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Underwriters Laboratories Inc.®

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December 12, 1995

Revision pages for

Standard for

Vent or Chimney Connector Dampers for Oil-Fired Appliances

UL 17, Third Edition

Attached to this transmittal notice is a revision of the Third edition of UL 17.

A CHANGE ON A PAGE DATED DECEMBER 12, 1995 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THIS REVISION IS CONSIDERED NON-SUBSTANTIVE AND IS BEING ISSUED TO CHANGE THE SPECIFIC GRAVITY OF THE AQUEOUS AMMONIA TO A VALUE WHICH PRODUCES VALUES MORE CONSISTENT WITH MERCUROUS NITRATE TEST RESULTS. THE REVISED REQUIREMENTS ARE NOW IN EFFECT.

Attention is directed to the note on the title page of this standard outlining the procedure to be followed to retain the approved text of ANSI/UL 17-1995.

Revised and/or additional pages may be issued from time to time.

With the inclusion of the accompanying material, the standard consists of pages dated as shown in the following checklist:

Page	Date
1	May 12, 1994 (Reprinted April 7, 1995)
2 – 43	May 12, 1994
44, 44A, 45	December 12, 1995
46	May 12, 1994
47	April 7, 1995
48, 49, A1	May 12, 1994



Documents

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- c) Between uninsulated high-voltage live parts and components of circuits included in Table 17.1(c) or as low voltage,
- d) Between uninsulated metal parts of one high-voltage circuit and such parts of another high-voltage circuit, and
- e) Between uninsulated live parts of a circuit included in Table 17.1(c) and components of any other circuit.

25.2 A damper employing an isolated limited secondary circuit shall withstand for 1 minute without breakdown the application of an alternating potential of 1000 volts plus twice the maximum rated secondary voltage, at rated frequency, between all uninsulated live parts connected to the secondary circuit and grounded dead metal parts. All chassis grounds of the secondary circuit, if any, are to be disconnected prior to applying the dielectric voltage-withstand potential in a manner so that there will be no breakdown to ground at the point(s) normally connected to ground.

25.3 A damper employing a low-voltage circuit shall withstand for 1 minute without breakdown the application of a 60 hertz potential of 500 volts applied between uninsulated low-voltage live parts of opposite polarity with contacts, if any, closed, and between uninsulated low-voltage live parts and the enclosure and grounded dead metal parts.

25.4 A Class 2 transformer shall withstand without breakdown, for a period of 1 minute, the application of an alternating potential of 1000 volts plus twice the maximum rated primary voltage, at rated frequency, between primary and secondary windings and between the primary winding and the core or enclosure.

25.5 A power transformer shall withstand without breakdown, for a period of 1 minute, the application of an alternating potential of 1000 volts plus twice the maximum rated primary or secondary voltage, at rated frequency, between primary and secondary windings, and shall withstand under the same conditions the application of an alternating potential of 1000 volts plus twice the rated voltage of each winding, at rated frequency, between each winding and the core or enclosure.

Exception: The test between primary and secondary windings is not required in the case of an autotransformer.

25.6 A 500 volt-ampere or larger transformer, the output voltage of which is essentially sinusoidal and which can be varied, is to be used to determine compliance with the requirements in 25.1 – 25.5. The applied potential is to be increased gradually from zero until the required test value is reached and is to be held at that value for 1 minute.

Exception: A 500 volt-ampere or larger transformer need not be used if the high potential testing equipment used is such that it maintains the specified high potential voltage at the equipment during the test.

26 Volt-Ampere Capacity Test

26.1 An isolated limited secondary circuit shall have a continuous use capacity of 100 volt-amperes or less when energized from a circuit of rated frequency at the voltage specified in Table 18.1, as determined in accordance with 26.2 or 26.3, whichever is applicable.

26.2 A single-wound secondary transformer is to attain a temperature rise on the enclosure, core, or coil of at least 50°C (90°F) when the secondary is loaded to the maximum output obtainable or 100 volt-amperes, whichever is less.

