

# ADVISORY NOTICE

## BUILDING

04/12

Advisory Notices are issued to assist in the interpretation of the Development Act 1993

June 2012

### TECHNICAL:

## Alternative methods for complying with the six star energy efficiency requirements

This Advisory Notice provides advice about the alternative methods in the Building Code of Australia (BCA) for complying with the six star energy efficiency requirements. This is to assist people who are unable to achieve compliance using the Deemed-to-Satisfy Provisions.

### BACKGROUND

On 1 September 2010 South Australia adopted the six star level of energy efficiency for houses in the Building Code of Australia (Volume Two of the National Construction Code series). To address a number of concerns raised by industry (including affordability in remote areas), a concession was granted that allowed transportable houses across the State to achieve an energy rating of not less than five stars. Revised provisions for the concession were adopted as a variation to BCA 2012 on 1 May 2012 (Government Gazette No. 28, dated 19 April 2012).

### DISCUSSION

Following adoption of the latest provisions for the concession there have been a number of inquiries regarding alternative methods of complying with the six star energy efficiency requirements. All buildings must be designed, assessed and constructed in accordance with the BCA. The mandatory part of the BCA is the Performance Requirement, which in relation to energy efficiency states the following –

#### P2.6.1 Building

A building must have, to the degree necessary, a level of thermal performance to facilitate the efficient use of energy for artificial heating and cooling appropriate to –

- a) the function and use of the building; and
- b) the internal environment; and
- c) The geographic location of the building; and
- d) The effects of nearby permanent features such as topography, structures and buildings; and
- e) Solar radiation being –
  - (i) utilised for heating; and
  - (ii) controlled to minimise energy for cooling; and
- f) the sealing of the building envelope against air leakage; and
- g) the utilisation of air movement to assist cooling.

The Performance Requirement can be met either by complying with the Deemed-to-Satisfy Provisions, by formulating an Alternative Solution or a combination of both. The Deemed-to-Satisfy Provisions for energy efficiency are contained in *Part 3.12* of the BCA and permit compliance with either:



- a) The six star prescriptive requirements contained in *Parts 3.12.1 (fabric), 3.12.2 (glazing and shading), 3.12.3 (sealing) and 3.12.4 (air movement)*; or
- b) *3.12.0.1 – Heating and cooling loads*, which requires the building to demonstrate, by means of a six star rating that the heating and cooling loads have been reduced to a satisfactory level.

*3.12.0.1(a)* was varied as part of the adoption of BCA 2012 to implement the five star concession. There are no prescriptive provisions for the five star concession and a star rating must be obtained to demonstrate compliance. Buildings eligible for the five star concession must also comply with *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*.

Buildings that demonstrate their compliance by means of a star rating (five or six star) must also comply with the additional provisions itemised in *3.12.0(a) (i) (B) to (F)* which include requirements for thermal breaks, floor edge insulation and sealing of the building.

The performance based nature of the BCA permits the use of one, or a combination of the following methods, to demonstrate compliance with the Performance Requirement:

1. Evidence of suitability. This method requires reports or certificates from recognised testing authorities, or any other form of documentary evidence that adequately demonstrates the suitability of a material, form of construction or design to be submitted to the relevant authority responsible for undertaking the building rules assessment.
2. Verification Methods. Verification methods can include tests, inspections, calculations or other methods that demonstrate compliance with the Performance Requirement.

In some instances Verification Methods are specified in the BCA. This is the case with energy efficiency where *V2.6.2.2 Verification using a reference building* requires a building to have annual heating and/or cooling loads not more than the annual loads of the reference building. A reference building is a hypothetical building having the same design but modelled using the prescriptive Deemed-to-satisfy Provisions.

3. Comparison with the Deemed-to-Satisfy Provisions. This method involves a comparative analysis to determine whether the Alternative Solution is better than, or at least equivalent to, the Deemed-to-Satisfy Provisions. The applicable Deemed-to-Satisfy Provisions and the Alternative Solution would both need to be subjected to the same level of analysis using the same methodology.
4. Expert judgement. This method relies on the judgement of an expert who has the qualifications and experience to determine compliance with the Performance Requirement. It relies on a subjective opinion which should be based on literature, precedents or general knowledge. The person making the subjective opinion must be acceptable as an expert.

Chapters 2, 3 and 4 of the *Energy efficiency provisions for BCA 2010 Volume Two – Information Handbook*, published by the Australian Building Codes Board (ABCB) provide detailed information about the various assessment methods that can be used to demonstrate compliance with the

Performance Requirement P2.6.1. The document can be obtained for free from the ABCB website at [www.abcb.gov.au](http://www.abcb.gov.au)

### Further information

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