



ESS Lighting Instruction Pack

LIGHTING RETAILER

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 Retailer** – i.e. the company who designs and sells the lighting solution.

Version 1.0
23 July 2014

ESS Lighting Instruction Pack – Lighting Retailer

REQUIRED DOCUMENTATION

In order to create ESCs for commercial lighting installations, the Lighting Retailer (i.e. the company who designs and sells the lighting products) will be required to provide the following information:

1. Retailer Registration

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

- Signing a Contractual Agreement (see attached Template).
- Providing contact name and address details.
- Undertaking formal training in DM's online training portal.
- Providing photocopy of identity document showing date of birth.

Note the ESS now requires all representatives, agents or employees discussing the ESS with end users to undergo documented training. Contact Demand Manager for any additional staff or contractors under your control that require training.

2. Taxation Invoice

For every installation, a valid Tax Invoice will be required. Invoice to include:

- Itemised breakdown of the pre-upgrade lamp type and quantity.
- Itemised breakdown of the post-upgrade lamp brand/s, type/s, model/s and quantity.
- Must identify the End User (customer).
- Must identify the supplier's ABN.
- Must be signed and dated by the End User.
- Must clearly show that the purchaser paid at least \$5 per MWh of energy saved (equivalent to a minimum of \$4.72 per ESC generated for the project). I.e. if a project is eligible to generate 1,000 ESCs, then the customer would need to have paid a minimum of \$5,000.

3. Completed Compliance Declaration – Evidence Pack Section 3

The designer of the lighting upgrade (most commonly the Lighting Retailer) will need to complete Evidence Pack Section 3 Compliance Declaration – see attached template.

4. Illuminated Power Density Calculations

The designer of the lighting upgrade (most commonly the Lighting Retailer) will need to supply Illuminated Power Density (IPD) calculations demonstrating compliance with the Building Code of Australia's IPD.

The attached guidance material includes the maximum illumination power density for compliance with AS1680 luminance levels. The Australian Building Codes Board maintains a calculator on their website which can assist in calculating the IPD for a given lighting upgrade:

<http://www.abcb.gov.au/major-initiatives/energy-efficiency/lighting-calculator>

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 Retailer. 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 (per space type); and
- Air conditioning/HVAC vents (where relevant); and
- Control system present/installed (where relevant).

Photographs are required to be **in focus, with a date on the photo and 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. A template lux level report is attached for guidance.
- Allowances must be made for lumen depreciation, glare and lighting uniformity.

Unless otherwise agreed, the Lighting Retailer will aggregate the evidence supplied by the Original Energy Saver and Lighting Installer before forwarding to Demand Manager.

Demand Manager also offers a higher level service which includes the production of Lighting Diagrams, Lux Level Reports, IPD Calculations and Photographs. Contact DM for more information.

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

Section 3 – BCA and AS/NZS 1680 Standards Compliance Declaration

To complete the relevant parts of this section you must be the person responsible for ensuring/approving that those parts of the Lighting Upgrade met or exceeded the relevant requirements of AS/NZS 1680 and the BCA, as specified in clause 9.4.1 (c) of the ESS Rule. Please complete Part A, **either** Part B **or** Part C (as applicable) and Part D. Refer to part 7 of the Evidence Manual for further information.

Installation Address:	
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Part A - AS/NZS 1680 - General Information

Were the requirements of AS/NZS 1680 considered in this lighting upgrade? (If you answered 'N/A', please specify the benchmark approved by the Scheme Administrator for the Lighting Upgrade including the date it was approved in the space below).	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
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Was lighting design software used in the design of this lighting upgrade?	<input type="checkbox"/> Yes, fill part B	<input type="checkbox"/> No, fill part C
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Part B - AS/NZS 1680 Design and Verification - (Refer Evidence Manual - chapters 4.3, 7.2 and table 7.1 - Method A)

Please provide a description of your qualifications, training and/or experience applicable to the design of the Lighting Upgrade.	
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Was compliance with the following requirements considered, assessed and verified?		
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1. Lumen depreciation (in order to determine appropriate lux levels)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Control of Glare (in order to avoid 'disability glare' or 'discomfort glare')	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Uniformity of Illuminance	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. The Lighting Upgrade was installed as per the AS/NZS 1680 compliant design prepared for its implementation.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Part C - AS/NZS 1680 Compliance Verification - (Refer Evidence Manual - Chapters 4.3, 7.2 and table 7.1 Method B)

Have lighting measurements been carried out in a method consistent with Appendix B of AS/NZS 1680?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Please provide a description of your qualifications, training and/or experience applicable to take lux measurements.	
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Are the measurement points clearly indicated on a reflected ceiling plan (or similar lighting diagram)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Was compliance with the following requirements considered, assessed and verified?		
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1. Lumen depreciation (in order to determine appropriate lux levels)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Control of Glare (in order to avoid 'disability glare' or 'discomfort glare')	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Uniformity of Illuminance	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. The Lighting Upgrade was installed as per the AS/NZS 1680 compliant design prepared for its implementation.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Part D - BCA Requirements

Was compliance with the following requirements considered, assessed and verified?		
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1. BCA section F4.4, Safe Movement.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. The IPD achieved in each space is equal or less than the maximum IPD specified in Part J6 of the BCA.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Please sign the declaration on page 2.

