7.15 Accelerated corrosion tests

7.15.1 General

7.15.1.1 The performance of a visible signaling device shall not be adversely affected following exposure to the tests specified in Hydrogen sulphide, 7.15.2, and Sulphur dioxide – carbon dioxide, 7.15.3. Visible signaling devices intended for outdoor-use shall also not be adversely affected following exposure to the test specified in Salt spray, 7.15.4.

7.15.1.2 Four as-received samples are to be tested for indoor-use and six as-received samples are to be tested for outdoor-use. Two samples are to be subjected to the corrosion conditions specified in Hydrogen sulphide, 7.15.2, and the other two samples are to be subjected to the conditions specified in Sulphur dioxide – carbon dioxide, 7.15.3. Two visible signaling devices intended for outdoor-use shall also be subjected to a salt spray specified in 7.15.4, Salt spray. The exposures shall be with the sample in the de-energized state.

7.15.1.3 Following exposure to the environment, the sample shall be allowed to stabilize for 24 h and then shall comply with the following:

a) Dielectric voltage-withstand, 7.6;

b) The applicable tests in Measurement of effective luminous intensity (light output), 7.3.

7.15.2 Hydrogen sulphide

7.15.2.1 The test samples are to be supported vertically for 10 d in a closed chamber having openings for gas inlet and outlet. The chamber is to be maintained at room temperature during the test.

7.15.2.2 For an indoor-use visible signaling device, two samples are to be exposed to a moist hydrogen sulphide-air mixture in a closed glass chamber as described in 7.15.2.1. The hydrogen sulphide is to be supplied to the test chamber from a commercial cylinder containing this gas under pressure. On the first through fourth, and seventh through tenth days, an amount of hydrogen sulphide equivalent to 0.1% of the volume of the chamber is to be introduced into the chamber from a commercial gas cylinder, and the volume required is to be measured with a flow meter and stopwatch. Prior to each introduction of gas, the remaining gas-air mixture from the previous day is to be thoroughly purged from the chamber. On the fifth and sixth day of the exposure, the chamber is to remain closed and no purging or introduction of gas is to be conducted. During the exposure, the gas-air mixture is to be gently stirred by means of a small motor-driven fan located in the upper-middle portion of the chamber. A small amount of water (10ml/0.003 m^3 of chamber volume) is to be maintained at the bottom of the chamber for humidity.

7.15.2.3 For an outdoor-use visible signaling device, two samples are to be exposed to a moist hydrogen sulphide-air mixture in a closed glass chamber as described in 7.15.2.1. The hydrogen sulphide is to be supplied to the test chamber from a commercial cylinder containing this gas under pressure. On the first through fourth, and seventh through tenth days, an amount of hydrogen sulphide equivalent to 1.0% of the volume of the chamber is to be introduced into the chamber from a commercial gas cylinder, and the volume required is to be measured with a flow meter and stopwatch. Prior to each introduction of gas, the remaining gas-air mixture from the previous day is to be thoroughly purged from the chamber. On the fifth and sixth day of the exposure, the chamber is to remain closed and no purging or introduction of gas is to be conducted. During the exposure, the gas-air mixture is to be gently stirred by means of a small motor-driven fan located in the upper-middle portion of the chamber. A small amount of water (10 ml/0.003 m^3 of chamber volume) to be maintained at the bottom of the chamber for humidity.

7.15.3 Sulphur dioxide – carbon dioxide

7.15.3.1 The test samples are to be supported vertically for 10 d in a closed chamber having openings for gas inlet and outlet. The chamber is to be maintained at room temperature during the test.

7.15.3.2 For an indoor-use visible signaling device, two samples are to be exposed to a moist carbon dioxide-sulphur dioxide-air mixture in a closed glass chamber as described in 7.15.3.1. The sulphur dioxide and carbon dioxide are to be supplied to the test chamber from commercial cylinders containing these gases under pressure. On the first through fourth, and seventh through tenth days, an amount of carbon dioxide equivalent to 1.0% of the volume of the chamber, plus an amount of sulphur dioxide equivalent to 0.5% of the volume of the chamber, is to be introduced. On the fifth and sixth day of the exposure period, the chamber is to remain closed and no purging or introduction of gas is to be conducted. A small amount of water (10 ml/0.003 m^3 of chamber volume) is to be maintained at the bottom of the chamber for humidity.

