Demand Manager

ESS Lighting Instruction Pack

LIGHTING INSTALLER

For projects completed:

AFTER 1 July 2014

This Instruction Pack is designed to simplify the processing of Energy Savings Certificates for commercial lighting projects. This Instruction Pack is designed for the **Lighting Installer** – i.e. the electrician who installs the lighting solution.

Version 1.0
23 July 2014

ESS Lighting Instruction Pack – Lighting Installer

REQUIRED DOCUMENTATION

In order to create ESCs for commercial lighting installations, the Lighting Installer (i.e. the electrician who installs the lighting products) will be required to provide the following information:

1. **Installer Registration**

If the installer is not yet registered with Demand Manager, they will need to become registered **PRIOR** to conducting the installation. This will involve the following steps:

- Providing a copy of Insurance Certificates for Public and Product Liability covering the period of the installation.
- Providing a copy of Electrical Licence or Electrical Contractor Number.
- Has undergone some training in the ESS.

2. **Certificate of Compliance of Electrical Works (CCEW)**

For every installation (whether there is re-wiring involved or not), a CCEW shall be provided which contains the following information:

- Signed and issued by licensed electrician previously registered (see above).
- Installation date and address.
- Type and Quantity of Lamps/Ballast removed.
- Type and Quantity of Lamps/Ballasts installed.
- Type of control systems installed.

3. **ERAC Guidelines Compliance Declaration**

If the lighting project involves modification to a fluorescent luminaire to accommodate an LED tube, then the Installer will need to complete and sign a Declaration which confirms the modification has been performed in accordance with the recommendations on modified luminaires by the Electrical Regulatory Authorities Council (ERAC).

A template ERAC Compliance Declaration is attached to this Instruction Pack.

4. **Installation Details - Evidence Pack Section 2**

For all installations, the installer will need to complete Section 2 of the Evidence Pack (see attached template). Please note the following:

- Section 2 comprises two pages. Complete as many “Page 1” forms as required – i.e. 1 x “Page 1” per area. There should only be one declaration per project – i.e. 1 x “Page 2” per project.
- Note, an “area” is considered to be space which has a common usage – i.e. an office or warehouse.

- Where an area has multiple uses, the areas should be treated as different spaces. However, if the minor use is not more than 10% of the floor area of the space, then the major use can be applied to the entire space (for example, an open kitchen adjoining an office which makes up less than 10% of the floor area could be considered as "office").
- For ease of completing the questions on Page 1 relating to Space Type and Building Classification, Table A10.2, Table A10.3 and a summary of the BCA Building Classes is attached to this Instruction Pack.
- For ease of completing the "Equipment Class" for the pre and post upgrade lighting equipment, see attached guidance material on standard equipment class definitions.

POSSIBLY REQUIRED DOCUMENTATION

Depending on the delegation of responsibilities between the Lighting Installer and the Lighting Retailer, the following documentation may be supplied by the Lighting Installer. Retailers and Installers should be clear with regards to roles and responsibilities to avoid duplication or gaps.

5. Photographs

The following photographs will be required for each job:

- Pre-upgrade lamps – close up photo showing relevant markings – especially Wattage; and
- Pre-upgrade control gear (ballasts) including relevant markings; and
- Exterior photo of the site; and
- Interior photos of the upgraded areas; and
- Air conditioning/HVAC vents (where relevant); and
- Control system present/installed (where relevant).

Photographs are required to be **in focus, date stamped and contain geo-tag information**.

6. Lighting Diagrams

Lighting diagrams shall be provided for each installation which includes the following:

- Professionally drawn (not hand drawn) showing the location and type of each luminaire or lamp (**pre and post** upgrade); and
- Show location and type of control system and show the lighting switch groups controlled by the control system; and
- Must include a legend showing the pre and post upgrade lamp and ballast type, brand and model numbers of new lights and the NLP of old and new lights.