Declaration

I hereby declare that:

- ▼ The requirements of AS/NZS 1680 were considered throughout the design and installation of the lighting upgrade;
- ▼ The implementation meets or exceeds the relevant requirements of AS/NZS 1680;
- ▼ Design and/or verification of an AS/NZS 1680 compliant upgrade has been carried out by an appropriately qualified or experienced person;
- ▼ The requirements of section F4.4 of the BCA were considered throughout the design and installation of the lighting upgrade;
- ▼ The IPD achieved in each space is equal or less than the maximum IPD specified in Part J6 of the BCA;
- ▼ I have the appropriate qualifications/training as specified by the Scheme Administrator that allows me to sign this declaration.
- ▼ I have records of the upgrade that meet the requirements specified in the Evidence Guide;
- ▼ The information contained in Section 3 and accompanying documentation is correct and not misleading by inclusion or omission; 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
- ▼ Section 138 of the *Electricity Supply Act 1995* imposes a maximum penalty of \$220,000 for failure to comply with a condition of accreditation and may additionally result in the suspension or cancellation of the Accredited Certificate Provider's accreditation under clause 95 of the *Electricity Supply (General) Regulation 2001*

Signature:	
Name of signatory:	
Position within, and company name of, your business or employer:	
Relation with ACP:	
Name of ACP:	Demand Manager Pty Ltd
Date:	

Guidance Material – Maximum Illumination Power Density

Location	AS 1680 recommended illuminance, Lux	Maximum illumination power density W/m ²	Lumens/ Watt
Auditorium, church and public hall	160	10	16
Board room and conference room	240	10	24
Carpark - general	40	3	13
Carpark – entry zone (first 20 m of travel)	800	25	32
Corridors	160	6	27
Control room, switch room, and the like	160	10	16
Courtroom	320	12	27
Entry lobby from outside the building	160	15	11
Health-care - children's ward	240	10	24
Health-care - examination room	400	10	40
Health-care- patient ward	240	7	34
Kitchen and food preparation areas	240	8	30
Laboratory	400	15	27
Library – general	240	12	20
Library – reading room	320	10	32
Museum and gallery - circulation, cleaning and service lighting	240	8	30
Office – artificially lit to an ambient level of 200 lux or more	320	9	33
Office – artificially lit to an ambient level of <200 lux	160	7	23
Plant room	80	5	16
Public toilet	80	5	16
Restaurant, cafe, bar, hotel lounge and a space for the serving and consumption of food or drinks	80	18	4
Retail space including a museum and gallery that sell art objects	160	20	8
School - General purpose learning areas and tutorial rooms	320	8	40
Storage, shelving no higher than 75% of the height of aisle lighting	160	8	20
Storage, shelving higher than 75% of the height of aisle lighting	160	10	16
Service area, cleaner's room and the like	80	5	17
Wholesale storage and display area	320	10	32

GUIDANCE MATERIAL - SAMPLE LUX LEVEL REPORT

Measurement Procedures for **Level 3, 123 Chicken Street**

Lighting levels (Lux) readings were taken to determine compliance with the Australian Standards. (AS/NZ 1680.1 app B) & using Building Code Table J6.2B BCA 2008

The measurement methodologies used are:

Lighting Levels

- Identify the work area to be sampled, determine a measuring grid and then mark the grid points
- Upon completion of the retrofit project, record lux levels at each grid points
- calculate results to obtain average lux measurements of the installation

Measurements were taken at 720mm with ceiling height at 2400mm

Measurements were not taken closer than 1000mm from perimeter

Lamps have been burnt in for over 100 hrs

Size of premises was 10m x 10m and above

25 Points were measured in accordance to standards

LUX METER BRAND MODEL: Center Technology Corp, Center 337 Mini Light Meter

Readings done on **21/11/2013** at **1:00:00 PM.**

Results

Lighting levels were maintained above the Australian Standard.

Lighting Levels

LOCATION	AUSTRALIAN STANDARDS GUIDELINES (LUX)	LED LIGHTS AVERAGE LUX READING
Corridors	40	238
Office 1	320	522
Office 2	320	543
Office 3	320	547
Office 4	320	470
Office 5	320	491

Example Lux Level Report

Individual Measurement Results for Corridors

LOCATION	AUSTRALIAN STANDARDS GUIDELINES (LUX)	LED LIGHTS LUX READING
1.	40	230
2.	40	251
3.	40	230
4.	40	244
5.	40	310
6.	40	242
7.	40	239
8.	40	190
9.	40	260
10.	40	200
11.	40	230

Individual Measurement Results for Office 1

LOCATION	AUSTRALIAN STANDARDS GUIDELINES (LUX)	LED LIGHTS LUX READING
1.	320	571
2.	320	521
3.	320	554
4.	320	523
5.	320	584
6.	320	515
7.	320	542
8.	320	530
9.	320	529
10.	320	569
11.	320	562
12.	320	588
13.	320	523
14.	320	578
15.	320	582
16.	320	567

Individual Measurement Results for Office 2