



UL 1598B

STANDARD FOR SAFETY

Supplemental Requirements for
Luminaire Reflector Kits for Installation
on Previously Installed Fluorescent
Luminaires

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UL Standard for Safety for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires, UL 1598B

First Edition, Dated December 4, 2000

Summary of Topics

The revision to ANSI/UL 1598B dated June 10, 2020 adds requirements for Reflector Kits for Marine Luminaires; [1.4](#) and Supplement [SA](#).

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.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated March 6, 2020.

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UL 1598B

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First Edition

December 4, 2000

This ANSI/UL Standard for Safety consists of the First Edition including revisions through June 10, 2020.

The most recent designation of ANSI/UL 1598B as an American National Standard (ANSI) occurred on May 27, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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 <https://csds.ul.com>.

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Standard for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires

INTRODUCTION

1 Scope

1.1 This Standard applies to reflector kits that consist of one or more components that are intended to be installed in fluorescent luminaires sometime after the initial installation of the luminaire. These requirements are supplementary to the other applicable requirements in the Standard for Luminaires, UL 1598. The components of a reflector kit are reflectors, ballasts, lampholders, wiring, brackets, wire connectors, or similar items. References to requirements in the Standard for Luminaires, UL 1598 are in *italics* for easy identification.

1.2 [Table 1.1](#) defines the types of reflector kits covered by the requirements in this Standard based on the tasks involved in the installation of a reflector kit. The installation of a Type I reflector kit shall involve only those tasks that correspond to its reflector kit type in [Table 1.1](#). A Type II reflector kit is able to involve the tasks of kit types I and II.

Table 1.1
Reflector kit types

Reflector kit types	Tasks involved
I	<ul style="list-style-type: none">– Reflector installation– Reflector replacement
II	<ul style="list-style-type: none">– Lampholder relocation, removal, or replacement– Ballast relocation, removal, or replacement– Wire relocation, removal, replacement, or addition

1.3 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

1.4 Additional requirements for reflector kits intended for marine luminaires (marine-type fixtures) are in Supplement [SA](#).

2 General

2.1 Components

2.1.1 Except as indicated in [2.1.2](#), a component of a product covered by this standard shall comply with the requirements for that component. See Appendix [A](#) for a list of standards covering components used in the products covered by this standard.

2.1.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

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

2.3 Undated references

2.3.1 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.

MECHANICAL CONSTRUCTION

3 General

3.1 After installation of a reflector kit, a luminaire shall comply with the requirements in *Mechanical construction, Section 5*, of UL 1598.

3.2 After installation of a reflector kit, all components of the reflector kit and all components of the luminaire that were affected by the installation of the reflector kit shall be secured in place so that lamp replacement, inspection of splices to the branch-circuit supply wires, and routine maintenance will not loosen components or joints in the assembly.

3.3 Fluorescent lamps shall not be relied upon for support of any reflector kit component.

3.4 A reflector shall be secured in place by brackets, horizontal overlapping flanges, screws, or equivalent mechanical means. Friction shall not be relied upon to secure the reflector in place. The securement means shall be such that it will withstand any unintentional contact that occurs during lamp replacement.

4 Polymeric Materials

4.1 A polymeric material serving to complete the enclosure required in *Enclosures, Subsection 5.3*, of UL 1598, or providing structural support of any electrical component or of any non-electrical component weighing more than 3 ounces (85 g) shall comply with the requirements in *Polymeric materials, Subsection 5.7*, of UL 1598.

4.2 A metallized polymeric reflector that is spaced within 3 inches (76.2 mm) from any lampholder, lamp contact, lampholder lead, wiring, or other electrical component (excluding the fluorescent lamps) that are below the metallized surface shall comply with the applicable requirements for metallized plastic parts in *Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C*.

5 Air-Handling Luminaire Reflectors

5.1 A reflector kit intended for installation in a luminaire used as an air handling register shall not impede the intended air flow.

