



Building Commission

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Artificial Lighting - NCC Vol 2, 3.12.5.5

Provision 3.12.5.5 of Volume 2 of the National Construction Code 2012, being the Building Code of Australia (BCA), contains provisions relating to the installation of artificial lighting in Class 1 and Class 10 buildings. The following information is provided to clarify a number of matters associated with the provision.

Lamp

For the purposes of provision 3.12.5.5, the term “lamp” refers to the globe or globes that are to be installed in a space, other than those that are plugged into socket outlets for intermittent use such as floor standing lamps or desk lamps or work station lamps.

Aggregate Power Density

The use of aggregate lamp power density or illumination power density is acceptable for the purposes of provision 3.12.5.5(a). This effectively permits the trading of allowances between different spaces of similar allowance criteria.

Lamp power density is calculated by adding the maximum power ratings of all the lamps in a space and dividing this by the area of the space.

Allowance Criteria

Provision 3.12.5.5(a) contains a Watts per square metre (W/m^2) allowance for lamp power density or illumination power density. Clarification has been sought as to the application of these provisions to the various spaces of a Class 1 and associated Class 10a building. The following information is provided for the different allowance criteria:

- Provision 3.12.5.5(a)(i) states that the lamp power density or illumination power density allowance for a Class 1 building must not exceed $5W/m^2$.
- Provision 3.12.5.5(a)(ii) states that the lamp power density or illumination power density for verandahs and balconies must not exceed $4W/m^2$. This allowance is intended to include all covered outdoor living spaces such as verandahs, balconies, patios and alfresco areas that are attached to a Class 1 building.
- Provision 3.12.5.5(a)(iii) states that the lamp power density or illumination power density allowance for Class 10a buildings associated with a Class 1 building must not exceed $3W/m^2$. This is intended to cover garages, carports, sheds

and stores. The 3W/m² is also intended to cover Class 10a buildings associated with a Class 1 building, but that are not attached to that Class 1 building (such as a shed, gazebo, cabana or the like).

Porches and Porticos

The development of the BCA provisions for the lighting allowance of 4W/m² for verandahs and balconies, was based around these areas being of a size greater than 5m². For spaces where the aggregate area was less than 5m², they could be considered as outside spaces and would be captured by the requirements of provision 3.12.5.5(d) for artificial lighting around the perimeter of the building.

The Building Commission recommends that artificial lighting for verandahs, balconies, porches, porticos and other similar small structures that are attached to the Class 1 Building and that have an aggregate area less than 5m² in size, be considered under the perimeter lighting provision of 3.12.5.5(d). Where these structures have an aggregate area over 5m² in size, the applicable W/m² allowance should apply.

Batten Holders

Provision 3.12.5.5(b) requires the power of the proposed installation to be used rather than nominal allowances for exposed batten holders or luminaires (a complete light fitting). The intent behind this requirement is to ensure the installed system is the same as the proposed compliant system.

Batten holders have a nominal wattage rating. This is normally the maximum power of the lamp to be fitted to it. The designer may choose to use a lamp of a lesser wattage. This is known as the “power of the proposed installation”.

As an example, a batten-holder may have a nominal allowance of 100W and the designer may decide to use 18W lamp. Clause 3.12.5.5(b) requires that the 18W be used for the basis of the calculation not the 100W rating.

Perimeter Lighting

Provision 3.12.5.5(d) states that artificial lighting around the perimeter of a building must be either controlled by a daylight sensor or have an average light source efficacy of not less than 40 Lumens/W. Some examples of perimeter lighting include lighting attached to eaves, wall lighting and porch lighting (where the aggregate area of the porch is less than 5m²).



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