7. **Lux Level Report**

Lux Level Report to be provided for each area upgraded to include:

- Illumination measurements carried out in accordance with Appendix B of AS/NZS1680. Allowances must be made for lumen depreciation.
- The lux measurement points and/or value should be marked on a professionally drawn site diagram.
- A lux level report is to be completed, summarising the readings (ie average reading) and showing compliance with AS/NZS1680.
- Allowances must be made for lumen depreciation, control glare and lighting uniformity.

All evidence collected above should be provided to the Lighting Retailer unless otherwise agreed.

If any of the above documentation requirements is not available, contact Demand Manager to discuss alternatives.

Modified Luminaire Declaration

It is a requirement under the new ESS Rule 2014, which came into effect on 1 July 2014, that when a lighting upgrade involves modification to a fluorescent luminaire to accommodate LED tubes a Declaration from an electrician is to be obtained to confirm that the modification has been performed in accordance with the recommendations provided on Modified Luminaires by the Electrical Regulatory Authorities Council (ERAC).

ESS Definition of a Modified Luminaire: A T5, T8 or T12 luminaire that has been modified for use with an LED linear lamp. This involves modifying, removing or rendering redundant any wiring or structure of the luminaire, beyond the replacement of a starter.

Note, that this Declaration is only to be completed for LED Tubes which were accepted, or for which an application for acceptance has been submitted with IPART, prior to 1 July 2014. If this does not apply, then the equipment is to be accepted by IPART meeting the requirements for Modified Luminaries as in place from 1 July 2014.

Also note, that by modifying a luminaire, the manufacturer of the original luminaire is no longer responsible for the compliance of the equipment. The person modifying the luminaire has the full responsibility for ensuring it is safe and compliance with all relevant electrical product safety standards.

Declaration:

I, _____, declare, that the LED tube lighting upgrade which was implemented at _____ has been performed in accordance with the following ERAC Guidelines (please tick):

- ☐ Full installation instructions and diagrams have been provided;
- ☐ The LED Tube complies with the requirements of safety standards: AS/NZS 61347.1, IEC 61347.2.13 and relevant requirements of AS/NZS 60598.1.Note: IEC 62031 may be used in lieu of IEC 61347.2.13
- ☐ The LED tube has been assessed to ensure no access to live parts can be achieved during installation;
- ☐ If the LED tube has specific characteristics, assessments of the safety have been adequately covered to ensure that the product is electrically safe;
- ☐ The LED tube is capable of being fitted into an un-modified luminaire without causing a safety hazard, although it does not have to function;
- ☐ The new luminaire is safe and complies with safety standard AS/NZS 60598.1 and any applicable part 2 of that series of safety standards;
- ☐ The new luminaire is marked with a warning label that is visible whilst replacing lamps. The warning label is legible and indelible and shows the intent of:
  Warning - not for use with any fluorescent lamps, use only <Brand><Model Number><Type>Lamp'.
- ☐ The new luminaire is safe if a T8 fluorescent lamp is re-installed, although it does not have to function;
- ☐ The new luminaire has a fuse to protect against short circuits. This fuse is:
  - of the HRC type and the new luminaire has a fuse replacement rating label;
  - of suitable rating;
  - not accessible when replacing a lamp; and
  - is accessible only with the use of a tool.

Electrician Name: _____

Electrician Company: _____

License Number: _____

Date: _____

Signature: _____

Section 2 – End-User Equipment, Space type and BCA classification.

Lighting Upgrade Address:	

Area Description:	

	Equipment Class	Quantity	Control Gear	NLP / LCP	Control System 1	Control System 2
Existing End- User Equipment						
New End- User Equipment						
Is there available Air Conditioning for the Space?						