26.3 Each secondary winding of a multisecondary transformer is to be loaded in turn with a variable resistor. Starting with a cold transformer for each part of the test, the load resistance is decreased from open-circuit to short-circuit in such a manner that the lapsed time is between 1-1/2 and 2-1/2 minutes. Depending upon the open circuit voltage of the winding, the maximum outputs obtained by this method are to be as follows:

- a) 350 volt-amperes for 0 – 15 volts.
- b) 250 volt-amperes for 15.1 – 30 volts.
- c) 200 volt-amperes for 30.1 – 1000 volts.

27 Burnout Test

27.1 There shall be no damage to the enclosure nor emission of flame or molten metal when a power transformer is operated as described in 27.2 and 27.3.

Exception: This requirement does not apply to a transformer supplying a low-voltage, electronic, or isolated limited secondary circuit. See 27.4.

27.2 The damper is to be operated continuously at rated frequency and the voltage indicated in Table 18.1 with the enclosure grounded. The load connected to the output terminals shall be a resistance of such value that three times full-rated current will be drawn from the secondary winding of the transformer. The transformer is to be energized until constant temperature is indicated on the enclosure or until burnout occurs.

27.3 The circuit on which the transformer is tested is to be protected by fuses rated at least ten times the primary current rating of the transformer, and blowing of the fuses is not considered to be impaired operation. The test is to be conducted with the output terminals short-circuited, if such a condition results in less than three times full rated current being drawn from the secondary. If another means of limiting the load to less than three times intended is inherent in or provided as part of the device, these features are to be considered and the burnout test made at the maximum load permitted by the limiting features.

27.4 A transformer supplying a low-voltage circuit, as described in 2.6(b) shall be tested as a standard Class 2 transformer in accordance with the requirements in the Standard for Specialty Transformers, UL 506, with low-voltage wiring terminals short-circuited, and wiring not complying with the requirements in 10.2 short-circuited. A transformer supplying an isolated limited secondary circuit as described in 2.6(d), or an electronic circuit, shall be tested as described in 27.2 and 27.3, except that all secondary windings are to be directly short-circuited. If a portion of an isolated limited secondary or electronic circuit is connected to low-voltage field wiring terminals, separate samples are to be subjected to the standard Class 2 test as specified above and the shorted secondary test.

28 10-Day Moist Ammonia Air Stress Cracking Test

28.1 After being subjected to the conditions described in 28.2 – 28.4, a brass part containing more than 15 percent zinc shall show no evidence of cracking when examined using 25x magnification.

28.1 revised December 12, 1995

28.2 Each test sample is to be subjected to the physical stresses normally imposed on or within a part as the result of assembly with other components. Such stresses are to be applied to the sample prior to and maintained during the test. Samples with threads, intended to be used for installing the product in the field, are to have threads engaged and tightened to the torque specified in Table 28.1. Teflon tape or pipe compound are not to be used on threads.

28.2 revised December 12, 1995

Table 28.1
Torque requirements for threaded connections

Nominal thread size, inches	Torque pound-inches (N·m)	
1	1200	(135.6)
1-1/4	1450	(163.8)
1-1/2	1550	(175.1)
2	1650	(186.4)
2-1/2	1750	(197.7)
3	1800	(203.4)

Table 28.1 added December 12, 1995

28.3 Three samples are to be degreased and then continuously exposed in a set position for ten days to a moist ammonia-air mixture maintained in a glass chamber approximately 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

28.4 Approximately 600 ml of aqueous ammonia having a specific gravity of 0.94 is to be maintained at the bottom of the glass chamber below the samples. The samples are to be positioned 1-1/2 inches (38.1 mm) above the aqueous ammonia solution and supported by an inert tray. The moist ammonia air mixture in the chamber is to be maintained at atmospheric pressure and at a temperature of 93°F (34°C).

