

Minister's Specification

SA 3.12.0.1(a)

Heating and cooling loads for elevated buildings with a lightweight framed flooring system and transportable buildings

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SCOPE

This Specification applies to Class 1 buildings that are elevated and constructed with a lightweight framed flooring system, and transportable buildings. This Specification must be read in conjunction with **Part 3.12** of Volume Two of the Building Code of Australia (BCA).

INTERPRETATION

Climate zone has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

Deemed-to-Satisfy Provisions has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

Floor area means, in relation to a building, the area of the building measured within the finished surfaces of the walls and includes the area occupied by any cupboard or other built-in furniture, fixture or fitting.

House energy rating software has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

Reference building has the same meaning as defined in V2.6 of Volume Two of the BCA.

Renewable energy has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

Required has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

Site has the same meaning as defined in Part 1.1 of Volume Two of the BCA.

ACCEPTABLE CONSTRUCTION PRACTICE

A Class 1 building that is *required* to comply with this Specification must have a source of *on-site renewable energy* installed and connected to the building. The *required* minimum level of energy to be generated by the *on-site renewable energy* source must be determined by multiplying the *floor area* of the building by the appropriate value in **Table 1**.

Table 1

***Required* minimum level of energy to be generated by an on-site renewable energy source (kWh/m².annum)**

CLIMATE ZONE	STAR RATING OF CLASS 1 BUILDING	
	5.0 – 5.4	5.5 – 5.9
4	4.6	3.8
5	3.9	3.4
6	8.5	7.6

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NOTES

1. A *renewable energy* source includes, but is not limited to, solar, wind, hydroelectric, wave action and geothermal.
2. The *renewable energy* source must be designed and installed to optimise the performance of the system. For example, where a solar photovoltaic system is proposed to generate the level of energy *required*, the panels must be orientated and angled to maximise access to sunlight hours.

Example using a solar photovoltaic system

A Class 1 building with a *floor area* of 180m² is to be constructed in *Climate Zone 6*. When assessed with *house energy rating software* the building achieved an energy rating of 5.7.

A Class 1 building located in *Climate Zone 6* is *required* to have an on-site *renewable energy* source installed and connected to the building that generates a minimum of 7.6 kWh/m².annum. The energy *required* to be generated is –

$$180 \times 7.6 = 1368 \text{ kWh per annum (approx. 3.8 kWh per day)}$$

The tables below indicate that the energy *required* may be generated by a 1.0 kWh solar photovoltaic system.

AVERAGE PRODUCTION PER ANNUM (kWh)				
1.0 kWh System	1.5 kWh System	2.0 kWh System	3.0 kWh System	4.0 kWh System
1535	2300	3065	4600	6130

Note: These figures are averages for Adelaide. Solar photovoltaic systems should be designed on a case by case basis for the specific *site* for which they are intended.

Source: Clean Energy Council
Consumer guide to buying household solar panels (photovoltaic panels)
 Page 4, Volume 15, 8 November 2011.
www.cleanenergycouncil.org.au

V2.6.2.2 VERIFICATION USING A REFERENCE BUILDING

In relation to a Class 1 building designed and assessed in accordance with **V2.6.2.2 Verification using a reference building** of Volume 2 of the BCA, the level of energy *required* to be generated by the *renewable energy* source should be determined by modelling:

- (a) the proposed Class 1; and
- (b) the *Deemed-to-Satisfy Provisions* of **Part 3.12** of Volume Two of the BCA.

Where the proposed building is calculated to have a heating load and a cooling load more than the *reference building* then it is the excess that must be offset by a source of *renewable energy*.

ABBREVIATIONS

- kWh/m².annum kilowatt hours per metre square per annum
 kWh kilowatt hour