Space Type of the upgraded area as per Table A10.2 of the ESS Rule (equivalent to Part J6 of the BCA):	
Building Classification as per Table A10.3 of the ESS Rule (equivalent to the BCA):	
Annual Operating Hours of the area as determined by either Tables A10.2 or A10.3 of the ESS Rule:	

(Installer name) (Installer signature) (date)

Installer / Electrician Declaration:

I hereby declare that:

- I have installed, or I am responsible for supervising the installation of, the above product(s) at the Implementation (Lighting Upgrade) address below;
- I am appropriately qualified to undertake or supervise the installation work that was conducted;
- Where wiring work was required, the installation meets all relevant standards and was carried out by a licenced electrician;
- The Lighting Upgrade has not resulted in a reduction of service levels (including safety levels); and
- The information provided is complete and accurate and I am aware that there are penalties for providing false or misleading information in this form.

Note:

- Section 158 of the *Electricity Supply Act 1995* imposes a maximum penalty of $11,000 and/or six (6) months imprisonment for knowingly providing false or misleading information to the Scheme Administrator.

Signature:	
Name of signatory:	
Position within, and company name of, your business or employer:	
Name of ACP:	
Date:	

Implementation Address:	

Guidance Material - Table A10.2 of the Energy Savings Scheme Rule

Space Type	Annual Operating Hours (hours per annum)
Auditorium, church and public hall	2,000
Board room and conference room	3,000
Carpark – general (undercover) and Car Park - entry zone (first 20 m of travel)	7,000
Carpark – general (open air)	4,500
Common rooms, spaces and corridors in a Class 2 building	7,000
Control room, switch room, and the like	Value in Table A10.3 for BCA Classification of the surrounding space
Corridors	Value in Table A10.3 for BCA Classification of the surrounding space
Courtroom	2,000
Dormitory of a Class 3 building used for sleeping only or sleeping and study	3,000
Entry lobby from outside the building	Value in Table A10.3 for BCA Classification of the surrounding space.
Health-care - children's ward, examination room, patient ward, all patient care areas including corridors where cyanosis lamps are used	6,000
Kitchen and food preparation area	Value in Table A10.3 for BCA Classification surrounding space
Laboratory - artificially lit to an ambient level of 400 lx or more	3,000
Library - stack and shelving area, reading room and general areas	3,000
Lounge area for communal use in a Class 3 building or Class 9c aged care building	7,000
Maintained Emergency Lighting	8,500
Museum and gallery - circulation, cleaning and service lighting	2,000
Office	3,000
Plant room	Value in Table A10.3 for BCA Classification of the surrounding space
Restaurant, café, bar, hotel lounge and a space for the serving and consumption of food or drinks	5,000
Retail space including a museum and gallery whose purpose is the sale of objects	5,000
School - general purpose learning areas and tutorial rooms	3,000
Sole-occupancy unit of a Class 3 building	3,000
Sole-occupancy unit of a Class 9c aged care building	6,000
Storage with shelving no higher than 75% of the height of the aisle lighting	5,000
Storage with shelving higher than 75% of the height of the aisle lighting	5,000
Service area, cleaner's room and the like	Value in Table A10.3 for BCA Classification of the surrounding space
Toilet, locker room, staff room, rest room and the like	Value in Table A10.3 for BCA Classification of the surrounding space
Wholesale storage and display area	5,000
Other spaces not defined above	Value in Table A10.3 for BCA Classification of space

Guidance Material - Table A10.3 of the Energy Savings Scheme Rule

Building Classification	Annual Operating Hours (hours per annum)
BCA Class 2 buildings (Common Areas)	7,000
BCA Class 3 buildings (Common Areas)	7,000
BCA Class 3 buildings (other than Common Areas)	3,000
BCA Class 5 buildings	3,000
BCA Class 6 buildings	5,000
BCA Class 7 buildings	5,000
BCA Class 7 (a) buildings (open air car parks)	4,500
BCA Class 7 (a) buildings (undercover car parks)	7,000
BCA Class 8 buildings (other than ANZSIC Division C, Manufacturing)	3,000
BCA Class 8 buildings (ANZSIC Division C, Manufacturing)	5,000
BCA Class 9a and 9c buildings	6,000
BCA Class 9b buildings	2,000
BCA Class 10b buildings	1,000
Roads and Public Spaces	4,500
Traffic Signals	8,760