7.15.3.3 For an outdoor-use visible signaling device, two samples are to be exposed to a moist carbon dioxide-sulphur dioxide-air mixture in a closed glass chamber as described in 7.15.3.1. The sulphur dioxide and carbon dioxide are to be supplied to the test chamber from commercial cylinders containing these gases under pressure. On the first through fourth, and seventh through tenth days, an amount of carbon dioxide equivalent to 1.0% of the volume of the chamber, plus an amount of sulphur dioxide equivalent to 1.0% of the volume of the chamber, is to be introduced. On the fifth and sixth day of the exposure period, the chamber is to remain closed and no purging or introduction of gas is to be conducted. A small amount of water (10 ml/0.003 m^3 of chamber volume) is to be maintained at the bottom of the chamber for humidity.

7.15.4 Salt spray

7.15.4.1 For an outdoor-use visible signaling device, each sample is to be subjected to salt-spray (fog) for 240 h in accordance with the Standard Method of Salt Spray (Fog) Testing, ASTM B117, except that the salt solution is to consist of 5% by weight of common salt (sodium chloride) and distilled water. The pH of the collected solution is to be between 6.7 – 7.2, with a specific gravity between 1.0255 and 1.0400 at 25°C (77°F).

7.16 Water spray

7.16.1 A visible signaling device intended for outdoor-use or use in a wet environment shall operate as intended and shall be free from shock exposure during and after exposure to water spray for 1 h. An outdoor-use visible signaling device intended for mounting in such a manner and location that it would not be exposed to rain or water seepage, need not be subjected to this test providing the visible signaling device is appropriately marked and the exception detailed in the installation instructions.

7.16.2 An enclosure constructed from a polymeric material shall be conditioned for 7 h at 70°C prior to being subjected to this test.

7.16.3 The visible signaling device shall be mounted in accordance with the installation instructions to simulate an installation as in normal service and shall be complete with external wiring and conduit connection. The orientation of the assembly shall be one permitted by the installation instructions, which would most likely result in the entrance of water into the enclosure or affect the operation of the visible signaling device.

7.16.4 The water spray test apparatus is to consist of three spray heads mounted in a water supply rack as shown in Figure 12, Water spray test head piping. Spray heads are to be constructed in accordance with Figure 13, Water test spray head. The water pressure for all tests is to be maintained at 35 kPa at each spray head. The distance between the center nozzle and the visible signaling device is to be approximately 1 m. The visible signaling device is to be brought into the focal area of the three spray heads in such position and under such conditions that the greatest quantity of water will enter the visible signaling device enclosure or other parts of the assembly where the presence of water would impair the visible signaling device operation. The spray is to be directed at an angle of 45° to the vertical toward openings closest to live and operational parts.

7.16.5 The test set-up shall be arranged so that the visible signaling device may be driven at maximum input power before the application of the water spray.

7.16.6 The visible signaling device shall be driven at the maximum input power for 5 min immediately before the water spray application.

7.16.7 The visible signaling device is to be de-energized for 1 h while the water spray is applied.

7.16.8 The visible signaling device shall be removed from test set-up and subjected to a dielectric voltage-withstand test in accordance with 7.6, Dielectric voltage-withstand, within 5 min following the water spray application.

7.16.9 Immediately following Dielectric Voltage-Withstand the visible signaling device shall be driven at the maximum input power for 5 min and , then the effective luminous intensity shall be measured in accordance with the applicable tests in 7.3, Measurement of effective luminous intensity (light output).

7.16.10 The visible signaling device shall be considered in compliance with this test when the following requirements are met:

a) No dielectric breakdown as tested per 7.16.8;

b) There shall be no signs of water in the enclosure capable of wetting uninsulated electrical components; and

c) The light output of the visible signaling device as measured in accordance with the applicable tests in 7.3, Measurement of effective luminous intensity (light output), shall not be reduced below the rated light output.

7.17 Polarity reversal

7.17.1 A visible signal device, intended to be connected to a specific polarity, shall operate for its intended signaling performance after being connected to each polarity of the supply source at the maximum rated voltage. The reversed polarity is to be applied for at least 1 h and then the visible signal device is to be connected to a source of supply having the correct polarity.

