

Subject 1598

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UL 1598

LUMINAIRES

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(IEZX, IEZX7, IEXT IEXT7, IEXZ IEXZ7, IFAH, IFAH7)
FOLLOW-UP INSPECTION INSTRUCTIONS

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L1 Scope

L1.1 These Follow-Up Inspection and Instructions (FUII's) describe the manufacturer's production program necessary to verify that luminaires intended to bear the registered Certification Mark of Underwriters Laboratories comply with the requirements of UL Standard 1598. In addition, the FUII's describe the duties and responsibilities of the UL Representative during factory audit inspection visits. Any clause, Section, Table, or Figure number referenced in this document that is not prefixed by L, refers to the requirements in the Standard for Luminaires UL 1598. Any reference to the term "Standard" also applies to UL 1598. Any reference to Certification Mark shall mean Underwriters Laboratories Registered Certification Mark.

L1.1.2 General

L1.1.2.1 Manufacturers are required to maintain a program of production inspection and tests to assure that the covered product complies with UL requirements. A Follow-Up Service Procedure identifying the authorized manufacturing location and product authorized to bear the certification mark is loaned to the manufacturer. The Follow-Up Service Procedure, the Standard and the Follow Up Inspection Instructions constitute the basis on which the product is judged for compliance.

L1.1.2.2 As part of Underwriters Laboratories Inc. (UL) Follow-Up Services Program, a member of UL's staff will periodically visit the factory to monitor compliance of the covered product with UL requirements. This includes verification of any required factory testing, lamping inspections or other measures deemed necessary by Underwriters Laboratories to control the use and application of the certification mark.

L1.2 Glossary

L1.2.1 For the purposes of the Follow-Up Service Inspection and Instructions, the following definitions apply.

L1.2.2 UL REPRESENTATIVE - An authorized representative of Underwriters Laboratories who makes periodic unannounced visits to the manufacturer's facilities for purposes of conducting inspections and monitoring the manufacturer's production program.

L1.2.3 GENERAL COVERAGE LUMINAIRE - A luminaire that complies with the temperature test-exempt requirements and all construction requirements in the Standard. General coverage luminaires do not require a specific product description in the Procedure document and are evaluated at the authorized factory using the Standard as indicated in the Follow-Up Inspection Instructions.

L1.2.4 REVIEWING OFFICE - Designated UL testing facility responsible for establishing the Listing Services and conducting the product investigation.

L1.2.5 INSPECTION REPORT - The report generated by the UL Representative summarizing the results of an inspection visit.

L1.2.6 LISTED PRODUCT - A product that has been determined to comply with the appropriate standards by Underwriters Laboratories and for which a Procedure authorizing use of the certification mark on the product has been established.

L1.2.7 LISTING MARK - A distinctive registered certification mark of Underwriters Laboratories (that includes, in addition to the mark, the product name, a control number, and the word "Listed") that the manufacturer is authorized to apply to Listed products as the manufacturer's declaration that the products under the program comply with the Follow-Up Service Procedure, the Standard and Follow-Up Inspection Instructions.

L1.2.8 MANUFACTURER - The authorized party who maintains and operates the facilities where a Listed product is fabricated, processed, finished, or stored; where the product is inspected and/or tested as described in this Supplement; and the Listing Mark is applied to conforming products.

L1.2.9 MANUFACTURER'S TEST PROGRAM - The factory tests that are conducted by the manufacturer on a periodic or 100 percent basis and for which the manufacturer may be required to keep records.

L1.2.10 PROCEDURE - The document issued by Underwriters Laboratories Inc., upon determination that a product is eligible for Listing, for use by the authorized manufacturer and the UL Representative. The document contains requirements and other provisions and conditions regarding the Listed product and provides the authorization for the manufacturer to use the Listing Mark on products fulfilling these requirements.

L1.2.11 RECOGNIZED COMPONENT - A part or subassembly intended for use in other equipment and that has been investigated for certain construction or performance, or both, characteristics. A Recognized Component is incomplete in construction features or is restricted in performance capabilities so as not to warrant its acceptability as a field-installed component. It is intended solely as a factory-installed component of other equipment where its acceptability is determined by Underwriters Laboratories.

