to be based on the volt-amperes of the compressor motor. Spacings at a component that simultaneously controls several concurrent loads are to be based on the sum of the volt-amperes of the loads so controlled. Spacings at a component that controls several nonconcurrent 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, except that for loads which are not required to have a marked rating, the measured input is to be used in determining the volt-ampere values.

23.4 With reference to paragraph 23.2 and 23.3, the spacings "To Enclosure" are not to be applied to an individual enclosure of a component part within an outer enclosure or cabinet.

23.5 The spacings indicated in Table 23.2 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 23.1 apply.

Table 23.1
Electrical spacings in refrigerated and/or air-handling compartments

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

[a] 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:

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

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

[b] The spacings between wiring terminals of opposite polarity, or between a wiring terminal and ground, shall be not less than 6.4 mm (1/4 inch), 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.

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

Table 23.2
Spacings in non-refrigerated and/or non-air handling compartments

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

NOTE – See 23.5.

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

23.6 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 in the paragraphs above and shall be based on the highest voltage involved.

23.7 The above spacing requirements do not apply to the inherent spacings of a component part of the equipment, 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 a component into the complete machine, including clearance to dead metal or enclosure, shall be as indicated herein.

23.8 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 37, exceeds 500 volts, the developed potential is to be used in determining spacings for the parts affected.

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

Exception No. 1: Fiber no less than 0.3 mm (0.013 inch) 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: Material having a lesser thickness may be used if it has equivalent insulating, mechanical, and flammability properties when compared with materials in specified thicknesses specified above.

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

24 Low-Voltage Circuits

24.1 The following electrical-spacing requirements apply to low-voltage circuits, as defined in 3.4.

24.2 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.

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

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 6.4 mm (1/4 inch); and

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 0.8 mm (1/32 inch) provided that the construction of the parts is such that spacings will be maintained.

24.4 The spacings in low-voltage circuits that do not contain devices such as indicated in paragraph 24.3 are not specified.

24A Alternate Spacings – Clearances and Creepage Distances

24A.1 As an alternative to the specified spacing requirements of Sections 23 and 24, 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 24A.2 – 24A.3 modified accordingly.

24A.2 When applying specific requirements in UL 840, the degrees of pollution shall be as indicated in Table 24A.1.

Table 24A.1
Degrees of pollution

Equipment	Pollution degree
Hermetically sealed or encapsulated equipment or printed wiring boards with protective coating.[a]	1
Equipment for ordinary locations and indoor use, such as residential controls, commercial controls for use in a clean environment, nonsafety controls for installation on or in appliances.	2
All safety or limit controls, equipment for outdoor use, and equipment influenced by surrounding environment, such as controls within the refrigerated compartment and within the machine compartment.	3

[a] Tested in accordance with the protective coating test in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840.

24A.3 When applying specific requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, the spacing requirements in UL 840, shall be based on the overvoltage categories as indicated in Table 24A.2.

Table 24A.2
Overvoltage categories

Equipment	Overvoltage category
Intended for fixed wiring connection	III
Portable and stationary cord-connected	II
Low voltage circuits on the secondary side of a transformer[a]	I

[a] Applicable to low-voltage circuits if a short circuit between the parts involved does not result in operation of the controlled equipment that increases the risk of fire or electric shock.

REFRIGERATION SYSTEM

25 Refrigerant

25.1 The kind of refrigerant employed in the system shall comply with the Standard for Refrigerants, UL 2182.

26 Pump-Down Capacity

26.1 The section of an ice maker designed to receive the refrigerant charge during a pumpdown shall have the capacity to receive the charge without the liquid occupying more than 90 percent of the volume of the section when the temperatures of the refrigerant is 32.2°C (90°F).

27 Refrigerant Tubing and Fittings

27.1 Copper, steel, or aluminum tubing used to connect refrigerant-containing components shall have a wall thickness not less than indicated in Table 27.1.

Exception: Copper or steel capillary tubing that is protected against mechanical damage by the cabinet or assembly shall have a wall thickness not less than 0.51 mm (0.020 inch).

