



ESA requirements for Acceptance of Retrofitted Luminaires

Effective: November 25, 2014

Updated: October 13, 2016

Updated: April 1, 2020

Effective: May 4, 2026

Regulatory Centre of Excellence
04/04/2026

Contents

- 1. Introduction3
- 2. Scope3
- 3. Definitions3
- 4. ESA requirements for Acceptance of Retrofitted Luminaires Overview4
 - 4.1 Optional Consultations for Complex Retrofit Projects6
 - 4.2 Products Used in Retrofitted luminaires and Accepted by ESA7
 - 4.3 Luminaires Retrofitted With an Approved Retrofit Kit7
 - 4.4 Luminaires Retrofitted Without Approved Kits8
 - 4.5 Luminaires Retrofitted with Approved Self-ballasted Lamps8
- 5. Appendices9
 - 5.1 Appendix A: Retrofitted Luminaires Notification9
 - 5.2 Appendix B: Retrofit Kits Installed in Luminaires with Shunted Bi-pin Lampholders10

1. Introduction

Energy efficiency awareness and legislation are driving an increased number of luminaire retrofits and field conversions into more energy efficient sources of lighting. When any approved electrical product is modified, that product is no longer approved. This applies to luminaires or roadway lighting, which is converted for energy efficiency or other purposes, by the replacement of various internal components.

Approval of electrical equipment is a safety requirement, mandated by the Ontario Electrical Safety Code (OESC), to ensure that the equipment is safe for use. Equipment is approved when it bears an approval mark by an accredited certification agency or a field evaluation agency.

In addition to the standard process of approval by an accredited certification agency or field evaluation agency, in Ontario, an electrical product is deemed to be approved where the Electrical Safety Authority (ESA) determines that the product presents no undue hazards to person or property and the installation passes inspection. To deem equipment approved, ESA can request documentation, test reports, etc.

Based on the requirements of the Ontario Electrical Safety Code, Rule 2-106 5): “When installed electrical equipment is retrofitted with a retrofit kit and the installation conforms to the requirements of the Electrical Safety Authority, the equipment is deemed to be approved.” This guideline outlines ESA requirements for Acceptance of Retrofitted Luminaires.

2. Scope

This guide covers the requirements for Acceptance of Retrofitted Luminaires in Ontario.

3. Definitions

Field Certification: Provides a one-time certification for a specific number of product units, on-site. For every installation site, at least one product of each type must be submitted to a recognized certification agency for certification. The product is deemed approved in accordance with OESC Rule 2-024 1) and Regulation 438/07.

Note: Certification requirements for retrofit kits are specified in CSA standard C22.2 No.250.1 *Retrofit Kits for Luminaire Conversion*.

Field Evaluation: Provides a one-time evaluation for a specific number of product units, where each unit is evaluated on-site. The product is deemed approved in accordance with OESC Rule 2-024 1) and Regulation 438/07.

Retrofit kit: A general term for a complete subassembly of parts and devices for field conversion of utilization equipment.

Approved Retrofit Kit: A kit certified to applicable Canadian standards by an accredited certification agency.

Retrofitted luminaire: A luminaire that is being modified or altered from its original approved configuration with a retrofit assembly. The process of retrofitting may also involve relocation, removal or replacement of luminaire components such as lamp holders, reflectors and ballasts/power supply. A luminaire is not considered to be retrofitted when the only change is a lamp replacement.

4. ESA requirements for Acceptance of Retrofitted Luminaires Overview

This guideline Covers

This **guideline** covers the following types of retrofits:

Retrofit Type List	
a	T12 to T8 Fluorescent Ballast Replacement <u>ONLY</u> (the same number of lamps as before, NO new reflectors, sockets or end plates)
b	T12 to T8 Fluorescent Luminaires (including ballast replacement, new reflectors, sockets or end plates)
c	T12 or T8 to T5 Fluorescent Luminaires
d	Incandescent luminaires retrofitted to LED
e	Fluorescent luminaires retrofitted to LED
f	HID luminaires retrofitted to LED
g	LED Retrofits for Commercial Refrigerators
h	LED retrofits for Roadway or Post-Top Luminaires

The guideline Does Not Cover

This guideline does not cover retrofits in hazardous locations. Approved retrofit kits are not available for luminaires approved for hazardous locations. Field certification or the complete replacement of luminaires shall be required, where existing luminaires are installed in a classified location, and are required by Section 18, 20 or 22 of the Ontario Electrical Safety Code to be approved for hazardous locations.