5.2 A nonmetallic material, adhesive, or adhesive tape used in a reflector kit intended for installation in a luminaire used as an air handling register shall comply with *Air-handling luminaires, Subsection 12.2*, of UL 1598.

6 Adhesives

6.1 An adhesive or adhesive tape shall not be relied upon to secure any part to a panel, bracket, or component of a luminaire.

6.2 An adhesive or adhesive tape that complies with the requirements for temperature, humidity, and indoor cyclic conditioning for adhesives in UL 746C is able to be relied upon to secure a part of a reflector kit to another part of a reflector kit. With regard to the temperature conditioning, a normal operating temperature of 90°C (194°F) shall be assumed unless temperature testing of the luminaire/kit combination indicates that a lower normal operating temperature applies. This requirement applies to all adhesives including an adhesive used to secure a metal foil reflecting surface or a laminate reflecting surface to the reflector base material.

7 Metal Thickness

7.1 Metal parts of a reflector kit and those portions of a luminaire affected by installation of the reflector kit shall comply with the requirements in *Metal thickness for enclosures, Subsection 5.5*, of UL 1598.

ELECTRICAL CONSTRUCTION

8 General

8.1 After installation of a reflector kit, a luminaire shall comply with the requirements in *Electrical construction, Section 6*, of UL 1598.

8.2 Installation of a reflector kit shall not change:

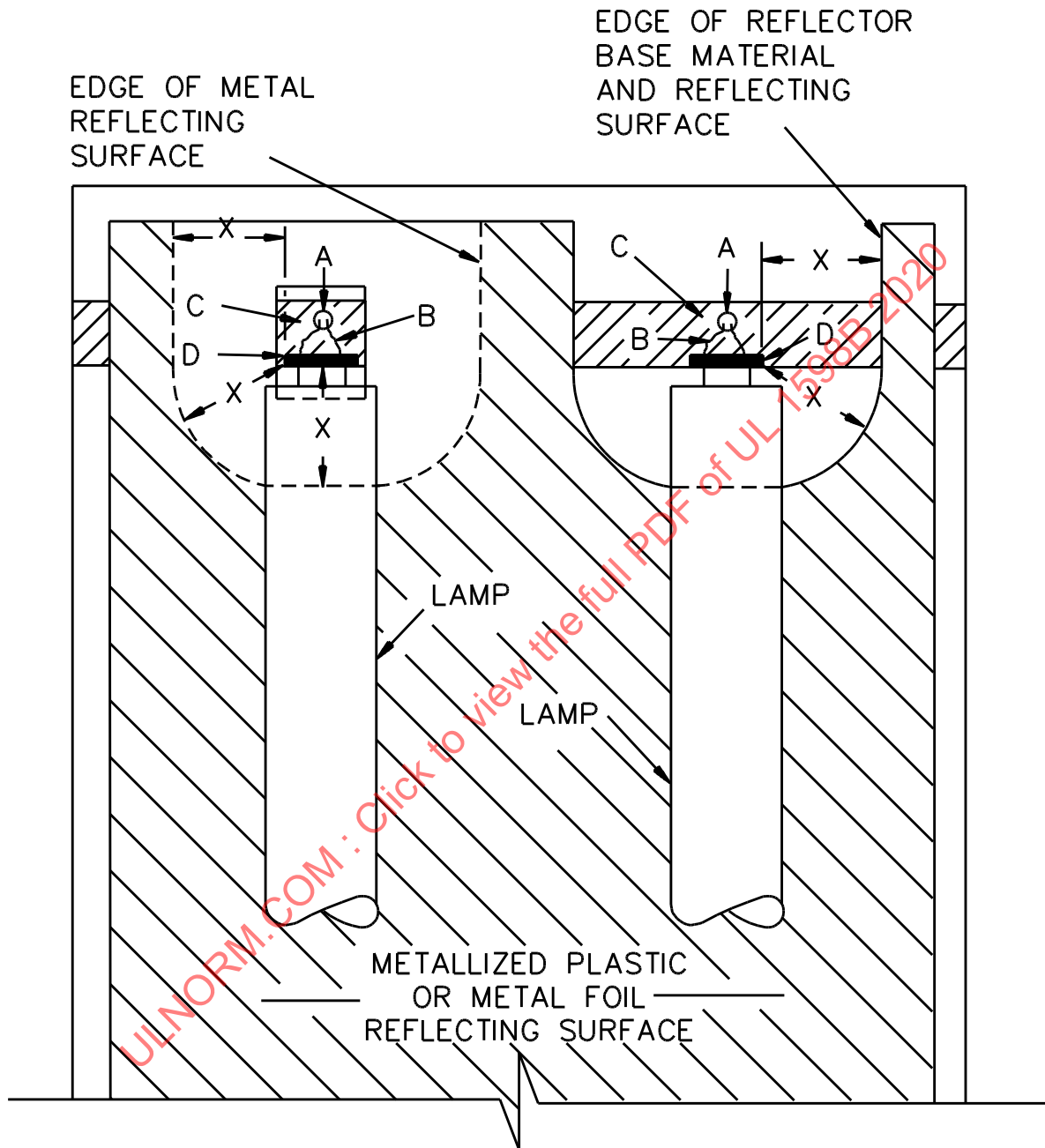
- a) The method by which the luminaire is connected to the branch circuit; or
- b) Any portion of the luminaire applicable to the requirements for *Supply connections, Subsection 6.15*, of UL 1598.