7.17.2 The test shall not:

a) Cause unintended operation;

b) Inhibit intended operation;

c) Damage any part; and

d) Adversely affect subsequent normal operation.

7.17.3 Prior to and at the end of the test, the visible signal device is to be subjected to Measurement of effective luminous intensity (light output), 7.3, or the Black box test procedure for emergency warning and public mode, 7.3.3.

7.18 Electric shock current

7.18.1 Any part that is exposed only during operator servicing shall not present a risk of electric shock. A shock hazard from contact with a live part is considered to exist if the open circuit potential of the part to earth ground or any other exposed accessible part exceeds 42.4 V (peak) and the available current or stored energy exceeds the values specified in 7.18.2, 7.18.3, and 7.18.5.

7.18.2 The continuous current flow through a 500 Ω resistor connected between the part and earth ground or any other exposed accessible part shall not exceed the values specified in Table 10, Maximum acceptable continuous current.

7.18.3 The duration of a transient current flowing through a 500 Ω resistor connected between the part and earth ground or other exposed accessible part shall not exceed the following:

a) The value determined by the following equation:

$$T \leq \left(\frac{20\sqrt{2}}{I} \right)^{1.43}$$

Where:

I = The peak current in milliamperes; and

T = The interval, in seconds, between the time that the instantaneous value of the current first exceeds 7.1 mA and the time that the current falls below 7.1 mA for the last time; or

b) 809 mA, regardless of duration.

7.18.4 The interval between occurrences shall be equal to or greater than 60 s if the current is repetitive. Typical calculated values are shown in Table 11, Maximum acceptable transient current duration.

7.18.5 The maximum capacitance between the accessible terminals of the capacitor does not exceed the values given by the following equations:

$$C = \frac{88\,400}{E^{1.43}(\text{Ln } E - 1.26)} \quad \text{for} \quad 42.4 \leq E \leq 400$$

or:

$$C = 35\,288\ E^{-1.5364} \text{ for } 400 \leq E \leq 1000$$

Where:

C = The maximum capacitance of the capacitor in microfarads, and

E = The potential in volts across the capacitor prior to discharge. E is to be measured 5 s after the capacitor terminals are made accessible, such as by the removal or opening of an interlocked cover, or the like.

7.18.6 Typical calculated values of maximum capacitance are shown in Table 12, Electric shock – stored energy.

7.18.7 With reference to the requirements of 7.18.2 and 7.18.3 the current is to be measured while the resistor is connected between ground and each accessible part individually, and all accessible parts collectively, if the parts are simultaneously accessible. The current also is to be measured while the resistor is connected between one part or group of parts and another part or group of parts, if the parts are simultaneously accessible.

7.18.8 With reference to the requirements of 7.18.7, parts are considered to be simultaneously accessible if they can be contacted by one or both hands of a person at the same time. For the purpose of these requirements, one hand is considered to be able to contact parts simultaneously if the parts are within a 100 by 200 mm (4 by 8 in) rectangle; and two hands of a person are considered to be able to contact parts simultaneously if the parts are not more than 1800 mm (71 in) apart.

7.18.9 Electric shock current refers to all currents, including capacitively coupled currents.

7.18.10 If the visible signaling device has a direct-current rating, measurements are to be made with the visible signaling device connected in turn to each side of a 3-wire, direct current supply circuit.

7.18.11 Current measurements are to be made with any operating control, or adjustable control that is subject to user operation, in all operating positions, and either with or without a plug-in device, separable connector, or similar component in place. These measurements are to be made with controls placed in the position that causes maximum current flow.

7.18.12 Each terminal provided for the connection of an external antenna shall be conductively connected to the supply circuit grounded conductor. The conductive connection shall have a maximum resistance of 5.2 MΩ, a minimum wattage rating of 1/2 W, and shall be effective with the power switch in either the on or off position.

Exception: The conductive connection is not required to be provided if such a connection is established in the event of electrical breakdown of the antenna isolating means, the breakdown does not result in a risk of electric shock and, in a construction employing an isolating power transformer, the resistance of the conductive connection between the supply circuit and chassis does not exceed 5.2 MΩ.

7.18.13 The maximum value of 5.2 MΩ specified in 7.18.12 is to include the maximum tolerance of the resistor value used; that is, a resistor rated 4.2 MΩ with 20% tolerance or a resistor rated 4.7 MΩ with a 10% tolerance is acceptable. A component comprised of a capacitor with a built-in shunt resistor that complies 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 or CAN/CSA-E60384-14, may be rated a minimum of 1/4 W.