Table 27.1
Minimum wall thickness for copper and steel tubing

Outside diameter,		Copper				Steel		Aluminum	
		Protected within appliance		Unprotected[a]					
mm	(inches)	mm	(inches)	mm	(inches)	mm	(inches)	mm	(inches)
4.76	(3/16)	0.623	(0.0245)	0.673	(0.0265)	0.635	(0.025)	0.89	(0.0350)
6.35	(1/4)	0.623	(0.0245)	0.673	(0.0265)	0.635	(0.025)	0.89	(0.0350)
7.94	(5/16)	0.623	(0.0245)	0.673	(0.0265)	0.635	(0.025)	0.89	(0.0350)
9.53	(3/8)	0.623	(0.0245)	0.673	(0.0265)	0.635	(0.025)	0.89	(0.0350)
12.70	(1/2)	0.623	(0.0245)	0.724	(0.0285)	0.635	(0.025)	0.89	(0.0350)
15.88	(5/8)	0.799	(0.0315)	0.799	(0.0315)	0.813	(0.032)	1.24	(0.0488)
19.05	(3/4)	0.799	(0.0315)	0.978	(0.0385)	0.813	(0.032)	1.24	(0.0488)
22.23	(7/8)	1.041	(0.0410)	1.041	(0.0410)	1.168	(0.046)	1.65	(0.0650)
25.40	(1)	1.168	(0.0460)	1.168	(0.0460)	–	–	1.83	(0.0720)
28.58	(1-1/8)	1.168	(0.0460)	1.168	(0.0460)	1.168	(0.046)	–	–
31.75	(1-1/4)	1.283	(0.0505)	1.283	(0.0505)	1.168	(0.046)	–	–
34.93	(1-3/8)	1.283	(0.0505)	1.283	(0.0505)	–	–	–	–
38.10	(1-1/2)	1.410	(0.0555)	1.410	(0.0555)	1.575	(0.062)	–	–
41.28	(1-5/8)	1.410	(0.0555)	1.410	(0.0555)	–	–	–	–
53.98	(2-1/8)	1.626	(0.0640)	1.626	(0.0640)	–	–	–	–
66.68	(2-5/8)	1.880	(0.0740)	1.880	(0.0740)	–	–	–	–

NOTE – Nominal wall thickness of tubing will have to be greater than the thickness indicated to maintain the minimum wall thickness.

[a] Tubing which is not protected by an enclosure or by location so that it is exposed to crushing, abrasion, puncture or similar mechanical damage under installed conditions.

27.2 Tubing shall be constructed of corrosion-resistant material such as copper, or shall be plated, dipped, coated, or otherwise treated to resist external corrosion. Aluminum may be used where the material is not subject to galvanic corrosion.

27.3 Tubing forming part of components, such as evaporators or condensers, where protection is afforded by inherent construction, shall be judged by the strength test requirements specified in Strength Tests – Pressure Containing Components, Section 51.

27.4 Special alloys or constructions used in refrigerant-containing components, including tubing with a wall thickness less than indicated in 27.1 may be acceptable. Among the factors taken into consideration when judging the acceptability are:

a) Resistance to mechanical abuse,

b) Strength against internal pressure,

c) Resistance to corrosion,

d) Protection against refrigerant contamination, and

e) Compliance with requirements of safety codes, such as the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15, as compared to tubing of the minimum wall thicknesses indicated in Table 27.1.

27.5 Tubing connections shall be made by means of flare-type fittings with steel or forged brass nuts, by soldering or brazing, or by equivalent means. Flare-type fittings shall comply with the Standard for Refrigeration Flare-Type Fittings, ANSI/SAE J513d.

28 Refrigerant-Containing Parts

28.1 Parts subjected to refrigerant pressure shall withstand the pressure indicated in the Strength Tests – Pressure Containing Components, Section 51.

28.2 Parts subjected to refrigerant pressure shall be:

a) Constructed of corrosion-resistant material, such as copper or stainless steel, or

b) Protected against external corrosion by means such as plating or painting.

28.3 Pressure vessels over 152 mm (6 inches) inside diameter shall be designed, tested, and stamped in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, for a working pressure not less than the design pressure marked on the ice maker. See 61.2(e).

28.4 Pressure vessels bearing the ASME Code "U" symbol complying with 28.3 are considered acceptable without test.

28.5 Pressure vessels bearing the ASME Code "U" symbol shall be tested to determine compliance with the Strength Tests – Pressure Containing Components, Section 51. The manufacturer shall submit evidence of compliance of these vessels with the ASME Boiler and Pressure Vessel Code, Section VIII.

29 Pressure-Limiting Device

29.1 A pressure-limiting device designed to automatically stop the operation of the compressor shall be installed:

a) On all units with a system containing more than 10 kg (22 pounds-mass) of refrigerant, and

b) On all remote units intended to be connected to a field-installed condenser.

29.2 The adjustable cutout pressure setting of a pressure limiting device shall not exceed one-third of the ultimate strength of high-side refrigerant-containing parts provided this setting does not exceed 90 percent of the setting of the pressure relief device.