Guidance Material – Building Code of Australia Classifications

CLASSES OF BUILDING		
Class 1	**Class 1a**	A single dwelling being a detached house, or one or more attached dwellings, each being a building, seperated by a *fire-resisting* wall, including a row house, terrace house, town house or villa unit.
	Class 1b	A boarding house, guest house, hostel or the like with a total area of all floors not exceeding 300m2, and where not more than 12 reside, and is not located above or below another dwelling or another Class of bulding other than a private garage.
Class 2	A building containing 2 or more sole-occupancy units each being a separate dwelling.	
Class 3	A residential building, other than a Class 1 or 2 building, which is a common place of long term or transient living for a number of unrelated persons. *Example*: *boarding-house, hostel, backpackers accomodation or residential part of a hotel, motel, school or detention centre.*	
Class 4	A dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building.	
Class 5	An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.	
Class 6	A shop or other building for the sale of goods by retail or the supply of services direct to the public. *Example: café, restaurant, kiosk, hairdressers, showroom or service station.*	
Class 7	**Class 7a**	A building which is a carpark.
	Class 7b	A building which is for storage or display of goods or produce for sale by wholesale.
Class 8	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale or gain.	
Class 9	A building of a public nature -	
	Class 9a	A health care building, including those parts of the building set aside as a laboratory.
	Class 9b	An assembly building, including a trade workshop, laboratory or the like, in a primary or secondary school, but excluding any other parts of the building that are of another class.
	Class 9c	An aged care building.
Class 10	A non habitable building or structure -	
	Class 10a	A private garage, carport, shed or the like.
	Class 10b	A structure being a fence, mast, antenna, retaining or free standing wall, swimming pool or the like.

Guidance Material – Equipment Class Definitions

Typical BEFORE equipment class definitions

Equipment Class	Definition
T12 linear fluorescent Lamp	A double-capped fluorescent Lamp as defined by *AS/NZS 4782.1 Double-capped fluorescent lamps – Performance specifications* with a tube diameter of 38.1mm. These are also referred to as T38
T8 linear fluorescent Lamp	A double-capped fluorescent Lamp as defined by *AS/NZS 4782.1 Double-capped fluorescent lamps – Performance specifications* with a tube diameter of 25.4mm. These are also referred to as T26
T5 linear fluorescent Lamp	A double-capped fluorescent Lamp as defined by *AS/NZS 4782.1 Double-capped fluorescent lamps – Performance specifications* with a tube diameter of 15.9mm. These are also referred to as T16
T5 or T8(T9) Circular fluorescent Lamp	A circular double-capped circular fluorescent Lamp with a typical tube diameter of 16mm or 29mm as defined by *AS/NZS 4782.1 Double-capped fluorescent lamps – Performance specifications*. These are also referred to as T9
Compact fluorescent Lamp with non-integrated ballast (CFLn)	An externally ballasted single-capped fluorescent Lamp as defined by *AS/NZS 60901 Single-capped fluorescent lamps-Performance specifications*. The Lamp may include an internal means of starting and pre-heated cathodes.
Compact fluorescent Lamp with integrated ballast (CFLi)	A Self-ballasted compact fluorescent Lamp as defined by *AS/NZS 4847 Self-ballasted lamps for general lighting services*
Tungsten halogen Lamp (240V)	A Tungsten halogen Lamp as defined in *AS 4934 Incandescent lamps for general lighting service*, with a rated voltage of 240V.
Tungsten halogen Lamp (ELV)	A Tungsten halogen Lamp as defined in *AS 4934 Incandescent lamps for general lighting service*, with a ELV rating, typically 12V. These amps run off an Extra-low voltage lighting converter (ELC) as defined in *AS 4879.1*
Infrared coated (IRC) halogen Lamp (ELV)	A ELV Tungsten halogen Lamp as defined in *AS 4934* where the halogen globe is coated with a reflective infrared coating this improves the efficiency of the globe.
Metal halide Lamp	A discharge Lamp classified as a Metal halide Lamp as defined *by IEC 61167 Metal halide lamps – Performance specification*
Mercury vapour Lamp	A discharge Lamp classified as a High-pressure mercury vapour Lamp as defined by *IEC 60188 High-pressure mercury vapour lamps – Performance specifications*
High pressure sodium (HPS) Lamp	A discharge Lamp classified as a High pressure sodium vapour Lamp as defined by *IEC 60662 High-pressure sodium vapour lamps*
Lighting for Roads and Public Spaces or traffic signals (other than LED lighting)	Lighting for Roads and Public spaces as defined by *AS 1158 Lighting for roads and public spaces*

