accordingly.

31.2 When applying specific requirements in UL 840, the degrees of pollution shall be as indicated in Table 31.1.