This guideline does not cover lamps that are intended to replace existing lamps without any modification, rewiring, or component replacement in the luminaire. An example is fluorescent TLED lamp, referenced as “Type A” in CSA standard C22.2 No. 1993, that is a direct substitution of a fluorescent lamp. For lamp replacements, a Notification is not required.

The guideline does not cover “like for like” ballast replacements. A standard wiring Notification is required.

The complete replacement of a luminaire is considered a wiring installation and is not addressed in this guideline, e.g. complete replacement of metal halide high bay luminaires with energy efficient fluorescent luminaires. A standard wiring Notification is required.

Who is eligible to do the work?

- A Licensed Electrical Contractor (LEC) authorized under *Regulation 570/05*;
- An employee or agent of the original equipment manufacturer who has been trained by the manufacturer to perform maintenance, service or repair on the equipment;
- An owner, an operator or an employee of the owner or operator in an industrial establishment or on a farm; or
- An owner or occupant of the dwelling

How to comply with OESC

A Notification (Retrofitted Luminaires Notification) is required for each project site.

When a luminaire is retrofitted, it is no longer approved.

A retrofitted luminaire is acceptable to ESA when:

- A suitable, approved retrofit kit is used, or
- Field evaluate (all fixtures) in accordance with [ESA Field Evaluation Guideline](#)
- Installed in accordance with installation instructions, and
- Passes ESA inspection

A field evaluation or field certification will be required on all retrofitted luminaires if a retrofit installation is completed using only approved parts, or an approved retrofit kit that has been modified or altered to fit into the existing luminaire. LECs may also request an initial consultation or rough-in inspection if there is uncertainty about kit suitability or acceptance.

The process begins with the submission of a Retrofitted Luminaires notification (**See Appendix A**). The notification must be submitted before work begins, or within 48 hours of starting work, in accordance with OESC Rule 2-004 1).

Applying for a notification can be done by calling the Customer Service Centre, filing online (LEC Portal) or emailing a completed form to esa.cambridge@electricalsafety.on.ca. Visit ESA's website to download the application form.

For retrofit projects, the following additional documentation may be required by the ESA inspector (to be made available on-site):

- Specification sheets for all types of retrofit kits or devices that will be installed;
- Installation instructions for each type of kit; and Data confirming Canadian approval of the kit (i.e. copy of the certification record or Certification Control number).

As part of the inspection, ESA will verify that:

- The retrofit kit has been installed in accordance with the installation instructions and has been installed to not affect the mechanical integrity of the luminaire; and
- The marking and warning labels are installed in appropriate locations. For self-ballasted lamps, it is very important to verify that markings regarding replacement lamps are installed

NOTE: If an approved retrofit kit is NOT utilized, the retrofitted luminaire is required to be re-approved by field evaluation or certification (see item 4.4).

4.1 Optional Consultations for Complex Retrofit Projects

For large retrofit projects involving several different types of luminaires to be retrofitted, you may consult with an ESA Inspector.

- Consultations should be performed before any work has started
- All relevant information specific to the retrofit project should be made available to the Inspector at the on-site consultation.

4.2 Products Used in Retrofitted Luminaires and Accepted by ESA

- Approved retrofit kits
- 100% Field Evaluation for projects when luminaires are retrofitted with unapproved kits or approved parts but not with approved kits
 - For example: rewired lamp holders and certified line voltage self-ballasted lamps, field evaluation is required

4.3 Luminaires Retrofitted with an Approved Retrofit Kit

Installation of the approved retrofit kit into the intended luminaire facilitates continued compliance of the retrofitted luminaire with the requirements of the applicable product safety standards when:

- Components and materials provided with the kit are used; and
- The kit is installed in accordance with the installation instructions

An approved retrofit kit is equipped with appropriate warning labels. The installation of the proper warning labels on retrofitted luminaires is critical for safe “after conversion” maintenance.

LED retrofit kits that reuse existing lamp holders or otherwise permit the insertion of previously used lamps, shall have the following marking (or similar) applied to the retrofitted luminaire, in a location where it is visible during relamping.

“This luminaire has been modified to operate LED lamps. Do not attempt to install or operate _____* lamps in this luminaire

“*” shall be replaced by the original lamp type, such as, “fluorescent,” “HID,” etc.

Also, LED retrofit kits that involve replaceable lamps shall include the following marking applied to the retrofitted luminaire where visible during relamping.