28.4 revised December 12, 1995

29 Permanence of Marking

29.1 A marking that is required to be permanent shall be molded, die-stamped, paint-stencilled, stamped or etched metal that is permanently secured, or indelibly stamped lettering on a pressure-sensitive label secured by adhesive that, upon investigation, is found to be acceptable for the application. Ordinary usage, handling, storage, and the like of a product are considered in the determination of the permanence of a marking.

29.2 Unless it has been investigated and found to be acceptable for the application, a pressure-sensitive label or a label that is secured by cement or adhesive and that is required to be permanent shall comply with the requirements in the Standard for Marking and labeling systems, UL 969.

MANUFACTURING AND PRODUCTION TESTS

30 Dielectric Voltage-Withstand Test

30.1 Each damper employing a high-voltage circuit shall withstand for 1 minute without electrical breakdown, as a routine production-line test, the application of a 60 hertz potential of 1000 volts plus twice rated voltage between high-voltage parts and dead metal parts.

Exception: The time of application of the potential may be reduced to 1 second if the value of the test potential is 120 percent of that specified.

30.2 The test equipment shall include a transformer having an essentially sinusoidal output, a means of indicating the test potential, an audible or visual indicator of electrical breakdown, and either a manually reset device to restore the equipment after electrical breakdown or an automatic reject feature of any unacceptable unit.

30.3 If the output of the test equipment transformer is less than 500 volt-amperes, the equipment shall include a voltmeter in the output circuit to directly indicate the test potential.

30.4 If the output of the test equipment transformer is 500 volt-amperes or larger, the test potential may be indicated by:

- a) A voltmeter in the primary circuit or in a tertiary winding circuit,
- b) A selector switch marked to indicate the test potential, or
- c) A marking in a readily visible location to indicate the test potential of equipment having a single test potential output.

If marking is used without an indicating voltmeter, the equipment shall include a positive means, such as a power-on lamp to indicate that the manually reset switch has been reset following a tripout.

30.5 Test equipment other than that described in 30.2 – 30.4 may be used if found to accomplish the intended factory control.

31 Interlock Test

31.1 Each vent or chimney connector damper assembly shall be tested, as a routine production-line test to determine that the interlock required by 5.1.8 functions to close the circuit to the oil burner only when the damper blade is in a fully open position. If applicable, the test is to be conducted in conjunction with a remote control unit.

RATING

32 Details

32.1 A vent or chimney connector damper and an associated remote control assembly, if provided, shall be rated as specified in 32.2 – 32.5.

32.2 An assembly intended to control an inductive load shall be rated in amperes, volts, and frequency.

32.3 An assembly intended to control a pilot duty load shall be rated in volt-amperes, volts, and frequency. As an alternate to volt-amperes, the rating may be in amperes, indicating both the in-rush and the sealed value. The current values shall be used for pilot duty rating if the in-rush current rating is different from ten times the sealed value. The pilot duty rating shall be identified by the words "pilot duty."

32.4 If the vent or chimney connector damper is intended to control an ignition transformer in conjunction (in parallel) with another load, the ignition transformer rating shall be identified separately from the other load. Such a rating shall be identified by volts, amperes, or volt-amperes, and frequency and by the words "ignition" or "ignition transformer."

32.5 An assembly intended for use with a motor shall be rated also in accordance with one of the following:

- a) Rated in horsepower only,
- b) Rated in horsepower and, in addition, in full-load and locked-rotor current, provided the relationship between the three values is in accordance with that specified in Tables 23.1 and 23.2, or
- c) If the assembly is intended to control a motor rated 2 horsepower (1.49 kW output) or less, rated in full-load current that need not correspond with that in Table 23.2, and in locked-rotor current six times the rated full-load current. These current ratings need not be accompanied by a horsepower rating. The control may be marked with a lesser locked-rotor current rating, but tests shall be conducted at the values indicated above.