29.3 There shall be no stop valves between the pressure-limiting device and the compressor.

30 Pressure Relief

30.1 General

30.1.1 An ice maker shall be constructed so that pressure due to fire, or other abnormal conditions, will be relieved. Pressure-relief devices, fusible plugs, or soldered or brazed tubing joints may be employed for this purpose.

30.1.2 A pressure-relief device is a pressure-actuated valve or rupture member designed to relieve excessive pressures automatically.

30.1.3 With reference to 30.1.4 and 30.1.5, a component such as a drier, filter, filter-drier, oil separator, or strainer is not considered to be a pressure vessel unless identified as an ASME pressure vessel. See 3.13.

30.1.4 An ice maker with a pressure vessel over 76.2 mm (3 inches) inside diameter, but not exceeding 0.08 m^3 (3 cubic feet) internal gross volume, shall be protected by a pressure-relief device or fusible plug.

30.1.5 An ice maker with a pressure vessel exceeding 0.08 m^3 (3 cubic feet) but less than 0.28 m^3 (10 cubic feet) internal gross volume shall be protected by a pressure-relief device.

30.1.6 All pressure-relief devices and fusible plugs shall be connected as close as practicable or directly to the pressure vessel or parts of the system protected. Pressure-relief devices shall be connected above the liquid-refrigerant level, installed so that they are accessible for inspection and repair, and arranged so that they cannot be readily rendered inoperative. Fusible plugs may be located above or below the liquid-refrigerant level. There shall be no stop valves between the pressure-relief means and the parts or section of the system protected.

30.2 Relief valves

30.2.1 Pressure-relief valves shall comply with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII. Valves of 1/2 inch iron pipe size (IPS) and larger shall bear the authorized Code “UV” symbol together with the set pressure and capacity. Valves of less than 1/2 inch IPS shall be similarly marked, except that where the size does not permit a nameplate, the code symbol may be omitted and the set pressure and capacity may be stamped on the valve or on a metal plate attached to it. Manufacturers of valves that do not bear the code symbol shall provide evidence of certification of the valve and its pressure and capacity rating by proper code authorities.

30.2.2 Pressure-relief valves shall be set to start to function at a pressure not to exceed the design pressure of the parts of the system protected.

30.2.3 The marked discharge capacity shall be not less than the minimum required discharge capacity as computed from 30.2.1.

30.3 Fusible plugs or rupture members

30.3.1 Calculation of the minimum required discharge capacity and the rated discharge capacity of a rupture member or fusible plug shall be in accordance with the Safety Standard for Refrigeration Systems, ANSI/ASHRAE 15.

30.3.2 Fusible plugs and rupture members shall comply with the requirements for Refrigerant-Containing Components and Accessories, Nonelectrical, UL 207, as applicable to such devices.

30.3.3 Rupture members shall have a nominal rated rupture pressure not exceeding the design pressure of the parts of the system protected.

PERFORMANCE

31 Instrumentation

31.1 Temperature measurements

31.1.1 Temperatures are to be measured by thermocouples, except that the change-in-resistance method may be used to measure the temperature of motor windings or of coils. The thermocouples are to consist of 24 – 30 AWG (0.21 – 0.5 mm^2) wires. The thermocouples and related instruments are to be accurate and calibrated. The thermocouple wire is to comply with the requirements for Special Tolerances thermocouples as listed in the Tolerances on Initial Values of EMF versus Temperature tables in the Standard Specification and Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples, ANSI/ASTM E230/E230M.

31.1.2 A thermocouple junction and adjacent thermocouple lead wire are to be held in positive thermal contact with the surface of the material whose temperature is being measured. In most cases, thermal contact will result from securely taping or cementing the thermocouple in place, but where a metal surface is involved, brazing or soldering the thermocouple to the metal may be necessary.

31.1.3 Thermocouples consisting of 30 AWG (0.05 mm^2) iron and constantan wires and a potentiometer type of indicating instrument are to be used whenever referee temperature measurements by means of thermocouples are necessary.

31.1.4 If the temperature of a copper motor winding or coil is to be determined by the change-in-resistance method, the following formula shall be used:

$$T = \frac{R}{r}(234.5 + t) - 234.5$$

In which:

T is the temperature to be determined in degrees C,

t is the known temperature in degrees C,

R is the resistance in ohms at the temperature to be determined, and

r is the resistance in ohms at the known temperature.

31.1.5 When it is necessary to de-energize the winding before measuring R, the value of R at shutdown is to be determined by taking several resistance measurements at short intervals, beginning as quickly as possible after the instant of shutdown. A curve of the resistance values and the time is to be plotted and extrapolated to give the value of R at shutdown.