8.3 Installation of a reflector kit shall not require alteration of the construction of lampholders, ballasts, or other electrical components.

9 Grounding

9.1 An electrically conductive reflector spaced within 3 inches (76.2 mm) from all lampholders, lamp contacts, lampholder leads, wiring, and other electrical components (excluding the fluorescent lamps) that are below the metal surface shall be grounded. See [Figure 9.1](#).

Figure 9.1
Spacings for metal reflecting surface of reflector kit



S3201

$$X = 3" (76.2\text{mm})$$

- A. Open hole in lampholder bracket through which the lampholder leads pass
- B. Exposed lampholder leads
- C. Bracket on which the lampholder is mounted
- D. Lampholder

10 Lampholders

10.1 Installation of a Type II reflector kit that involves relocation or removal of lampholders and lampholder leads originally supplied with the luminaire shall comply with the requirements in this section.

10.2 Replacement lampholders provided as a part of a reflector kit shall be suitable for use with the type of fluorescent lamp marked on the ballast involved and be of the type to comply with the Standard for Luminaires, UL 1598, if used to retrofit a luminaire provided with an instant-start electronic ballast.

10.3 After installation of a reflector kit, lampholder connections shall comply with the requirements in *Lampholders, Subsection 8.4*, of UL 1598.

11 Wiring and Conductors

11.1 Supplemental wiring or connectors required for installation of the reflector kit shall be included in the kit. The connectors shall be suitable for the number and size of conductors with which they are intended to be used. The supplemental wiring shall comply with the requirements in *Electrical construction, Section 6*, of UL 1598.

12 Ballasts

12.1 A replacement ballast shall be a Class P type and shall be suitable for use with the number and type of fluorescent lamps to be installed in the luminaire after the reflector kit installation.

12.2 Except as noted in [12.3](#), a ballast provided as part of the kit intended to retrofit a luminaire with instant-start ballast(s), incorporating bi-pin lampholders, shall be Type CC.

12.3 A ballast provided as part of the kit intended to retrofit a luminaire with instant-start ballast(s) need not be Type CC if the luminaire is constructed with lampholders intended for use with instant-start electronic ballasts in accordance with the component requirements in the Standard for Luminaires, UL 1598. Lampholders marked with a circle "I" comply with these requirements.