MARKING

33 Details

33.1 The following information shall appear on each vent or chimney connector damper assembly:

- a) The manufacturer's name or identifying symbol.
- b) A distinctive catalog number, and model number or equivalent.



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April 7, 1995

Revision pages for

Standard for

Vent or Chimney Connector Dampers for Oil-Fired Appliances

UL 17, Third Edition

Attached to this transmittal notice is a reprinted title page and revision for the Third edition of UL 17.

A CHANGE ON A PAGE DATED APRIL 7, 1995 IS INDICATED BY A SMALL PRINT NOTE FOLLOWING THE AFFECTED ITEM, PRECEDED AND FOLLOWED BY AN ASTERISK.

THIS REVISION IS BEING ISSUED TO CORRECT AN EDITORIAL ERROR IN 33.1(l)(1).

Attention is directed to the note on the title page of this standard outlining the procedure to be followed to retain the approved text of ANSI/UL 17-1995.

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2 – 46	May 12, 1994
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48, 49, A1	May 12, 1994

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(Title Page Reprinted: April 7, 1995)



1

UL 17

Standard for

**Vent or Chimney Connector Dampers
for Oil-Fired Appliances**

First Edition – July, 1982
Second Edition – November, 1988

Third Edition

May 12, 1994

Approval as an American National Standard (ANSI) covers the numbered paragraphs on pages dated May 12, 1994. These pages should not be discarded when revised or additional pages are issued if it is desired to retain the ANSI approved text.

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Approved as ANSI/UL 17-1995, February 13, 1995

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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CONTENTS**FOREWORD****INTRODUCTION**

1 Scope	5
2 Glossary	5
3 Components	6
4 Units of Measurement	6

CONSTRUCTION

5 Assembly	7
6 Materials	8
7 Springs	8
8 Enclosure	9
9 Supply Connections	15
10 Current-Carrying Parts	17
11 Mounting of Electrical Components	17
12 Internal Wiring	18
13 Separation of Circuits	19
14 Bonding for Grounding	19
15 Motors and Motor Overload Protection	21
16 Insulating Material	23
17 Spacings	24

PERFORMANCE

18 General	27
19 Input	28
20 Heating Test	28
21 Special Heating Test	38
22 Increased and Undervoltage Tests	39
23 Overload Test	39
24 Endurance Test	42
25 Dielectric Voltage-Withstand Test	42
26 Volt-Ampere Capacity Test	43
27 Burnout Test	44
28 10-Day Moist Ammonia Air Stress Cracking Test	44
29 Permanence of Marking	45

MANUFACTURING AND PRODUCTION TESTS

30 Dielectric Voltage-Withstand Test	45
31 Interlock Test	46

RATING

32 Details	46
------------------	----

28.3 Three samples are to be degreased and then continuously exposed in a set position for ten days to a moist ammonia-air mixture maintained in a glass chamber approximately 12 by 12 by 12 inches (305 by 305 by 305 mm) having a glass cover.

28.4 Approximately 60 ml of aqueous ammonia having a specific gravity of 0.90 is to be maintained at the bottom of the glass chamber below the samples. The samples are to be positioned 1-1/2 inches (38.1 mm) above the aqueous ammonia solution and supported by an inert tray. The moist ammonia air mixture in the chamber is to be maintained at atmospheric pressure with the temperature constant at approximately 93°F (34°C).

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29.1 A marking that is required to be permanent shall be molded, die-stamped, paint-stencilled, stamped or etched metal that is permanently secured, or indelibly stamped lettering on a pressure-sensitive label secured by adhesive that, upon investigation, is found to be acceptable for the application. Ordinary usage, handling, storage, and the like of a product are considered in the determination of the permanence of a marking.

