



**Summary of Substantive Changes
between the 14th edition, dated November 7, 2014 and the
February 23, 2017 update of the 14th edition of
UL 499, “Electric Heating Appliances”**

Presented to the IAPMO Standards Review Committee on February 11, 2019

General: The changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Added an exceptions for steam bath generators requirements (see Sections 1.5 , 30.1, 30.3, 70.10, 68.1 and Table 30.1)
- Removed a requirement for switches to comply with UL 1054 (see Section 6.2.3.1)

Section 1, Scope: Added an exception for steam bath generators as follows:

1.5 Except as noted for steam-bath generators, steam generating products of the type described in 1.4 having an electrical input power rating of more than 15 kW per steam generating vessel are to be evaluated by the requirements in the Standard for Heating, Water Supply, and Power Boilers – Electric, UL 834.

Section 6.2, Requirements for Components: Removed a requirement for switches to comply with UL 1054 as follows:

6.2.3 Switches

6.2.3.1 Switches shall comply with the Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1. ~~Switches that comply with the Standard for Special Use Switches, UL 1054, are considered to fulfill this requirement.~~

Exception No. 1: Switches that comply with the Standard for General Use Snap Switches, UL 20; the Standard for Clock-Operated Switches, UL 917; the Standard for Automatic Electrical Controls ~~for Household and Similar Use~~; – Part 1: General Requirements, UL 60730-1, with the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches, UL 60730-2-7; or the Standard for Nonindustrial Photoelectric Switches for Lighting Control, UL 773A, are considered to fulfill this requirement.

Exception No. 2: Circuit breakers that comply with the Standard for Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, UL 489, need not comply with UL 61058-1 ~~or UL 1054~~.

Exception No. 3: Switching devices that comply with appropriate standards for specialty applications (e.g. transfer switch equipment), industrial use (e.g. contactors, relays, auxiliary devices) or are integral to another component (e.g. switched lampholder) need not comply with UL 61058-1 ~~or UL 1054~~.

Exception No. 4: Switching devices that comply with Sections 26 and 43 need not comply with UL 61058-1 ~~or UL 1054~~.

6.2.7 Controls

6.2.7.1 A thermal cutoff shall comply with the Standard for Thermal-Links – Requirements and Application Guide, UL 60691.

6.2.7.2 Except where superseded in this standard, a temperature control that complies with the construction requirements of the Standard for Temperature-Indicating and -Regulating Equipment, UL 873; the Standard for Limit Controls, UL 353; or the Standard for Automatic Electrical Controls ~~for Household and Similar Use~~; Part 1: General Requirements, UL 60730-1, and the Standard for Automatic Electrical Controls ~~for Household and Similar Use~~; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9, is considered to comply with the construction requirements of this standard. See Testing of Component Switches and Control Devices, Section 43 for performance requirements.



Section 30, Pressure Vessels and Parts Subject to Pressure: Added exceptions for pressure system constructed of continuous tubing provided they meet the minimum wall thickness of Table 30.1 and pressure vessel bearing an ASME code inspection symbol as follows:

30.1 Except as noted in 30.2, a pressure vessel having an inside diameter of more than 6 inches (152 mm) and subject to a pressure of more than 15 lbf/in²(103 kN/m²) ~~shall be certified by the National Board of Boiler and Pressure Vessel Inspectors and marked in accordance with the appropriate boiler and pressure vessel code symbol (²H², ²M², ²S², or ²U²) of the~~ and within the scope of the applicable American Society of Mechanical Engineers (ASME) pressure vessel codes, shall be marked in accordance with these codes to include the code symbol for and a working pressure no less than the pressure determined by applying 30.3.

30.2 If a pressure vessel, because of its application, is not covered under the inspection procedures of the ASME code, it shall be so designed and constructed that it will comply with the requirements in 30.3.

30.3 Except as noted in 30.4 ~~and 30.5~~, a part that is subject to air or vapor pressure, including the vapor pressure in a vessel containing only a superheated fluid, during normal or abnormal operation shall withstand without bursting or leaking a pressure equal to the highest of the following that is applicable:

- a) Five times the pressure corresponding to the maximum setting of a pressure-reducing valve provided as part of the assembly, but not more than five times the marked maximum supply pressure from an external source and not more than five times the pressure setting of a pressure-relief device provided as part of the assembly.
- b) Five times the marked maximum supply pressure from an external source, except as provided in (a).
- c) Five times the pressure setting of a pressure-relief device provided as part of the assembly.
- d) Five times the maximum pressure that can be developed by an air compressor that is part of the assembly, unless the pressure is limited by a pressure-relief device in accordance with (a).
- e) Five times the working pressure marked on the part.