31.2 Pressure measurements

31.2.1 Pressure gauges are to be attached in a manner that prevents leakage. Special fittings for direct connection to the system or minimum lengths of 3.2 mm (1/8 inch) outside diameter commercial capillary tubing may be employed for gauge connections. The volume of the pressure-measuring gauge and lines is to be held to a minimum. All joints in the gauge system are to be tested for leakage.

31.2.2 Opening of gauge line valves shall not cause a significant change in the electrical input of the system that would prevent the equipment from performing in its intended manner. High-side gauges and lines may be heated above the saturation temperature corresponding to the expected pressure or may be precharged with liquid refrigerant of the same type used in the system, to minimize the effect of opening the gauge line valves.

32 Test Voltage

32.1 Unless otherwise specified, ice makers shall be tested at a frequency of 60 hertz, and at the voltages maintained at the unit supply connections, as specified in Table 32.1.

Exception: Units rated at other than 60 hertz frequencies are to be tested at their rated voltages and frequencies.

Table 32.1
Test voltages

Nameplate voltage rating (volts)	Test voltage[a] (volts)
110 to 120	120
200 to 208	208
220 to 240	240
254 to 277	277
440 to 480	480
550 to 600	600

[a] These voltages are nominal for the Rain Test, Section 34, Condenser Fan Motor Failure Test, Section 40, and Condenser Water Failure Test, Section 41.

33 Leakage Current Test – Cord-Connected Ice Makers

33.1 The leakage current of a cord-connected ice maker shall be not more than 0.75 milliampere when tested in accordance with 33.6 – 33.9.

Exception: A cord-connected ice maker may produce a leakage current greater than 0.75 mA under the following conditions:

a) The ice maker shall have a reliable disconnect circuit that, upon loss of grounding, disconnects the sources that produce a leakage current greater than 0.75 mA.

b) The leakage current shall not exceed 3.5 mA with the grounding conductor open and with the ground integrity disconnect circuit disabled.

NOTE – Leakage current measurement on equipment investigated under this exception should be made with the appropriate meter and circuitry specified in the Standard for Leakage Current for Appliances, UL 101.

33.2 Leakage current refers to all currents, including capacitively-coupled currents, that may be conveyed between exposed conductive surfaces of an ice maker and ground or other exposed conductive surfaces.

33.3 All exposed conductive surfaces are to be tested for leakage currents. The leakage currents from these surfaces are to be measured to the grounded supply conductor individually as well as collectively and from one surface to another where simultaneously accessible. Parts are considered to be exposed surfaces unless guarded by an enclosure providing protection in accordance with 5.3.1 and 5.3.2. Surfaces are considered to be simultaneously accessible if they can be readily contacted by one or both hands of a person at the same time. These measurements do not apply to terminals of low-voltage (Class 2) circuits.

33.4 If a conductive surface other than metal is used for the enclosure or part of the enclosure, the leakage current is to be measured using metal foil with an area of 100 by 200 mm (3.9 by 7.8 inches) in contact with the surface. If the surface is less than 100 by 200 mm (3.9 by 7.8 inches), the metal foil is to be the same size as the surface. The metal foil is not to remain in place long enough to affect the temperature of the ice maker.

33.5 The measurement circuit for leakage current shall be as shown in Figure 33.1. The measurement instrument is defined in (a) – (c) and, unless it is being used to measure leakage from one part of an ice maker to another, the meter is to be connected between the accessible parts and the grounded supply conductor. The meter actually used for a measurement need only indicate the same numerical value for a particular measurement as would the defined instrument. The meter used need not have all of the attributes of the defined instrument.

a) The meter is to have an input impedance of 1500 ohms resistive shunted by a capacitance of 0.15 microfarad.

b) The meter is to indicate 1.11 times the average of the full-wave rectified composite waveform of voltage across the resistor or current through the resistor.

c) Over a frequency range of 0 – 100 kilohertz, the measurement circuitry is to have a frequency response (ratio of indicated to actual value of current) equal to the ratio of the impedance of a 1500 ohm resistor shunted by a 0.15 microfarad capacitor to 1500 ohms. At an indication of 0.75 milliamperes, the measurement is to have an error of not more than 5 percent.

