



Changes to the Building Code of Australia

The Building Code of Australia has been revised to include energy efficiency measures for houses and this change came into effect in Western Australia on 1 July, 2003.

The Western Australia Amendment 13 of the Building Code requires that you satisfy the clauses outlined below:

- ▶ Provide adequate wall insulation
- ▶ Ensure that the total ventilation area to floor area complies
- ▶ Ensure that vents allow adequate ventilation between rooms
- ▶ Ensure that the proportion of glazing does not exceed required limits
- ▶ Ensure that roof lights do not exceed acceptable limits
- ▶ Provide adequate roof insulation
- ▶ Seal all chimneys and flues
- ▶ Seal all external windows and doors
- ▶ Seal exhaust fans with self sealing device
- ▶ Seal internal lining systems
- ▶ Ensure that Class 10a attachments do not compromise the thermal performance of the Class 1 building
- ▶ Insulate all hot water system piping as required
- ▶ Insulate heating and cooling system pipes and weatherproof where necessary.

The easiest ways to comply with the new Code are:

1. Ensure that the house design meets all of the clauses in Amendment 13 of the Code or
2. Have the house rated to ensure the house design meets the minimum star energy rating.

SOFTWARE OPTIONS

The two main software packages endorsed by the Building Code of Australia to rate residential dwellings are based on NatHERS.

NatHERS

The Nation-wide House Energy Rating Scheme (NatHERS) software developed by CSIRO, models house heat flows and heating and cooling energy requirements. Houses get a star rating (zero to five stars) according to their potential for low energy use to maintain set comfort levels.



FirstRate

The *FirstRate* House Energy Rating software is based on NatHERS and is the main software package used in Western Australia. *FirstRate* is administered in Western Australia by the Sustainable Energy Development Office and was developed by the Sustainable Energy Authority Victoria.

FirstRate software

FirstRate has been subjected to detailed validation processes and compares well with measurements taken from test buildings. The program is constantly under review to incorporate a wider range of data, climates zones and building techniques.

FirstRate is a user-friendly method of assessing and improving the energy efficiency of house designs and completed homes. It gives a star rating (zero to five stars) and also provides hints for improving the energy efficiency of your design.

The advantages of using a ratings program is that it gives you the flexibility to go beyond the minimum requirements and energy efficient home designers can use the *FirstRate* star ratings to promote the superior performance of their designs.





How Does *FirstRate* Work?

The house is divided into zones for living and sleeping and areas that do not need heating or cooling. Bedrooms do not generally need to be kept as warm as living areas, and garages and laundries rarely need to be heated or cooled in comparison to bedrooms and living areas.

The size of each of these areas, the external and internal walls and the windows is measured. This information is entered into the computer along with details about the building materials used for walls, roof and floor and whether insulation will be used. The direction that the building is facing is needed, as well as the postcode to determine the relevant climate zone.

In just a few minutes the program goes through every hour of every day of a typical year for that climate zone. It looks at how the temperature changes throughout the day and calculates if the house will get too cold or too hot and how much energy will be needed to keep it comfortable. A report is produced which shows the amount of energy needed for summer and for winter, and compares the house with others to give it a five star to a zero rating.

If the design's energy efficiency or thermal comfort does not achieve the required rating, *FirstRate* gives suggestions to the user to improve the design. These changes can be quickly and easily entered into the computer and the simulation run again to assess the improvements.

The energy consumption calculated should be used as a guide for comparison with other houses rather than an estimate of electricity or gas bills that can vary significantly depending on family composition, lifestyle and behaviour.

The program assumes that the owner will use the house sensibly, for example, opening windows and drawing curtains when appropriate. It also assumes a set of standard comfort conditions. In Perth, it is assumed that an air-conditioner will be needed if the temperature inside the house rises above 26°C – 28°C. Heating is assumed to be needed if the temperature falls below 22°C between 7 a.m. and 11 p.m.



It does not take into account the efficiency of appliances and equipment. Information about the efficiency and costs of appliances is available at www.energyrating.gov.au.

FirstRate Training and Accreditation

Certification of a house energy rating can only be carried out by an accredited *FirstRate* assessor. Accreditation is administered by the Sustainable Energy Development Office. Annual accreditation fees are charged to cover the costs of administration, including certification and quality assurance.

To become accredited, assessors must successfully complete the *FirstRate* training course (see details below).

Training is available from:

- ▶ Leederville TAFE (contact 9202 4880)
- ▶ Housing Industry Association (contact 9244 0100)
- ▶ Masters Builders Association (members only 9322 5133).

For More Information:

Contact the Sustainable Energy Development Office on 9420 5600 by phone or by mail:

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A list of accredited assessors is available on the Sustainable Energy Development Office website. Accredited assessors are also able to register on the Energy Smart Directory at: www.energysmartdirectory.com.