L1.2.12 TYPE TEST- Test conducted on a certain design to show that the design meets applicable requirements of the Standard.

L1.2.13 VARIATION NOTICE (VN) - A document used to record observed differences between a product or manufacturing process and the description of the product or process in the Procedure and/or Standard or other requirement.

L2 RESPONSIBILITY OF THE MANUFACTURER

L2.1 General

L2.1.1 It is the manufacturer's responsibility to restrict the use of the Listing Mark to those products specifically authorized by Underwriters Laboratories and that are found by the manufacturer's own quality assurance program to comply with the Follow-Up Service Procedure description.

L2.1.2 The manufacturer shall confine all Listing Marks to the factory location or locations authorized in the Follow-Up Service Procedure.

L2.1.2.3 The manufacturer maintain the Follow-UP Service procedure at the authorized factory location and shall confine the application of Listing Marks to the authorized product category.

L2.1.3 During hours in which the manufacturer's facilities are in operation, the manufacturer shall permit the UL Representative unrestricted access to any portion of the premises where the product or components thereof are being fabricated, processed, finished, or stored, and to the test area assigned for the UL representative's use. The UL representative shall be permitted to inspect and to verify, prior to shipment, the results of the prescribed tests on any product bearing or intended to bear the Listing Mark.

L2.1.4 The manufacturer shall provide, at a convenient location, all required test equipment and accommodations, and any required personnel for conducting all tests that are to be performed at the manufacturer's facilities. These shall be available when needed so that the inspection work can proceed without undue delay.

L2.1.5 The manufacturer shall maintain factory test records. Test records shall be retained for a period of at least six months. Test records shall include the type of test, quantity tested, test date, catalog or model numbers, test results and the disposition of any non-complying products. Only records of noncompliance need be maintained for products subjected to 100% production line testing.

L2.1.6 The manufacturer shall determine that the test equipment is functioning properly and shall have the equipment calibrated at regular intervals, not less than once annually, or whenever it has been subject to abuse (such as being dropped or struck with an object) or its accuracy is questionable. Calibration may be by the manufacturer or by an outside laboratory. In either case, the equipment shall be calibrated by comparison with a standard that is traceable to the applicable U.S. or foreign National standard. Calibration records shall be maintained by the manufacturer until the next succeeding calibration of the equipment, and shall be readily available for review by the UL Representative.

L2.1.7 A product that is found to no longer be in compliance with the requirements of Underwriters Laboratories shall be brought into compliance by the manufacturer if the Listing Mark is to be used on the product. If the noncompliance was the result of a manufacturing or testing process, the manufacturer shall check subsequent production until it is certain that the process or test method has been corrected and noncompliance will not recur.

L2.2 Manufacturer's Test Program

L2.2.1 Factory Type Tests

L2.2.1.1 The manufacturer shall conduct at the factory the applicable type tests shown in Table L2.2.1 for each design as required by the Standard. Each luminaire design shall be subjected to the applicable type tests a minimum of once every six months during production. The manufacturer shall maintain a record of all factory tests. Test records shall be maintained for a minimum period of six months.

L2.2.1.2 A type test conducted on one design may represent another design, provided that the construction feature tested is representative of all

designs. For example: A conduit knockout and twist out test conducted on a 0.66 mm (0.026 in.) thick enclosure intended for a 1/2 inch trade size conduit

may represent a test for another model with a knockout having the same metal thickness and knock out dimensions.

**Table L2.2.1
Factory Type Tests**

Test	Reference Clause UL 1598	Test Reference Clause UL 1598
Conduit knockout and twistout	2.9.1	13.13
Self-threading screw torque	2.10.2, 2.10.3	13.14
Loading	2.10.8, 2.11.1, 7.2.8 7.5.2	13.15
*Snap-in or tab mounted part without conduit openings	2.10.10	13.16
*Snap-in or tab mounted part with conduit openings	2.10.10, 2.10.11	13.17
Suspended ceiling luminaires - security of clips	8.1.4	13.18
Swivel torsion and pull	2.12.2	13.20
Enclosure secured by friction	2.10.10	13.16, 13.17

* Exempt from factory type test when construction is described in the Follow-Up Service Procedure.

