



UL 1693

Underwriters Laboratories Inc.
Standard for Safety

Electric Radiant Heating
Panels and Heating Panel Sets

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UL Standard for Safety for Electric Radiant Heating Panels and Heating Panel Sets, UL 1693

Third Edition, Dated September 13, 2010

SUMMARY OF TOPICS:

These revisions to UL 1693 are being issued to incorporate the addition and revision of requirements to relocate component Standard references from Appendix A into the body of the Standard as component requirements.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin. Changes in requirements are marked with a vertical line in the margin and are followed by an effective date note indicating the date of publication or the date on which the changed requirement becomes effective.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated July 29, 2011.

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UL 1693

Standard for Electric Radiant Heating Panels and Heating Panel Sets

First Edition – May, 1995
Second Edition – July, 2002

Third Edition

September 13, 2010

This UL Standard for Safety consists of the Third Edition including revisions through October 14, 2011.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <http://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover radiant heating panels and heating panel sets, for use on ac supply system voltages not exceeding 600 V, designed for installation indoors in nonhazardous locations in household, commercial, and industrial applications, in accordance with Article 424, Part IX, of the National Electrical Code, ANSI/NFPA 70.

1.1 revised October 14, 2011

1.2 These requirements cover products designed to be permanently connected to a supply circuit, and that are intended to form an integral part of the building construction after on-site assembly, installation, and connection.

1.3 These requirements do not cover electric heating equipment or appliances that are covered by individual requirements that are separate from this Standard. Other related standards include :

- a) Electrical Resistance Heat Tracing for Commercial and Industrial Applications, UL 515;
- b) Fixed and Location-Dedicated Electric Room Heaters, UL 2021;
- c) Movable and Wall- or Ceiling-Hung Electric Room Heaters, UL 1278;
- d) Outline of Investigation for Mobile Home Pipe Heating Cables, Subject 1462;
- e) Outline of Investigation for Roof and Gutter De-Icing Cable Units, Subject 1588;
- f) Electric Space Heating Cables, UL 1673;
- g) Outline of Investigation for Residential Pipe Heating Cables, Subject 2049; and
- h) Electric Heating Appliances, UL 499.

1.3 revised October 14, 2011

1.4 These requirements do not cover the following:

- a) Heating equipment connected to the supply by use of a flexible cord with attachment plug;
- b) Heating equipment that is movable after installation;
- c) Heating equipment with integral means of producing air flow;
- d) Heating equipment manufactured and sold as an integral part of a floor or ceiling covering materials such as heated floor tiles, heated carpet, and heated laminate floor;
- e) Heating equipment exceeding 355 W/m^2 (33 W/ft^2) when installed in concrete or poured masonry;
- f) Electric Space-Heating Cables of Article 424 Part V of the National Electrical Code, ANSI/NFPA 70;

g) Heating panels and panel sets for mounted directly underfloor coverings in accordance with 424.99 of the National Electrical Code, ANSI/NFPA 70; and

h) Radiant heating panels intended to be installed in a dropped or suspended ceiling.

1.4 added October 14, 2011

1.5 These requirements do not cover switches, transformers, power supplies, controls (e.g. temperature) or protective devices (e.g. ground fault protection) that are typically installed separate from the heating panels but may be installed at the same time as part of the space heating system. Those devices are covered by individual requirements that are separate from this Standard.

1.5 added October 14, 2011

2 Components

Section 2 deleted October 14, 2011

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purpose of this standard, the following definitions apply.

5.2 ACTIVE AREA – That part of a heating product forming a plane area bounded by the perimeter of the heating element and its non-heating components.

5.3 ASSOCIATE PART – A nonintegral part of a heating product essential for the correct operation, installation, or both, of the product.

5.3.1 COMPONENT – A device or fabricated part of the appliance covered by the scope of a safety standard dedicated to the purpose. When incorporated in an appliance, equipment otherwise typically field installed (e.g. outlet box) is considered to be a component. Unless otherwise specified, materials that compose a device or fabricated part, such as thermoplastic or copper, are not considered components.

5.3.1 added October 14, 2011

5.4 FLEXIBLE HEATING PRODUCT – A heating product of nonrigid construction, composed of thin flexible sheets of electrical insulating material enclosing a heating element, which is intended for installation in contact with normal building construction materials.

5.5 HEATING ELEMENT – That portion of a heating panel or heating panel set that is the actual electrical conducting medium, including a continuously applied or patterned conductive film, intended to be heated by an electric current.

5.6 HEATING PANEL – A complete assembly provided with a junction box or a length of flexible conduit for connection to a branch circuit.