REPLACE ONLY WITH
[Manufacturer][Catalogue Number]
_____*

“*” shall be replaced with: LED Lamp or LED driver, as applicable. See the example of an appropriate Warning label supplied by a manufacturer:

This luminaire has been modified and no longer operates fluorescent lamps. Use only XXXXXX LED Tube lamps for lamp replacement.

NOTE: In tubular fluorescent luminaires employing shunted bi-pin lamp holders, DO NOT install retrofit kits where the installation instructions specify that the power supply be connected to the same lamp holder. For more information, see **Appendix B**.

Different types of retrofits require different markings. For the safety of the maintenance personnel, it is critical to apply the appropriate warning labels to the retrofitted luminaires.

If a retrofit kit is not suitable for the existing luminaire, there may be safety issues. For example, when a reflector is not appropriate, there may be gaps between the reflector and the luminaire case, resulting in exposed wires and terminals at the ballast end, which could present a shock hazard.

4.4 Luminaires Retrofitted Without Approved Kits

If an approved retrofit kit is not used, 100% Field Evaluation will be required for all retrofitted luminaires. The installer must contact a recognized field evaluation agency for the field evaluation, or a recognized field certification agency for the field certification of the retrofitted luminaires. Installers who have used retrofit kits that are not approved are advised to apply for field approval of retrofitted luminaires before submitting the Retrofitted Luminaires Notification for inspection.


For the list of the recognized certification or field evaluation agencies, visit [ESA's](#) website.

4.5 Luminaires Retrofitted with Approved Self-ballasted Lamps

If an approved retrofit kit is not used, and an approved self-ballasted lamp is utilized, even if the only modification of the existing luminaire is disconnection of the existing ballast and rewiring of the power supply to the existing lamp holders, field evaluation will be required for all modified fixtures.