L2.2.2 Factory Production Line Tests

L2.2.2.1 The manufacturer shall conduct at the factory all factory production line tests shown in Table L2.2.2 as required by the Standard. Test records shall be maintained in accordance with the Standard.

L2.2.2.2 The Dielectric voltage withstand test shall be conducted when the Luminaire is fully assembled. It is not intended that the luminaire be unwired modified, or disassembled for the test. Parts such as shades, diffusers or the like that would interfere with performance of the test need not be in place. The test may be performed before the luminaire is assembled if the test represents that for the final assembly.

**Table L2.2.2
Factory Production Line Tests**

Test	Test Reference Clause UL 1598
Dielectric voltage-withstand	15.1 ^a
Grounding continuity	15.2
Glass support	15.3
Strain relief	15.4
Polarity	15.5
^a Exception: The dielectric voltage-withstand test may be conducted with the applied DC Voltage of 1414 volts for one minute or 1697 volts for one second. The sensitivity for the trip circuit shall be maximum 141.1ma for the applied voltage.	

L2.3 "General Coverage" Luminaires Evaluated At The Factory

L2.3.1 An incandescent or fluorescent luminaire that complies with the Standard and for which none of the clauses specified in Table L2.4 are applicable is considered a "General Coverage Luminaire".

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L2.3.2 General Coverage type luminaires are evaluated at the authorized factory using the requirements of the Standard. General Coverage type luminaires must comply with the temperature test exempt requirements of the Standard, in addition to other requirements that do not require the product to be submitted to the Reviewing Office for evaluation in accordance with table L2.4. The Procedure references compliance with the Standard and does not provide a specific product description of General Coverage type luminaires.

L2.3.2.1 Lampholders shall be located and positioned in accordance with the Standard. The luminaire shall be designed such that the minimum lamp spacing shall be maintained in the luminaire as packed ready for shipment.

Spacing between glassware and ceiling of not less than the minimum required by the Standard is to be maintained by one of the following methods:

- 1) A stem threaded on both ends for a sufficient distance, capable of supporting the glassware and engaging the intended luminaire hardware;
- 2) An all-threaded stem with the center threads altered so that only the end threads can be used or.
- 3) Any other method specifically described in the Follow-Up Service Procedure.

L2.3.3 Conductors used in Temperature test exempt luminaires shall have minimum insulation temperature rating as specified in the Standard for lamp compartment wattage in accordance with table 4.2.2.1 of the Standard. The maximum ampacity for conductors shall not exceed values shown table L. 2.3.

**TABLE L 2.3
MAXIMUM AMPACITY FOR WIRE AND CORD WITH COPPER CONDUCTORS**

Types of wire and cord ^a	Ampacity				
	18 AWG	16AWG	14 AWG	12 AWG	10 AWG
S1 Equivalent mm ² sectional area	0.82	1.3	2.1	3.3	5.3
General Building Wires RH, RHH, RHW, RUH, RUW, T, THHN, THW, THWN, TW, XHHW AIA, A1, Z A, AA PFHA, TFE	-	-	20 40 45 60	25 50 55 80	40 70 75 110
Fixture wires RHF-1, RHF-2, FFH-1, FFH-2, TFF, TFN TEFN, AF, CF, HF, HFF, KF-1, KFF-1, KF-2, KFF-2 PAF, PAFF, PF, PFF, PGF, PGFF, PTF, PTFE, SF-1, SF-2, SFF-1, SFF-2, ZF, ZFF, XF, XFF	6	8	17	23	28
Flexible Cords S, SO, SOO, SJ, SJO, SJOO, ST, STOO, SJT, SJTO, SJTOO, STO, SP-1, SP-2, SPT-1, STP-2, SV, SVO, SVOO, SVTO, SVTOO, , SE, SJE, SPE-1, SPE-2	7 (10) ^b	10 (13) ^b	15 (18) ^b	20 (25) ^b	25 (30) ^b
AFC, AFPD, CFPD	6	8	17	23	28
Appliance Wiring Material	6	8	17	23	28
^a Some of the types of wire and cord are not made in each of the sizes shown. For each such type and size the ampacity shown is inapplicable.					
^b These ampacities are applicable to 3-conductor cords and 4 conductor cords with three conductors					

carrying current. The corresponding ampacities for these sizes of 2-conductor cords and 3-conductor cords with two conductors carrying current are shown in parentheses.