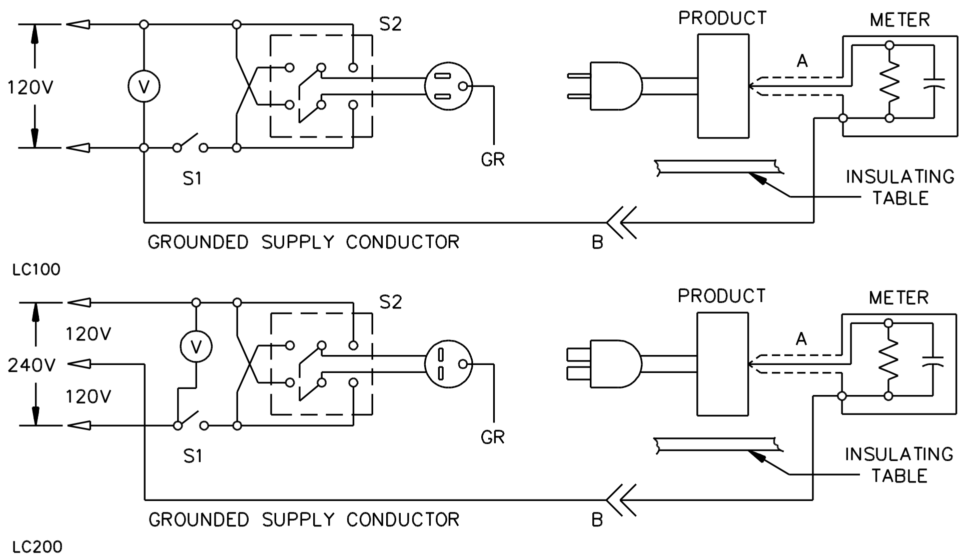
33.6 The ice maker is to be prepared and conditioned for leakage-current measurement as specified in (a) and (b):

a) The grounding conductor is to be open at the attachment plug and the test unit is to be isolated from ground.

b) The sample is to be conditioned in an ambient temperature of 21.1 – 26.7°C (70 – 80°F) and 50 percent relative humidity for not less than 8 hours.

Figure 33.1

Leakage current measurement circuits



A – Product intended for connection to a 120 volt power supply.

B – 240 or 208 volt 2-wire product intended for connection to a 3-wire, grounded neutral power supply.

33.7 The test is to be conducted at the ambient temperature conditions specified by 33.6(b), and with the supply voltage adjusted to the voltage indicated in Table 32.1.

33.8 The water circuit(s) is to be connected to a water supply using nonconductive tubing. Water-cooled units are to be tested with water flowing through the condenser at a rate required for intended operation of the system.

33.9 With reference to the measuring circuit in Figure 33.1, the leakage current test sequence shall be as described in (a) – (d). If the compressor stalls during the procedure described in (b) or (c) due to changing the position of switch S2, the procedure is to be conducted in its entirety in one position of switch S2 and then repeated in the second position of switch S2.

a) With switch S1 open, the unit is to be connected to the measuring circuit. The leakage current is to be measured using both positions of switch S2 and with manually-operated unit switching devices successively placed in each mode (ice making, harvesting, cleaning, and the like).

b) With unit controls set for ice production, switch S1 is to be closed to energize the unit. Within 5 seconds, leakage current is to be measured using both positions of switch S2. Following this and using both positions of switch S2, manual switching devices are to be operated as quickly as possible through all operating modes, but not in the OFF position, to determine the maximum leakage current condition.

c) With switching devices set at the position that causes the highest leakage current, the unit is to be operated continuously until the measured leakage current stabilizes or decreases. Both positions of switch S2 are to be used.

d) Following (c), switch S1 is to be opened to de-energize the unit. Measurement of leakage current is to continue, using both positions of switch S2, until values stabilize or begin to decrease.

34 Rain Test

34.1 An ice maker, or section thereof, intended for outdoor use shall be subjected to rain exposure without creating the risk of electric shock.

34.2 The unit is to be installed in accordance with the manufacturer's instructions and subjected to the rain exposure under conditions most likely to cause entrance of water into or onto electrical components. The duration of exposure is to be 1 hour.

34.3 The rain test apparatus is to consist of three spray heads mounted in a water supply pipe rack as shown in Figure 34.1. Spray heads are to be constructed in accordance with the details shown in Figure 34.2. The water pressure is to be maintained at 34 kPa (5 psi) at each spray head. The distance between the center nozzle and the test unit is to be approximately 1.5 m (5 feet). The unit is to be brought into the focal area of the three spray heads in such a position and under such conditions that the greatest quantity of water will enter the unit. The spray is to be directed at an angle of 45 degrees from the vertical, and toward openings closest to current-carrying parts. The unit is to be operated so that electrical components are energized.