Exception No. 1: This requirement does not apply to a section of a pressure system constructed of continuous tubing or of lengths of tubing connected by hard-soldered, brazed, or welded joints provided the wall thickness of the tubing is not less than the value specified in Table 30.1.

Exception No. 2: This requirement does not apply to a pressure vessel bearing an ASME code inspection symbol – other than the UM symbol – provided the vessel is marked with a value of working pressure not less than that to which it is subjected during normal or abnormal operation.

Table 30.1
Minimum wall thickness for copper and steel tubing

<u>Outside diameter</u>		<u>Wall thickness</u>		<u>Maximum gauge pressure to which tubing is subjected, PSI (MPa)</u>					
				<u>Seamless copper</u>		<u>Butt-welded steel</u>		<u>Seamless steel</u>	
<u>inch</u>	<u>(mm)</u>	<u>inch</u>	<u>(mm)</u>	<u>500</u>	<u>(3.45)</u>	<u>600</u>	<u>(4.14)</u>	<u>1000</u>	<u>(6.90)</u>
<u>3/8 or less</u>	<u>(9.5)</u>	<u>0.016</u>	<u>(0.41)</u>	<u>400</u>	<u>(2.76)</u>	<u>480</u>	<u>(3.31)</u>	<u>800</u>	<u>(5.52)</u>
<u>1/2</u>	<u>(12.7)</u>	<u>0.016</u>	<u>(0.41)</u>	<u>320</u>	<u>(2.21)</u>	<u>384</u>	<u>(2.65)</u>	<u>640</u>	<u>(4.42)</u>
<u>5/8</u>	<u>(15.9)</u>	<u>0.016</u>	<u>(0.41)</u>	<u>420</u>	<u>(2.90)</u>	<u>504</u>	<u>(3.48)</u>	<u>840</u>	<u>(5.80)</u>
<u>5/8</u>	<u>(15.9)</u>	<u>0.021</u>	<u>(0.053)</u>	<u>360</u>	<u>(2.48)</u>	<u>432</u>	<u>(2.98)</u>	<u>720</u>	<u>(4.97)</u>
<u>3/4</u>	<u>(19.0)</u>	<u>0.021</u>	<u>(0.053)</u>	<u>420</u>	<u>(2.90)</u>	<u>504</u>	<u>(3.48)</u>	<u>840</u>	<u>(5.80)</u>
<u>1</u>	<u>(25.4)</u>	<u>0.021</u>	<u>(0.053)</u>	<u>260</u>	<u>(1.79)</u>	<u>312</u>	<u>(2.15)</u>	<u>520</u>	<u>(3.59)</u>
<u>1</u>	<u>(25.4)</u>	<u>0.025</u>	<u>(0.64)</u>	<u>320</u>	<u>(2.21)</u>	<u>384</u>	<u>(2.65)</u>	<u>640</u>	<u>(4.42)</u>

30.4 A test need not be performed to determine whether a part complies with the requirement in 30.3 if study and analysis of the material and dimensions indicate that the part has the strength acceptable for the application – for example, copper or steel pipe of standard size and provided with standard fittings might be considered to have the strength for the application.



~~30.5 A pressure vessel bearing the ASME code inspection symbol ($2H^2$, $2M^2$, $2S^2$, or $2U^2$) is considered to comply with the requirement in 30.3 if the vessel is marked with a value of working pressure not less than that to which it is subject during normal or abnormal operation.~~

30.10 There shall be no shut-off ~~value~~ valve between the pressure-relief means and the parts that it is intended to protect.

Section 68, Scope: Clarified a venting requirement for steam bath generators as follows:

STEAM-BATH GENERATORS

68 Scope

68.1 These requirements cover immersed electrode and sheathed resistance element type steam generators intended for both residential and commercial use. They are intended to be permanently connected to the electrical supply, water source and output piping. They are intended to generate steam into showers or rooms constructed for the purpose. All units are intended to vent directly into the room without a pressure regulator on the output.

Section 70.7, Pressure vessels and parts subject to pressure: Removed reference to Section 30.1 as follows:

~~70.7.1 Only units provided with pressure regulating valves in the steam output are required to comply with 30.1.~~

Section 70.10, Output pressure regulating valve: Added the requirement that steam bath generators shall not be provided with a pressure regulating valve on the output as follows:

70.10 Output pressure regulating valve

70.10.1 Steam-bath generators shall not be provided with a pressure regulating valve on the output.