Typical AFTER equipment class definitions

Equipment Class	Definition
T5 adaptor kit	Any equipment that enables a T8 or T12 Luminaire to accommodate or provide physical support to a T5 Lamp or Luminaire.
Retrofit Luminaire - LED Linear Lamp	A T5, T8 or T12 Luminaire that has been retrofitted with an LED linear Lamp in place of the linear fluorescent Lamp. This cannot involve modification to the wiring of the Luminaire other than removal, replacement or modification of the starter.
LED Lamp Only – ELV	A LED Lamp that runs off an existing Extra-low voltage lighting converter (ELC) designed for retrofitting into an existing Luminaire or Lamp holder. These are typically used as a replacement for ELV Tungsten halogen Lamps
LED Lamp Only – 240V Self Ballasted	A self-ballasted LED Lamp as defined by IEC 62560 Self-ballasted LED lamps for general lighting services by voltage > 50 V. These Lamps are connected directly to a 240V supply.
Induction Luminaire	A gas discharge Lamp in which the power required to generate light is transferred from outside the Lamp envelope to the gas via electromagnetic induction.
LED Lamp and Driver	A LED-reflector Lamp and matching LED Driver intended as an alternative to a Mirrored Reflector Halogen Lamp
Modified Luminaire – LED Linear Lamp	A T5, T8 or T12 luminaire that has been modified for use with an LED linear Lamp. This involves modifying, removing or rendering redundant any wiring or structure of the Luminaire, beyond the replacement of a starter.
LED Luminaire – fixed type	A LED Luminaire intended for use as a fixed luminaire as defined in AS/NZS 60598.2.1 Luminaires – Particular requirements – Fixed general purpose luminaires
LED Luminaire – Linear Lamp	An LED Luminaire intended for use as an alternative to a linear fluorescent Luminaire, where the Luminaire houses a matching Linear LED tube or a linear array of integrated LEDs. Where the Luminaire uses a Linear LED tube, the Luminaire must not be compatible with a linear fluorescent Lamp.
LED Luminaire – floodlight	A LED Luminaire intended for use as a floodlight as defined in AS/NZS 60598.2.5 Luminaires – Particular requirements - Floodlights
LED Luminaire – recessed	A LED Luminaire intended for use as a recessed luminaire as defined in AS/NZS 60598.2.2 Luminaires – Particular requirements – Recessed luminaires
LED Luminaire – high/lowbay	A LED Luminaire intended for use as high-bay or low-bay lighting
LED Luminaire – streetlight	A LED Luminaire intended for use as a streetlight as defined in AS/NZS 60598.2.3 Particular requirements – Luminaires for road and street lighting
LED Luminaire – emergency lighting	A LED Luminaire intended for use as an Emergency lighting luminaire as defined in AS/NZS 60598.2.22 Particular requirements – Luminaires for emergency lighting
LED Luminaire – hospital use	A LED Luminaire intended for use in the clinical areas of a hospital or health care building as defined in AS/NZS 60958.2.25 Particular requirements – Luminaires for use in clinical areas of hospitals and health care buildings
Other Emerging Lighting Technology	Any lighting equipment not defined above.