

ELECTRICAL BULLETIN

2011-05

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Provincial Chief Electrical Inspector

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Date: March 1, 2011 (**Revision 2, January 2012**)

Subject: Requirements for the retrofit ,upgrade, replacement and maintenance of luminaires

There is a large movement occurring to improve energy efficiency in office, large apartment, commercial , institutional , industrial or similar type buildings and on roadways and in doing so older existing luminaires need to be retrofitted, upgraded or replaced in fairly large quantities.

This may involve the replacement of the old magnetic ballast with energy efficient electronic ballast and replacing T-12 lamps with T-8 lamps in fluorescent luminaires , replacing bulbs in exit sign luminaires with LED's or replacing HID luminaires with more energy efficient alternatives.

Retrofitting a luminaire may void the original certification approval of the luminaire and therefore the luminaire may not be permitted to be used as it has no valid approval.

Definitions:

a)Retrofit- the replacement of **all** of the following individual components of a luminaire, the ballast, lamp and pin socket(s) with more energy efficient components or the use of a manufacturers supplied complete conversion kit which is approved for that particular type of luminaire. The replacement or installation of a lense or reflector may also be included in the retrofit.

b)Upgrade- the replacement of **only** the ballast and lamps with more energy efficient components and possibly the lense. The installation of the reflector is not included in an upgrade.

An upgrade may also include an installation where the luminaires ballast is removed and a new lamp installed that is fed directly by the branch circuit. Where any other changes are required the installation shall be considered a retrofit.(**Revision 2, January 2012**)

c)Replacement- the complete removal of the existing luminaire and the installation of the same, similar or a completely different type of approved luminaire.

The following requirements and notes shall apply to the retrofit, upgrade, replacement and maintenance of a luminaire, except where otherwise indicated, to ensure the luminaire can continue to be used and its approval is maintained.

For a retrofit ,upgrade or replacement of a luminaire under a recognized luminaire retrofit program Electrical Bulletin 2011-06 shall apply.

Requirements:

1. All electrical work indicated in this bulletin shall be performed under a wiring permit by a certified construction electrician and shall be inspected by the electrical inspection department ,prior to the luminaires being permanently energized, unless otherwise indicated in this bulletin.
2. A fluorescent luminaire operating at a voltage exceeding 150 V to ground requires a disconnect means and label to be installed in accordance with rule 30- 308(4) of the Canadian Electrical Code Part 1, 2009 (CEC).
3. All electrical components used or installed (i.e. ballast, lamps, pin sockets) in a retrofit or upgrade shall be:
 - a) approved (i.e. CSA, cUL, cETL) for their installed application and location
 - b) properly rated and compatible for overall interconnection,
 - c) physically compatible with the existing luminaire ,and
 - d) installed so as to not affect the mechanical integrity of the luminaire
4. All upgraded or retrofitted luminaires require a new permanently affixed and legible information label to be applied to the luminaire with the following information : **(Revision 1, April 2011)**
 - a) new electrical characteristics (i.e. voltage, total wattage, total amperage, frequency)
 - b) new lamp type and wattage rating (i.e. T8-32 W)
 - c) date of modification

Where an overall approved conversion kit is used the information label provided with the kit shall be sufficient in most instances unless otherwise determined by the electrical inspector.

5. Where a retrofit is performed a special inspection by a recognized Inspection Body (IB) is also required, except as noted in requirement 6, prior to the luminaires being permanently energized.
6. Where a retrofit is performed using a complete manufacturers supplied conversion kit approved for that particular style of fluorescent luminaire, **no** special inspection is required but requirements 1 and 2 above still apply and the installer shall be able to produce documentation of the approval of the kit to the electrical inspector upon request.

7. Where an upgrade is performed, no special inspection is required.
8. The straight replacement of an existing luminaire for maintenance purposes (i.e. damaged or malfunctioning luminaire) with a complete new approved luminaire does not require a wiring permit or electrical inspection.
9. At the request of the electrical inspector or IB, the installer shall be responsible to provide access, assistance and any necessary equipment to allow the inspection to be performed.
10. The electrical inspector shall be responsible, during their inspection, to check an adequate random sample of the installations for workmanship and for confirmation of the items specified within this bulletin and for compliance to the CEC.

Notes:

1. This bulletin does not cover electrical work performed in a hazardous location as defined per sections 18 , 20 and 22 of the CEC and does not permit or authorize non electricians to perform any electrical work in such locations, consult the Provincial Chief Electrical Inspector for specific details on any such work prior to starting.
2. This bulletin supercedes NSPI Bulletin B-2-024.2 Retrofitting of Luminaires
3. Any installation or installer that does not comply with all of the requirements of this bulletin may have an order issued to have the installation disconnected or de-energized.
4. Coordination of any inspection is the responsibility of the installer and should be made well in advance with the electrical inspection department or IB.
5. The straight replacement of **only** a lamp (s) or a lense in a luminaire approved for the particular application or location may be performed by any competent person and no inspection ,wiring permit or special inspection is required. (**Revision 1, April 2011**)
6. The straight replacement of the **same** type of ballast, pin socket or reflector for maintenance purposes may be performed under an annual maintenance permit and no separate wiring permit is required.(refer to Electrical Bulletin 2006-07)
7. Only a construction electrician may change a ballast, pin socket or reflector within a luminaire, in accordance with this bulletin , regardless of the luminaire voltage or the type of facility in which the work is being performed except where the work is done under an annual maintenance permit , the work may be performed by an industrial electrician in accordance with Electrical Bulletin 2006-07.

8. Any electrical contractor that finds an unacceptable installation shall advise the electrical inspector of what corrective action, if any, should occur to ensure the installation passes inspection.

An unacceptable installation may be a retrofit, upgrade or replacement in which the branch circuit does not comply with the CEC (i.e. no bond wire) or the fixture is improperly supported or possibly the luminaire is considered unsafe and not compliant with this bulletin or the CEC.

The installation may not pass the final inspection unless the entire installation of the luminaire and the manner in which it is fed and supported, for example, complies with the CEC.

The electrical contractor shall not retrofit, upgrade or replace a luminaire unless all aspects of that luminaire's installation complies with the CEC. (**Revision 2, January 2012**)

9. Where reference to a construction electrician is made, a registered electrical apprentice may perform the work within the restrictions and requirements of the Apprenticeship Trade Regulations.

*The Provincial Chief Electrical Inspector may amend, revise or delete any of the above requirements at any time in the future.

**Any questions or request for a deviation or clarification regarding this bulletin may be forwarded to the Provincial Chief Electrical Inspector David MacLeod, P.Eng. at 902-424-8018 or email: macleodd@gov.ns.ca

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