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32.5 An assembly intended for use with a motor shall be rated also in accordance with one of the following:

- a) Rated in horsepower only,
- b) Rated in horsepower and, in addition, in full-load and locked-rotor current, provided the relationship between the three values is in accordance with that specified in Tables 23.1 and 23.2, or
- c) If the assembly is intended to control a motor rated 2 horsepower (1.49 kW output) or less, rated in full-load current that need not correspond with that in Table 23.2, and in locked-rotor current six times the rated full-load current. These current ratings need not be accompanied by a horsepower rating. The control may be marked with a lesser locked-rotor current rating, but tests shall be conducted at the values indicated above.

MARKING

33 Details

33.1 The following information shall appear on each vent or chimney connector damper assembly:

- a) The manufacturer's name or identifying symbol.
- b) A distinctive catalog number, and model number or equivalent.

- c) Electrical ratings in accordance with 32.2 – 32.5.
- d) The maximum flue gas temperature, if less than 538°C (1000°F), of the appliance on which the assembly is intended to be installed.
- e) Minimum clearances to combustible construction in integral inches.
- f) Instructions that the assembly is for installation only on oil-fired equipment.
- g) The word "WARNING" and a cautionary statement as follows or an equivalent:

"Risk of fire if improperly installed. Do not install on a flue pipe serving to vent more than one appliance. See installation instructions for proper installation."
- h) A statement to the effect that the damper blade must be in the open position when the burner is operating.
- i) If the vent or chimney connector vent damper is for use with a remotely connected control unit, a statement shall be included on the vent or chimney connector damper that it is for use only with that control unit, identifying the part number, catalog number, or other equivalent distinctive designation of the control unit.
- j) If the vent or chimney connector damper is shipped in two subassemblies that are intended to be joined in the field to form one assembly, each subassembly shall include a statement to the effect that is for use only with the other subassembly, identifying the other subassembly by its distinctive designation that shall be marked on that subassembly. Each subassembly shall also be marked with the manufacturer's name.
- k) The date of manufacture, which may be in code.
- l) An assembly intended for field wiring shall be marked in accordance with either (1) or (2), as appropriate, or with an equivalent statement. The marking shall be independent of any marking on the terminal connectors, shall be visible during and after installation of the assembly, and shall be as follows:
 - 1) "Use Copper Conductors Only" or "Use Copper or Copper-Clad Aluminum Conductors Only" if the assembly is intended for field connection with aluminum wire.
 - 2) "Use Copper or Aluminum Conductors" or "Use Copper, Copper-Clad Aluminum, or Aluminum Conductors" if the assembly is intended for field connection with either copper or aluminum wire.
- m) An assembly that is provided with fittings for use on only one type of wiring system shall be marked where it will be visible during installation to indicate the applicable wiring system.

33.1 revised April 7, 1995

33.2 A remote control unit, if provided, shall include the markings specified in 33.1(a), (b), (c), (j), (k), and (l) and required by 33.3. Also, it shall be marked with maximum ambient temperature rating if the manufacturer intends that the control unit may be used in higher than 25°C (77°F).

33.3 If any point within a terminal box or wiring compartment of a unit in which field-installed conductors are intended to be connected, including such conductors themselves, attains a temperature rise more than 35°C (63°F) during the temperature test, the assembly shall be marked in accordance with 33.4. The statement shall be legible and so located that it will be visible during and after installation of the supply wiring connections.

33.4 The marking mentioned in 33.3 depends on the size and temperature rating of the supply conductors employed for the test involved. The temperature value shall be in accordance with Table 33.1, and the marking shall be as follows:

- a) If all the conductors used in the test were of the same size, the marking is to be "For supply connections use No. ____ AWG or larger wires acceptable for at least ____°C (____°F)" or with an equivalent statement.
- b) If conductors of more than one size were used in the test because of unbalanced loads or other reason, the marking is to be "For supply connections, use wires acceptable for at least ____°C (____°F). See wiring diagram for wire size" or an equivalent statement.

Exception: The conductor size need not be indicated if the temperature test was conducted with No. 14 AWG (2.1 mm²) wires. See 20.4.2.