MARKING AND INSTRUCTIONS

13 General

13.1 A reflector kit shall be legibly marked using one of the following methods, in accordance with [Table 13.1](#):

- a) Lettering on a pressure-sensitive label;
- b) Paint stenciled lettering;
- c) Ink-stamped machine lettering;
- d) Ink-hand-stamped lettering;
- e) Indelibly printed lettering;
- f) Die-stamped lettering;
- g) Embossed lettering; or
- h) Molded or cast lettering.

13.2 A marking shall be of minimum size (S__) and in the location (L__) as shown in the FORMAT column in [Table 13.1](#) and as defined in [Table 13.2](#).

13.3 “Verbatim”, shown in the TEXT column of [Table 13.1](#), indicates that the marking shall consist of only the exact words shown or a marking including those words and conveying the original intent. Alternative wording for other markings in the Table are not prohibited, subject to evaluation.

Table 13.1
List of required markings

Item	Installation instructions	Text	Format	Reference
1.1	WARNING – Risk of fire or electric shock. Luminaires wiring, ballasts, or other electrical parts may be damaged when drilling for installation of reflector kit hardware. Check for enclosed wiring and components.		S24-L3 and S24-L5	15.1 , 16.8
1.2	WARNING – Risk of fire or electric shock. Do not alter, relocate, or remove wiring, lampholders, ballasts, or any other electrical component.		S24-L5	16.10
1.3	WARNING – Risk of fire or electric shock. Reflector kit installation requires knowledge of fluorescent lighting luminaires electrical systems. If not qualified, do not attempt installation. Contact a qualified electrician.		S24-L5	16.11
1.4	WARNING – Risk of fire or electric shock. Install this kit only in the luminaires that has the construction features and dimensions shown in the photographs and/or drawings.		S24-L5	16.5
1.5	Only those open holes indicated in the photographs and/or drawings may be made or altered as a result of kit installation. Do not leave any other open holes in an enclosure of wiring or electrical components.	Verbatim	S24-L5	16.6
1.6	Do not make or alter any open holes in an enclosure of wiring or electrical components during kit installation.	Verbatim	S24-L5	16.7
1.8	WARNING – To prevent wiring damage or abrasion, do not expose wiring to edges of sheet metal or other sharp objects.		S24-L5	16.15
	Identification Markings			
2.1	MANUFACTURER'S IDENTIFICATION		S16-L2	14.1

Note: See Table 20.1.2 in the Standard for Luminaires, UL 1598, for format minimum size designation height and typeface.

Table 13.2
Format location designation for marking

Location designation	Description	Label exposed to a dry environment	Label exposed to a damp/wet environment
L1	Visible during relamping, and after installation	Type P	Type P
L2	Visible during installation	Type N	Type P
L3	Visible during installation and inspection of wire connections, located near the supply connections	Type N	Type P
L4	On the smallest unit package or carton	Type T	Type T
L5	On an instruction sheet or tag	Type T	Type T
L6	Visible during component replacement	Type P	Type P

Table 13.2 Continued on Next Page

Table 13.2 Continued

Location designation	Description	Label exposed to a dry environment	Label exposed to a damp/wet environment
<p>Note:</p> <p>Type P – Permanent label or nameplate A label that is intended to remain in the applied position for the lifetime of the luminaire under conditions of intended use.</p> <p>Uses: Information required for user maintenance over the expected life of the product.</p> <p>Material: Metal, plastic, or other suitable material with an adhesive suitable for the temperature involved and comply with <i>Clause 20.1.7</i>.</p> <p>Type N – Non-permanent label or nameplate A label that is intended to remain in place only for the purpose of installation.</p> <p>Uses: Certification mark, manufacturer's identification, product identification.</p> <p>Material: Paper with an adhesive suitable for the temperature involved.</p> <p>Type T – Temporary label or instruction sheet A label, instruction sheet, or tag that is not required after installation.</p> <p>Uses: Installation instructions, and information not required after installation.</p> <p>Material: Printed matter with or without adhesive and/or attachment, intended to be included with or attached to the product.</p>			

14 Identification

14.1 One of the components of a reflector kit such as a reflector or a bracket shall be marked with the reflector kit manufacturer's name, trademark, or other descriptive marking in accordance with [Table 13.1](#), Item 2.1.