7.19 Tests on polymeric (plastic) materials

7.19.1 General

7.19.1.1 Polymeric materials used for the sole support of current-carrying parts, or for all or part of an enclosure for a visible signaling device, shall be subjected to the tests in Accelerated air-oven aging test (temperature), 7.19.2, Flame test – 19 mm (3/4 in), 7.19.3, and Flame test – 305 mm (5 in), 7.19.4. Where possible a complete visible signaling device shall be used.

7.19.1.2 A visible signaling device molded from polymeric material rated Flammability class 5VA, in accordance with:

a) In Canada, CSA C22.2 No. 0.17, Evaluation of Polymeric Materials,

b) In the United States, Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

is considered to comply with the requirements of 7.19.3 and 7.19.4 without the necessity of further tests.

7.19.2 Accelerated air-oven aging test (temperature)

7.19.2.1 There shall not be warping that impairs intended operation or exposes high-voltage uninsulated current carrying parts when representative samples of a polymeric material are aged as described in 7.19.2.2.

7.19.2.2 At least three representative samples shall be mounted on supports in an air circulating oven maintained at 90 ±2°C (194 °F) for 7 d, or at 70 ±2°C (158°F) for 28 d. Following the aging period, the sample is to be inspected for distortion while still in the oven. The sample shall then be removed from the oven and permitted to cool to room temperature. Falling off of the sample's cover shall be permitted only when parts operating at a potential greater than 30V ac or 42.4 Vdc are not exposed, operation is not affected, and the cover can be replaced as intended. Where the conditioning process has damaged electronic components, it is permissible to replace them.

7.19.2.3 The effective luminous intensity output shall not be less than applicable minimum in accordance with 7.3, Measurement of effective luminous intensity (light output).

7.19.3 Flame test – 19 mm (3/4 in)

7.19.3.1 When tested in accordance with 7.19.3.2 – 7.19.3.6, a polymeric (plastic) material employed as part of an visible signaling device rated 30 Vac (42.4 V DC or AC peak) or less and used for the sole support of current-carrying parts or as an enclosure shall not flame for more than 1 minute after two 30 s applications of a test flame, with an interval of 1 min between applications of the flame. The sample shall not be completely consumed.

7.19.3.2 Three samples of the equipment are to be conditioned by placing them in a forced draft circulating air oven maintained at a uniform temperature not less than 10 °C (18°F) higher than the maximum temperature of the material measured under normal operating conditions, and not less than 70°C (158°F) in any case. The samples are to remain in the oven for 7 days. After cooling to room temperature for a minimum of 4 h, the samples are to be tested as described in 7.19.3.3 – 7.19.3.6.

Exception: Unconditioned test samples may be used when both of the following conditions are met:

a) The material does not exhibit a reduction in its flame-resistance properties as a result of long-term thermal aging and

b) The thermal-aging program used for such determination included specimens having a thickness equal to or less than the wall thickness of the polymeric part.

7.19.3.3 Three samples of the part are to be subjected to the Flame Test described in 7.19.3.5. In the performance of the test, the equipment is to be supported in its normal operating position in a draft free location. Non-polymeric portions are not to be removed and insofar as possible, the internal mechanism of the equipment is to be in place. The flame is to be applied to an inside surface of the sample at a location judged as capable of becoming ignited because of its proximity to a source of ignition. Each sample is to be tested with the flame applied to a different location.

Exception: Unconditioned test samples may be used for testing when both of the following conditions are met:

a) The material does not exhibit a reduction in its flame-resistance properties as a result of long-term thermal aging; and

b) The thermal-aging program used for such determination included specimens having a thickness equal to or less than the wall thickness of the polymeric part.

7.19.3.4 With reference to 7.19.3.3, the sections judged capable of becoming ignited are to be those adjacent to coil windings, splices, open-type switches, or arcing parts.

7.19.3.5 The flame of a Bunsen or Tirrill burner having a tube with a length of 9.5 ±0.3 mm (0.374 ±0.12 in) and an inside diameter of 100 ±10 mm (3.94 ±0.39 in) is to be adjusted to have a 19 mm (3/4 in) height of yellow flame with no blue cone. Two 30 second applications of the tip of the flame are to be made to each section of the equipment specified as indicated above, with 1 min intervals between the applications. A supply of technical-grade methane gas is to be used with a regulator and meter for uniform gas flow.

