

Install LED Down-light Lamp or LED Down-light Luminaire; Residential Only	Activity No.
L2A – ELV Down-Light Lamp Replacement L2B – ELV Down-Light Luminaire Replacement L2C – Ceiling Insulation Reinstatement	L2

1. ACTIVITY SPECIFIC DEFINITIONS

Integral ELV LED lamp means a lamp with power supply electronics integrated into the lamp housing allowing direct connection to existing 12V power supply.

Integral MV LED lamp means a lamp with power supply electronics integrated into the lamp housing allowing direct connection to existing mains power supply.

Mains voltage (MV) LED down-light luminaire means a mains voltage LED light fixture incorporating light source, power supply electronics and luminaire housing that does not rely on any existing components of the replaced equipment in order to operate.

ELV means extra low voltage, which in this context means nominal 12V a.c. or d.c.

Luminaire means apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electricity supply.

Partial re-instatement of insulation means reinstatement of ceiling insulation around the down-light, only maintaining the minimum specified separation distance between the down-light and the surrounding insulation (50mm) as specified in AS/NZS 3000.

Full re-instatement of insulation means complete reinstatement of ceiling insulation around and over the down-light (where permitted)

Beam Angle: the angle between the opposing points on the beam axis where the intensity drops to 50% of its maximum

2. ACTIVITY DESCRIPTION (SUMMARY)

L2A Replace ELV halogen lamp with an integral ELV LED lamp

L2B Replace ELV halogen lamp and transformer with an integral MV LED lamp or MV LED down-light luminaire.

L2C Optional with L2B - re-instate ceiling insulation.

3. ACTIVITY ELIGIBILITY REQUIREMENTS

- (1) All equipment that is replaced must be in working order immediately prior to removal.
- (2) Where it can be demonstrated that the lamps and transformer being replaced have not previously been installed for the purposes of REES, activity L2B and L2C can be delivered twice per premises, providing that all other aspects of the specification are met.

Additional Requirements for activity L2C

- (3) Re-installation of ceiling insulation - the activity L2C can only be undertaken in combination with activity L2B.

4. INSTALLED PRODUCT REQUIREMENTS

For activities L2A and L2B, the installed product shall:

- (1) Be installed at the time of removal of the existing equipment.
- (2) Be either a “warm white” (rated colour temperature of 2700K to 3500K) or “cool white” (rated colour temperature of 3500K to 4000K) lamp. The installer is required to install either warm white or cool white according to the preference of the home owner, where no preference is provided then warm white shall be installed.
- (3) Have a measured average initial luminous flux (verified by test report - test procedure as required by one of the programs described below) of at least 400 lumens.
- (4) Have a measured average minimum initial luminous efficacy of 85 Lumens/Watt
- (5) Have a minimum beam angle of 40 degrees
- (6) Either:
 - (a) Be approved under the NSW ESS or VEET scheme or
 - (b) meet Energy Star specifications (Integral LED Lamps V1.4 or Energy Star Lamps V1.0) by providing, where required for verification, current proof of program certification.
- (7) Provide a minimum 2 years replacement warranty.

Additional Requirements for Activity L2C

- (1) Re-installation of ceiling insulation - where a down-light thermal barrier is used it must comply with AS/NZS 5110.
- (2) Down-light thermal barriers – where used, any barrier that is used around and or over a light fitting must be one that is approved for use with the particular light fitting by the manufacturer in their product literature and must not adversely affect any aspect of the performance of the light fitting or any form of lamp that may be fitted to that fitting.
- (3) Where the full re-installation of thermal insulation option is used, the down-light or down-light in combination with a down-light thermal barrier must be certified by the manufacturer in accordance with AS/NZS 3000 as being suitable for operation when covered by thermal insulation material.

5. MINIMUM INSTALLATION REQUIREMENTS

For activities L2A and L2B:

- (1) A person or entity undertaking this activity shall use best endeavours to ensure that any replacements are targeted at high usage luminaires in the first instance.
- (2) All equipment replaced shall be removed from the premises and not re-used.

- (3) Installed equipment shall not be connected to a transformer, dimmer, timer, motion sensor, daylight switch or other automated switch or control (or combination thereof) unless specified by the manufacturer as being compatible with such device or combinations of devices.
- (4) If connected to a dimmer, the installer shall test the equipment through its full dimming range to ensure that the equipment works to the satisfaction of the customer.
- (5) Where installed equipment causes sub-optimal operation, the installer shall either reinstall equipment equivalent to the original equipment or replace any components of the equipment that are causing the installation not to operate, at no expense to the resident. Such a request for reinstatement must be acted upon if made within 20 business days of the installation of the new equipment.
- (6) The activity must be performed by a licensed electrical worker under the supervision of a licensed electrical contractor.
- (7) An Electrical Certificate of Compliance must be provided and retained for verification purposes.

Additional Requirements for Activity L2C

- (1) Re-instatement of ceiling insulation - the activity is only applicable to ceiling spaces already fitted with ceiling insulation of at least R1.5 and where the insulation around the pre-existing down-light does not already meet the requirements of "partial re-instatement". The insulation used for re-instatement purposes must have an R value equal to or greater than the pre-existing ceiling insulation (minimum = R1.5)
- (2) Re-instatement of ceiling insulation - the activity can only be undertaken in ceilings that abut roofs (i.e. not internal ceilings such as between a ground floor and an upper floor of a two storey dwelling).
- (3) The insulation product used must be installed in compliance with the effective version of AS 3999, AS/NZS 3000 (as applicable) and the NCC Section J1.2. In particular, the safety, pre-inspection and risk assessment procedures, electrical safety provisions and provisions for limiting moisture ingress of AS 3999 shall be observed.
- (4) The activity must be completed and certified in accordance with any relevant code or codes of practice and other relevant legislation applying to the activity, including any licensing, registration, statutory approval, activity certification, health, safety, environmental or waste disposal requirements.
- (5) The undertaking of this activity shall not compromise the condensation management of the building. Reference should be made to the provisions in the Australian Building Codes Board publication "Condensation in buildings – Information handbook".
- (6) The activity must be performed by a licensed electrical worker under the supervision of a licensed electrical contractor.
- (7) An Electrical Certificate of Compliance must be provided and retained for verification purposes.

6. ACTIVITY ENERGY SAVINGS

The normalised energy saved per activity is equal to:

Normalised Energy Savings (GJ) = The relevant Savings factor in the tables below:

A	B	C
Activity	Standard LED Savings Factor	High Efficiency LED Savings Factor
L2A - Lamp only replacement	0.37	0.43
L2B - Lamp and transformer replacement	0.40	0.45
Option Activity L2C		Savings Factor
L2C1: Partial re-instatement of insulation (NCC Zones 4 & 5) (additional savings, only with L2B)		0.14160
L2C2: Full re-instatement of insulation (NCC Zones 4 & 5) (additional savings, only with L2B)		0.24729
L2C3: Partial re-instatement of insulation (NCC Zone 6) (additional savings, only with L2B)		0.20729
L2C4: Full re-instatement of insulation (NCC Zone 6) (additional savings, only with L2B)		0.37079

Options L2C1, L2C2, L2C3 & L2C4 are additional space conditioning savings that are added to the applicable lamp replacement Option L2B savings. Options L2C1 to L2C4 are NOT available with Options L2A

7. GUIDANCE NOTES (INFORMATIVE ONLY – NOT MANDATORY)

All reasonable endeavours should be undertaken to recycle removed equipment.