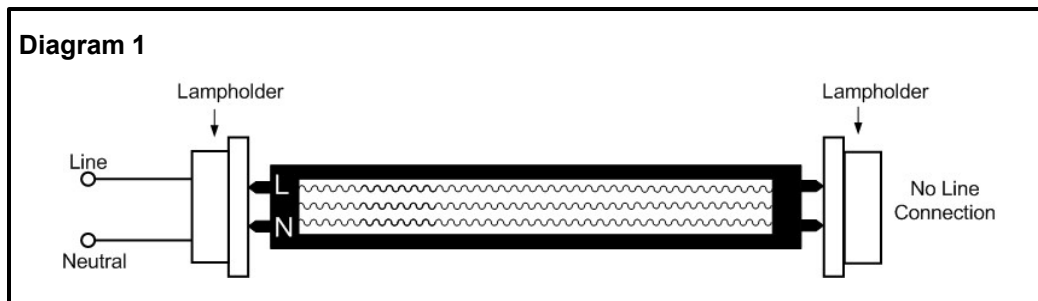
5. Appendices

5.1 Appendix A: Retrofitted Luminaires Notification

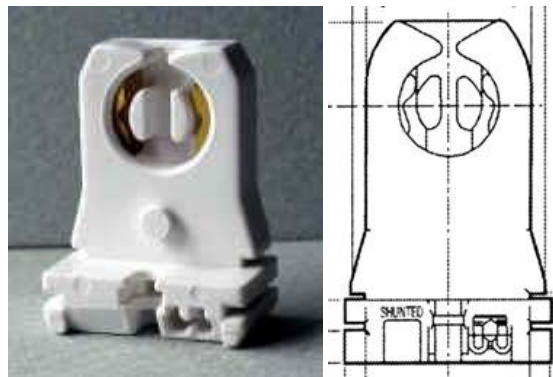
		400 Sheldon Dr, Unit 1 Cambridge, ON N1T 2H9	Phone: 1-877-ESA-SAFE (372-7233) Email: esa.cambridge@electricalsafety.on.ca
<h2>Retrofitted Luminaires Notification</h2>			
<p>A Notification is required for each Project Site with retrofitted luminaires. All other electrical work not part of this program, including luminaire replacement, must be submitted on a separate Notification & Fee Estimate. For information on the Program for Acceptance of Retrofitted Luminaires, see the technical guideline posted at: ESAsafe.com</p> <p>When a luminaire is retrofitted, it is no longer approved. A retrofitted luminaire is acceptable to ESA when a suitable, approved retrofit kit is used, installed in accordance with installation instructions, and passes ESA inspection. A field evaluation or field certification will be required on all retrofitted luminaires if a retrofit installation is completed using only approved parts, or an approved retrofit kit that has been modified or altered to fit into the existing luminaire.</p>			
Account #:	ECRA/ESA Licence #:	Date:	
<input type="checkbox"/> Charge to ESA Account <input type="checkbox"/> Cheque / Money Order Call 1-877-372-7233 to discuss fees. Attach the cheque/money order to the completed form and mail to the address noted above.	<input type="checkbox"/> Credit Card Provide the last 4 digits of the credit card saved on file with ESA: One-time / non-account customer: To comply with Credit Card Payment security requirements, an ESA representative will contact you during regular business hours (Mon-Fri, 7:00 AM - 4:30 PM) to process your credit card payment. Please DO NOT include any credit card information on this form.	Ready for: <input type="checkbox"/> Will Notify <input type="checkbox"/> *Rough In <input type="checkbox"/> *Final *Ready date: PO / Job #	
Applicant / Installer Information (mailing address)			
Name:	Address:		
Unit/Ste:	City:	Province/State:	Country: Postal Code:
Phone:	Email:		
Site Information			
Site Type:	<input type="checkbox"/> Commercial <input type="checkbox"/> Apartments	<input type="checkbox"/> Industrial <input type="checkbox"/> Residential	<input type="checkbox"/> Agricultural <input type="checkbox"/> Street Lighting
Total Fixture Quantity:			<input type="text"/>
Site Name:	Civic #:	Street:	
If street is a #1'd Regional Rd, County Rd, Hwy - note the alternate street name (if applicable):			
City/Town:	Twp/Region:		
Main Intersection:	Water Travel Required?		Yes <input type="checkbox"/>
Work Contact (applicant's representative) - this notification will be returned if a Work Contact name & cell phone / email address are not provided			
Name:	Phone:	Email:	
RETROFIT PROJECT DETAILS			
Retrofit Type List	Retrofit Type	Qty of Luminaires	Voltage
a T12 to T8 Fluorescent Ballast Replacement ONLY (the same number of lamps as before, NO new reflectors, sockets or end plates)			
b T12 to T8 Fluorescent Luminaires (including ballast replacement, new reflectors, sockets or end plates)			
c T12 or T8 to T5 Fluorescent Luminaires			
d Incandescent luminaires retrofitted to LED			
e Fluorescent luminaires retrofitted to LED			
f HID luminaires retrofitted to LED			
g LED Retrofits for Commercial Refrigerators			
h LED retrofits for Roadway or Post-Top Luminaires			
i Other (describe in Comments section)			
Comments:			
<p>By submitting personal information to the Electrical Safety Authority, or its agents and service providers, you agree that ESA may collect, use and disclose such personal information in accordance with its privacy policy, applicable laws or pursuant to our administrative agreement with the Province of Ontario. If you provide us with the personal information on behalf of another individual, you represent that you have all necessary authority and/or have obtained all necessary consents from such individual to enable us to collect, use and disclose such personal information for the purposes set forth in our Privacy Policy. A copy of our policy is located on our website at ESAsafe.com</p>			
See 2026 Wiring Fee Guide for Details	Form 1434 (05/2026)	Fees may change pending a site visit	

5.2 Appendix B: Retrofit Kits Installed in Luminaires with Shunted Bi-pin Lampholders

There are some Retrofit kits that require the power supply to be connected to only one lampholder, see Diagram 1. The high efficiency ballast, or LED driver, is an integral part of the device (fluorescent or LED tube). These retrofit kits require the lampholders to be rewired and the existing fluorescent ballast to be bypassed. The line and neutral conductors are required to be connected to the same lampholder. The other lampholder is not used for electrical connections and will only be intended for mechanical support of the lamp, as shown in Diagram 1.



These kits may pose a potential fire or shock hazard at the time of installation when they are used in luminaires with shunted bi-pin lampholders. Shunted bi-pin lampholders have an internal short circuit (shunt) between the lampholder contacts, see photo below.



Shunted lampholders are found in the fluorescent luminaires with “instant start” ballasts. Instant start ballasts may be marked with “Instant Start” or “I.S.” and lampholders intended for use with instant start electronic ballasts are marked with a circled “I”.

DO NOT INSTALL TUBULAR FLUORESCENT LAMPS RETROFIT KITS (BOTH FLUORESCENT AND LED) IN LUMINAIRES EMPLOYING SHUNTED BI-PIN LAMPHOLDERS WHEN THE RETROFIT KIT INSTRUCTIONS SPECIFY THAT LINE AND NEUTRAL POWER BE CONNECTED TO THE SAME LAMPHOLDER.