Exception: Natural gas having a heat content of 37 MJ/m^3(1000 Btu/ft^3) at 23°C (73°F) has been found to provide similar results and is appropriate for use.

7.19.3.6 When one sample from a set of three does not comply with 7.19.3.1, an additional set of three samples shall be tested. All samples from the second set shall comply with 7.19.3.1.

7.19.4 Flame Test – 305 mm (5 in)

7.19.4.1 When tested in accordance with 7.19.4.2 – 7.19.4.6, a plastic material employed as part of an visible signaling device rated greater than 30 Vac (42.4 V DC or AC peak) and used for the sole support of current-carrying parts or as an enclosure all of the following results shall be obtained:

a) The material shall not continue to burn for more than 1 min after the fifth 5 s application of the test flame, with an interval of 5 s between applications of the flame;

b) Flaming drops or flaming or glowing particles that ignite surgical cotton 305 mm (12 in) below the test specimen shall not be emitted by the test sample at any time during the test; and

c) The material shall not be destroyed in the area of the test flame to such an extent that the integrity of the part is affected with regard to containment of fire or exposure of high voltage parts.

7.19.4.2 Three samples of the complete equipment or three test specimens of the molded part shall be subjected to this test. Consideration is to be given to leaving in place components and other parts that influence the performance. The test samples are to be conditioned in a full draft circulating air oven for 7 days at 10°C (18°F) greater than the maximum use temperature and not less than 70°C (158°F) in any case. Prior to testing, the samples are to be conditioned for a minimum of 40 h at 23.0 ±2.0 °C (73.4 ±3.6°F) and 50 ±5 percent relative humidity. The flame is to be applied to an inside surface of the sample at a location judged as capable of becoming ignited because of its proximity to a source of ignition. When more than one part is near a source of ignition, each sample is to be tested with the flame applied to a different location.

Exception: Unconditioned test samples may be used when both of the following conditions are met:

a) The material does not exhibit a reduction in its flame-resistance properties as a result of long-term thermal aging; and

b) The thermal-aging program used for such determination included specimens having a thickness equal to or less than the wall thickness of the polymeric part.

7.19.4.3 The three samples shall perform as described in 7.19.4.1. When one sample does not comply, the test is to be repeated on a set of three new samples with the flame applied under the same conditions as for the unsuccessful sample. All the new specimens shall comply with 7.19.4.1.

7.19.4.4 The Bunsen or Tirrill burner with a tube length of 9.5 ±0.3 mm (0.374 ±0.12 in), and an inside diameter of 100 ±10 mm (3.94 ±0.39 in), is to be placed remote from the specimen, ignited, and adjusted so that when the burner flame is 127 mm (5 in), the height of the inner blue cone is 38 mm (1-1/2 in). The tube is not to be equipped with end attachments, such as stabilizers.

7.19.4.5 When a complete enclosure is used to conduct the flame test, the sample is to be mounted as intended in service, as long as it does not impair the flame testing, in a draft-free test chamber, enclosure, or laboratory hood. A layer of surgical cotton is to be located 305 mm (12 in) below the point of application of the test flame. The 127 mm (5 in) flame is to be applied to any portion of the interior of the part judged as capable of being ignited (by its proximity to live or arcing parts, coils, wiring, or other possible sources of ignition) at an angle of 20° from the vertical so that the tip of the blue cone touches the specimen. The test flame is to be applied to three different locations on each of the three samples tested. A supply of technical-grade methane gas is to be used with a regulator and meter for uniform gas flow.

Exception No. 1: The flame shall be applied to the outside of an enclosure when the equipment is of the encapsulated type, or of a size that prohibits the flame being applied inside.

Exception No. 2: Natural gas having a heat content of 37 MJ/m^3 (1000 Btu/ft^3) at 23°C (73°F) has been found to provide similar results and is appropriate for use.

7.19.4.6 The flame is to be applied for 5 s and removed for 5 s. The operation is to be repeated until the specimen has been subjected to five applications of the test flame.