L2.4 Luminaires Requiring Product Description

L2.4.1 A luminaire that has a feature covered by one or more clauses specified in Table L2.4 is not considered a "General Coverage" luminaire.

L2.4.2 Compliance with the clauses tabulated in Table L2.4 shall be determined exclusively by investigation of the construction by a Reviewing Office. Clauses shown in Table L2.4 are not to be applied at the factory.

L2.4.3 Authorization to apply Listing Marks to luminaire designs covered by Table L2.4 must be described in the Procedure product description.

L2.4.4 A luminaire designed with features requiring Procedure description in accordance with Table L2.4 may be described only to the extent necessary to authorize the construction subject to investigation. All construction features that are not described shall be evaluated at the factory for compliance with the Standard unless otherwise described in the product description.

For example: The product description of a temperature test exempt luminaire identified as "suitable for wet locations" may be limited to the description of features that serve to prevent water from contacting parts not intended to be wetted. All other product features would then be evaluated at the factory using the Standard to determine compliance.

L2.4.5 Surface mounted Luminaire designs that are Procedure described in accordance with Table L2.4 shall be shipped with the luminaire and diffuser packaged together, unless the diffuser is described as optional.

L2.4.6 Luminaires identified for use with germicidal lamps must be subjected to an investigation and described in the Procedure product description.

L2.4.7 Luminaire designed for use with induction lamps must be subjected to an investigation and described in the Procedure product description.

Table L2.4
Clauses Requiring Product Description

Clause UL 1598	Comment(1)
2.4.1 (e)	Polymeric barrier
2.4.2	Barrier strength test
2.5.1(a,b)	Metal equivalency
2.7	Polymeric materials - entire section
2.8.1(b,c3)	Non-metallic material, flaming oil test
2.10.5	Suitable adhesive
2.12.1	Swivel rotation
2.16.2.4	Equivalent
2.16.2.5	Glass impact test
2.17.4	Adhesive
2.17.6(e)	Adhesive
2.18.1, 2.18.2	Polymeric thermal insulation
2.18.3(d)	Equivalent
2.20.1, 2.20.2, 2.20.3	Raceways
3.4.2	Interlock switches

Note (1) - Items identified under comments have features which require them to be submitted to the Reviewing Office for evaluation. These items require a product description in the Procedure document and shall not be evaluated by the UL Representative using the Standard at the factory.

Table L2.4
Clauses Requiring Product Description
(Continued)

Clause UL 1598	Comment(1)
3.7.1.3, 3.7.1.4, 3.7.1.5	HID luminaires
3.7.2.2(b)	Recessed incandescent , HID luminaires
3.8.1 (c) capacitors	Capacitor short circuit investigation
3.9.3	Less than 18AWG
3.12	Electrical insulation
3.14.3.3,3.14.3.5(d)	Mold stress, equivalent
3.16.1b,3.16.2,3.16.3,3.16.4, 3.16.5	Luminaires marked for through branch conductors
3.17.2.3c	Polymeric material
4.1.3	Luminaire with more than one type lamp i.e.fluorescent and incandescent, Incandescent and HID
4.3	Tungsten halogen - entire section
5.3.2	Fluorescent luminaire temperature test
6	ALL HID luminaires - entire section
7.2.4	Crossbar metal thickness equivalency
7.2.6	Polymeric crossbar
7.3	Poles - entire section
7.6.9	Temperature test
7.7	Entire section
8	Entire section for recessed luminaire types: incandescent, HID, fluorescent Type IC
8.1.2, 8.3, 8.3.3, 8.4.6, 8.6.1.2(c2)	Recessed fluorescent
8.7	Tests - entire section
9	Entire section for recessed luminaires types: incandescent, HID, fluorescent Type IC
9.2.2.3, 9.2.2.4(d), 9.2.2.5	Tests, equivalent
9.2.3	Tests - entire section
9.3, 9.4, 9.5	Luminaires for cooking use, elevated ambient and luminaire fittings - entire section
10	All luminaires marked for wet Locations
11, 12, 14, 16	Tests - entire section
17.1.2	Pictograms

Note (1) - Items identified under comments have features which require them to be submitted to the Reviewing Office for evaluation. These items require a product description in the Procedure document and shall not be evaluated by the UL Representative using the Standard at the factory.