Table 33.1
Temperature for marking

Temperature rises during test at points within terminal box or compartment, or on wires intended for supply connections, degrees C (F)		Temperature marking, degrees C (F)	
36 – 50	(64.8 – 90)	75	(167)
51 – 65	(91.8 – 117)	90	(194)

33.5 If a manufacturer produces or assembles vent or chimney connector dampers at more than one factory, each finished damper shall have a distinctive permanent marking by means of which it may be identified as the product of a particular factory.

33.6 A required marking shall be permanent and legible and shall be located on a permanent part of the damper. See Section 29, Permanence of Marking.

INSTRUCTIONS

34 Installation Instructions

34.1 A copy of the installation instructions intended to accompany each damper assembly is to be used as a guide in the examination and test of the damper assembly. For this purpose, a final printed copy is not required.

Vent or Chimney Connector Dampers for Oil-Fired Appliances



**Underwriters Laboratories Inc.®**

Underwriters Laboratories Inc., founded in 1894, is chartered as a not-for-profit organization without capital stock, under the laws of the State of Delaware, to establish, maintain, and operate laboratories for the examination and testing of devices, systems and materials to determine their relation to hazards to life and property, and to ascertain, define and publish standards, classifications and specifications for materials, devices, products, equipment, constructions, methods, and systems affecting such hazards.

UL Standards for Safety are developed under a procedure which provides for participation and comment from the affected public as well as industry. The procedure takes into consideration a survey of known existing standards and the needs and opinions of a wide variety of interests concerned with the subject matter of the standard. Thus manufacturers, consumers, individuals associated with consumer-oriented organizations, academicians, government officials, industrial and commercial users, inspection authorities, insurance interests and others provide input to UL in the formulating of UL Standards for Safety, to keep them consonant with social and technological advances.

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May 12, 1994

Standard for

Vent or Chimney Connector Dampers for Oil-Fired Appliances

UL 17, Third Edition

Accompanying this transmittal notice is a copy of the Third edition of UL 17.

THIS EDITION OF THE STANDARD IS NOW IN EFFECT.

Revised and/or additional pages may be issued from time to time.

The requirements in this standard are substantially in accordance with UL's bulletin on this subject dated February 2, 1994. This bulletin is now obsolete and may be discarded.



Documents

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MAY 12, 1994

1

UL 17

Standard for

**Vent or Chimney Connector Dampers
For Oil-Fired Appliances**

First Edition – July, 1982

Second Edition – November 28, 1988

Third Edition

May 12, 1994

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Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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CONTENTS**FOREWORD****INTRODUCTION**

1 Scope	5
2 Glossary	5
3 Components	6
4 Units of Measurement	6

CONSTRUCTION

5 Assembly	7
6 Materials	8
7 Springs	8
8 Enclosure	9
9 Supply Connections	15
10 Current-Carrying Parts	17
11 Mounting of Electrical Components	17
12 Internal Wiring	18
13 Separation of Circuits	19
14 Bonding for Grounding	19
15 Motors and Motor Overload Protection	21
16 Insulating Material	23
17 Spacings	24

PERFORMANCE

18 General	27
19 Input	28
20 Heating Test	28
21 Special Heating Test	38
22 Increased and Undervoltage Tests	39
23 Overload Test	39
24 Endurance Test	42
25 Dielectric Voltage-Withstand Test	42
26 Volt-Ampere Capacity Test	43
27 Burnout Test	44
28 10-Day Moist Ammonia Air Stress Cracking Test	44
29 Permanence of Marking	45

MANUFACTURING AND PRODUCTION TESTS

30 Dielectric Voltage-Withstand Test	45
31 Interlock Test	46

RATING

32 Details	46
------------------	----

MARKING

33 Details	46
------------------	----

INSTRUCTIONS

34 Installation Instructions	48
------------------------------------	----

APPENDIX A

Standards for Components	A1
--------------------------------	----



FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.