7.19.5 Ultraviolet light and water exposure test

7.19.5.1 The lens or plastic enclosure of an outdoor use visible signaling device shall not show visible signs of deterioration, such as crazing, cracking, or dimensional change after exposure to ultraviolet light for 720 hours and intermittent water spray. The lens shall not affect the light output, and the light output shall not decrease beyond the limits described in 7.3, Measurement of effective luminous intensity (light output).

7.19.5.2 A visible signal device moulded from polymeric material rated class F1 or F2, in accordance with CSA C22.2 No. 0.17, Evaluation of Polymeric Materials, or the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94, is considered to comply with the requirements of this section without the necessity of further tests.

7.19.5.3 Five samples are to be exposed to ultraviolet light from an enclosed carbon arc formed between two vertical electrodes, 12.7 mm (1/2 in) in diameter, The arc is to be enclosed by a clear globe of No. 9200PX Pyrex glass. The arc shall be operated at a current of approximately 15 – 17 amperes, and the potential across the electrodes is to be approximately 120 – 145 volts AC.

7.19.5.4 The globe assembly is to be located at the center of a revolvable vertical metal cylinder 787 mm in diameter and 451 mm high.

7.19.5.5 The cylinder is to be rotated about the arcs at one revolution per minute, and a system of nozzles is to be provided so that each sample, in turn, is sprayed with water as the cylinder revolves. The temperature within the cylinder while the apparatus is in operation is to be approximately 60°C.

7.19.5.6 Samples that show visible signs of deterioration, such as crazing, cracking, or dimensional change shall be subject to the tests described in 7.16, Water Spray.

7.20 Mechanical strength tests for enclosures

7.20.1 A visible signaling device enclosure, including the lens, shall be of sufficient mechanical strength to withstand abuse anticipated in shipping, installation and service.

7.20.2 A sample shall be mounted in accordance with the installation instructions A push force of 110 N shall be gradually applied and maintained for 1 min by means of a 12.7 mm (1/2 in) diameter steel hemisphere to the external surface most likely to impair the operation of the device, or create a risk of fire or electric shock. A sample shall then be mounted in accordance with the installation instructions and Figure 14, Mechanical strength tests for enclosures. Three impacts of 7 J (5 ft-lb) shall be applied by means of a solid, smooth, steel sphere 50 mm (2 in.) in diameter, with a mass of 540 g, (1.19 lb)The sphere shall either be dropped from a sufficient height (usually 1300 mm from the bottom of the ball to the surface to be impacted) or swung through a pendulum arc from a sufficient height to apply an impact force of 7 J of energy to the external surface most likely to impair the operation of the device, or create a risk of fire or electric shock.

Note: Unless specified, the same sample may be reused for each of the above applied forces. It is not prohibited to use a different sample for the application of each force.

7.20.2.1 When the visible signaling device is intended for indoor use, the impacts specified in 7.20.2 are to be conducted at room temperature. When the device is intended for outdoor use, the impacts are to be conducted after the units have been conditioned at minus 40°C (minus 40°F) for 3 hours.

7.20.3 Following the application of each force the visible signaling device is to be examined for damage and energized from a source of rated voltage and frequency to check for intended operation. Cracking of the enclosure is permitted if it does not impair intended operation, but is not when a dust- or moisture-tight enclosure is used.

7.20.4 There shall be no reduction in electrical spacings, no exposure of uninsulated energized parts at potential above 30 Vac (42.4 V DC or AC peak), and no impairment of performance during and after the application of the forces and impacts specified in 7.20.2. Falling off of the sample's cover shall be permitted only when circuits operating at greater than 30 Vac (42.4 V DC or AC peak) parts are not exposed, operation is not affected, and the cover can be replaced as intended. A dielectric withstand test of the sample shall be conducted in accordance with Dielectric voltage-withstand, 7.6. The visible signal device shall be tested for effective luminous intensity, Measurement of effective luminous intensity (light output), 7.3.

7.20.5 A pull force of 890 N (200 lb) shall be applied to raceway terminations. The force shall be gradually applied and maintained for 5 min to a sample length of terminated conduit.

7.20.6 A threaded opening provided for the connection of a raceway termination or conduit connection, shall withstand a torque of 90.4 N-m (800 lb-in) for 3/4 in. or smaller trade size of connectors or 113 N-m (1000 lb-in) for connectors of greater than 3/4 in trade size;