L2.4.6 Products currently identified to be marked with R lamp terminology may be marked with the equivalent BR lamp terminology as shown in Table L2.4.1.

**Table 2.4.1
Style R lamps Maximum Replacement BR lamps**

Type R lamps	Maximum Replacement Type BR lamps
50R30	45BR30
75R30	65BR30
75R40	65BR40
100R30	85BR30
100R40	90BR40
150R40	120BR40

L2.5 Special Constructions, Luminaire Fittings

L2.5.1 Special constructions, and all luminaire fittings and luminaire components, including posts, raceways, etc. for special use are required to be submitted to the Reviewing Office for evaluation.

L2.5.2 Authorization to apply Listing Marks to luminaire components must be described in the Procedure.

L2.6 Components

L2.6.1 All components shall be Listed or Recognized or otherwise evaluated by Underwriters Laboratories for the intended application as required by the Standard. All components shall be used in an application consistent with the component evaluation.

L2.6.1.2 A Fluorescent ballast shall have a rating consistent with the application and consistent with the marking on the luminaire. Open core and coil constructions (i.e., ballasts without complete metal enclosures) are intended for use within an enclosure to prevent accessibility. Fluorescent luminaires identified for use in damp or wet locations shall use ballast marked as "Type 1", "Type 2" or "Weatherproof" to comply with clause 10.2.1.1.

L2.6.2 Use of Recognized Components in luminaire constructions shall be authorized in the Procedure description unless otherwise specified below. Acceptability of the following recognized components may be evaluated at the factory:

(a) Marking and Labeling Systems - A Recognized Component (PGDQ2) Marking and Labeling System (reference clause 17.1.7), shall be rated for the type of surface to which it is affixed and for a temperature of at least 150°C unless otherwise described in the product description.

(b) Appliance Wiring Material - Any Recognized Component (AVLV2) AWM complying with the conditions of use.

(c) Special-Use Switches - Recognized Component (WOYR2) special-use switches that have been investigated for compliance with the Standard for Special-Use Switches, UL 1054, shall be used within the recognized rating and conditions of use.

(d) Insulating Bushing-Recognized Component (NZMT2) used for protection of conductors that pass over edges of metal.

(e) HID Ballast -Recognized Component Ballast (FLCR2) The product description of an HID luminaire may identify suitable Recognized Component ballasts in accordance with clause 3.7.1.5 by specifying the maximum wattage, lamp type, ballast insulation system, and a ballast temperature code assigned by UL 1029 (UL Standard for High Intensity Discharge Ballast) corresponding to a maximum bench-top temperature rating.

The ballast temperature code consists of the designation "1029 X", where X is replaced by a single alphabetic identification consisting of a letter A - P. The code letters represent bench-top temperature ratings ranging from the lowest, beginning with "A" through the highest assigned rating "P".

A ballast may be used in a luminaire when the product description identifies a ballast with an equivalent or higher temperature code. Other parameters of the luminaire construction such as electrical spacing must comply with the Standard. For example: The Procedure product description states "Ballast Class 180 insulation system, marked with 1029C." The manufacturer may substitute any recognized component ballast using a Class 180 insulation system and marked with a ballast code 1029C, 1029 B or 1029A in lieu of submitting the luminaire to the Certification Organization for a temperature test. The substitute ballast must not have a higher rated wattage or be designated for use with a different lamp type in accordance with clause 3.7.1.5. A ballast marked 1029D represents a higher bench-top coil temperature than permitted by the product description, thus it cannot be used until it has been evaluated with acceptable results at the Reviewing Office.