15 Installation Marking

15.1 A reflector kit that requires drilling or punching of holes into the structure of the luminaire for kit installation shall be marked in accordance with [Table 13.1](#), Item 1.1.

16 Installation Instructions

16.1 A reflector kit shall be provided with installation instructions that cover all aspects of luminaire alteration required for the installation of the reflector kit. Each step shall be clearly explained and, when necessary, accompanied by an illustration showing execution of the step. All illustrations shall be legible to allow the user to distinguish all applicable features of the luminaire and the reflector kit.

16.2 The installation instructions shall include photographs or line drawings of the luminaire or luminaires intended to be used with the reflector kit clearly showing:

- The luminaire without diffuser as it is seen by the installer of a reflector kit;
- Details of all panels, brackets, or components and their orientation prior to luminaire alteration when these details are important to installation of the reflector kit as it is intended to be used;
- All dimensions and spacings of all luminaire walls, panels, brackets, openings, lampholders, and similar items that are relied upon to comply with the requirements of this standard; and
- All vents and the air path in a luminaire used as an air handling register.

16.3 For a reflector kit that is bulk packaged, one set of installation instructions shall be provided with each carton.

16.4 The installation instructions shall specify all components of the reflector kit before any installation steps are given so that the user is able to check the content of the reflector kit.

16.5 The installation instructions shall include the marking described in [Table 13.1](#), Item 1.4.

16.6 When the installation of a reflector kit requires the making or altering of one or more open holes in an enclosure of current-carrying parts, the installation instructions shall identify the dimensions of all such open holes in a photograph or drawing. The installation instructions shall include the marking described in [Table 13.1](#), Item 1.5.

16.7 When the installation of a reflector kit does not require the making of any open holes in an enclosure of live parts, the installation instructions shall include the marking described in [Table 13.1](#), Item 1.6.

16.8 The installation instructions for a reflector kit that requires drilling or punching of holes into the structure of the luminaire of kit installation shall include an instruction as described in [Table 13.1](#), Item 1.7.

16.9 Installation instructions for a reflector kit that involves the alteration of reflector kit brackets or luminaire brackets shall include illustrations that show the appearance of the bracket or brackets before and after alteration. All dimensions of the brackets shall be clearly indicated and the instructions shall describe a method of bracket alteration and the type of tool to be used.

16.10 The installation instructions for a reflector kit of Type I shall include an instruction in accordance with [Table 13.1](#), Item 1.2.

16.11 The installation instructions for a reflector kit of Type II shall include an instruction in accordance with [Table 13.1](#), Item 1.3.

16.12 The installation instructions for reflector kit of Type II shall include figures showing the supply, ballast, lampholder, and wiring configuration for the luminaires with which the reflector kit is intended to be used. Each figure shall:

- a) Include wiring diagrams for only one configuration which will show the electrical position of all components before and after reflector kit installation;
- b) Be on a separate page;
- c) Be referenced in the text of the instructions; and
- d) Identify all wiring splice points pertinent to kit installation.

All ballasts, lampholders, wiring, and other electrical components shall be consistently identified by a unique number or name in all wiring diagrams. Any conductor capping required for reflector kit installation shall also be identified in the figure.

16.13 Installation instructions for a Type II reflector kit that requires the removal of lampholders shall indicate that the lampholders and lampholder leads shall be removed.

16.14 The installation instructions of a Type II reflector kit shall include a statement to warn the user that each lampholder shall be installed only in the intended manner and location.

16.15 The installation instructions for Type II reflector kits involving the removal, relocation, or reconnection of wiring shall include the marking described in [Table 13.1](#), Item 1.8.

16.16 A reflector kit that requires supplemental wiring shall clearly indicate on the figures described in [16.12](#) the conductors that are to be added and their related splices.

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