L2.7 Grounding and Bonding Screws

L2.7.1 A grounding and bonding screw secured to metal in accordance with Clauses 3.14.2.11 and 3.14.3.5 shall engage metal with two full threads. The minimum metal thickness to comply with the requirement for a given screw shall be determined by (1) determining the number of threads per unit measurement (Imperial or Metric) of the screw, (2) taking the inverse of the number (to find screw pitch) and (3) multiply number by two.

Example: 8-32 SAE screw

8-32 screw has 32 threads per inch, $(1/32)(2) = 0.0625$ inches which is the minimum thickness in inches of the metal necessary for 2 full threads.

M5 metric screw

M5 screw has 1.25 threads per mm, $(1/1.25)(2) = 1.6$ mm which is the minimum thickness in mm of the metal necessary for 2 full threads.

L2.8 Markings

L2.8.1 Markings on or with a luminaire shall be of a size, minimum letter height, type, and location on the product as designated by the Standard.

L2.8.2 Procedure authorization is required to apply markings to luminaires requiring a product description. Markings requiring specific values that are developed during a product investigation (Table L2.4) shall be described in the Procedure product description. Reference shall be made to the Procedure for authorization to use such markings.

L2.8.3 A Luminaire shall not be provided with any marking, instructions on the carton or with the luminaire that imply or depict use of the product in an application that conflicts with any required markings. For example, a luminaire marked for use in dry locations shall not show a picture of an outdoor installation on the carton or a wall mounted luminaire shall not show a picture of a ceiling installation on the carton.

L2.8.4 All luminaries shall be marked with the luminaire type as follows: Incandescent, Fluorescent, HID, Recessed Incandescent, Recessed Fluorescent Recessed HID and the suitability for installation in a dry, damp or wet location consistent with the evaluation. The markings shall be readily visible when viewing the Listing Mark. The Luminaire shall be additionally marked as required by the Standard.

L3 RESPONSIBILITY OF THE UL REPRESENTATIVE

L3.1 General

L3.1.1 At each visit to the manufacturer's facility, the UL Representative shall review representative samples of each type of luminaire which bears or is intended to bear the Listing Mark, and shall then inspect samples to be representative of the manufacturer's output. The samples are to be reviewed in accordance with the Follow-Up Service Inspection Instructions, the Procedure description, and the applicable requirements of the Standard. The field representative shall review the shipping carton and the installation instructions to determine that there is no information or representation that conflicts with any required markings.

L3.1.1.2 The UL Representative shall verify that the manufacturer is performing all production line testing and that the manufacturer is maintaining all required test records.

L3.1.2 Any observed differences between the luminaire or manufacturing process and the description of the luminaire or process in the Procedure and/or Standard shall immediately be called to the attention of the manufacturer. Any observed differences shall be confirmed in a Variation Notice. An inspection report shall be completed after each visit.

L3.1.3 A product that is found to no longer be in compliance with the requirements shall be brought into compliance by the manufacturer if the Listing Mark is to be used on the product. If the noncompliance was the result of a manufacturing or testing process, the manufacturer shall check subsequent production until it is certain that the process or test method has been corrected and the noncompliance will not reoccur. The UL Representative shall verify that the product continues to be in compliance with the requirements of Underwriters Laboratories Inc.

L3.1.4 A product that does not comply with all provisions of the requirements shall have the Listing Mark removed or permanently and totally obliterated. The manufacturer shall satisfy the UL Representative that all Listing Marks are removed or obliterated from rejected material. Those Marks not destroyed during removal from the product shall be turned over to the UL representative for destruction. If rejection of the product is questioned by the

manufacturer, the manufacturer may hold the material at the point of inspection, typically at the factory, pending an appeal.

L3.2 Procedure Described Luminaries

L3.2.1 Luminaires are described in the Follow-Up Service Procedure as a result of an evaluation of a specific design. The design usually requires testing or that the investigation be performed at the Reviewing Office. The product description in the Procedure may address construction features not specified in the referenced Standard. Only those features that would affect the results of the investigation or tests are described. Unless otherwise specified in table L2.4, other constructional features not described in the Follow-Up Procedure shall be evaluated by the UL Representative according to the requirements in the Standard and the Follow Up Service Instructions.

L3.2.2 Other than for the requirements tabulated in Table L2.4, wherever the word "equivalent" is used in the Standard, it is intended that the UL Representative shall determine the equivalence. The equivalence shall be determined by applying the construction and/or performance criteria of the requirement specified in the Standard. If there is any doubt on the part of the UL representative, the Reviewing Office is to be contacted.

L3.2.3 "General Coverage" Luminaires Evaluated At The Factory

L3.2.3.1 General Coverage incandescent and fluorescent luminaires shall be evaluated at the factory for compliance with Sections 1 - 5 and Sections 7 and 8 as applicable, in addition to other applicable clauses of the Standard not specified in Table L2.4. Luminaire designs that do not comply with the temperature test-exempt requirements and/or contain features that must be evaluated using the requirements specified in one or more of the clauses in table L2.4 must be submitted to the Certification Organization.

L3.2.3.2 Incandescent temperature test exempt luminaires designed for use with conventional non-halogen tungsten filament lamps (Types A, B, BR, C, ER, F, G, PAR, P, PS, R, S, and T) rated nominally 120 V ac shall be evaluated for compliance with Section 4.

L3.2.3.3 Ceiling mounted temperature test exempt luminaires designed with partially enclosed lamp compartments as illustrated in figure 4.2.5.1 shall be packaged and shipped with a diffuser.

L3.2.3.4 Lampholders shall be located and positioned in accordance with the Standard. The luminaire shall be designed such that the minimum lamp spacing shall be maintained in the luminaire as packed ready for shipment. Refer to L2.3.2.1.

L3.2.3.5 Ceiling mounted temperature test exempt luminaires designed with an enclosed lamp compartment as illustrated in figure 4.2.5.1 may be shipped without a diffuser.

L3.2.3.6 A temperature test exempt pendant or wall mounted luminaire design with a provision to mount a diffuser shall be evaluated as an enclosed lamp compartment if shipped without a diffuser.

L3.2.3.7 Incandescent luminaire constructions designed for use with specialty lamps such as quartz tungsten halogen lamps or low voltage lighting shall be submitted for evaluation in accordance with Table L2.4 (Clauses 4.3 and 16).

L3.2.3.8 Rough-in and Finishing sections of fluorescent luminaires manufactured and shipped from separate locations shall be described in the Procedure.

The field representative shall review the shipping carton and the installation instructions to determine that there is no information or representation that conflicts with any required markings. Refer to L2.8.3.

L4 Listing Mark

L4.1 General

L4.1.1 One appropriate Listing Mark shall be applied to each complete luminaire. One Listing Mark shall be applied to each rough-in and finishing section (as appropriate) of a two-section lighting unit which is not shipped as a complete luminaire. Such two-section units may bear one Listing Mark only when both sections are packed (completely wired) and shipped in a single carton.

L4.1.2 Luminaires complying only with the UL requirements may bear only a Listing Mark that identifies conformance with UL requirements. Luminaires complying only with the Canadian requirements may bear only a Listing Mark that identifies conformance with Canadian requirements. Luminaires complying with all requirements may bear a Listing Mark that identifies conformance with the UL and Canadian requirements.

L4.1.3 The Listing Mark shall be so located on the exterior of the luminaire that it is visible when the luminaire is installed. In the case of residential luminaires, the Listing Mark may be located at the point where it will be visible when making and inspecting the connections to the branch-circuit supply wires. In any case, the location of the Listing Mark is acceptable if the Listing Mark is visible after the removal of the lamp, glassware, or a drop canopy is required for the Listing Mark to be visible. It is recommended that the Listing Mark be located on the exterior of residential luminaires when practical.

L4.1.4 The UL Representative shall not permit the attachment of Listing Marks to products not covered by the Procedure, unless special authorization for such action is received from the Reviewing Office.

L4.1.5 The Listing Mark shall be procured in the authorized manner specified by Underwriters Laboratories. The Listing Mark shall consist of: The logo of Underwriters Laboratories together with the product name "Luminaire", a control number, and the word "Listed".