

## Thermal break to steel framing – what R-value is required?

For steel framing, E3/AS1 paragraph 1.1.4 d) specifies a thermal break of 12 mm minimum thickness of either wood fibre insulating board or expanded polystyrene (EPS). It gives no specific R-value requirement for the break materials.

Using a thermal conductivity of 0.038 for EPS gives an R-value of 0.3 as being the minimum required for a thermal break. 38 mm thick softwood timber would also give an R-value of 0.3.

An R-value of 0.3 is also the minimum figure recommended in the BRANZ House Insulation Guide third edition.

To ensure they perform as intended, a thermal break must be installed to all framing members – in walls, that means horizontal and vertical. It is important that the material is not crushed during cladding installation as this will reduce the effectiveness of the thermal break. It also means that, while it spaces the cladding off the wall framing, installing a thermal break does not create a drained and vented cavity as described in E2/AS1.

## Potable water supply

It is a Building Code clause G12 requirement that buildings provided with water outlets, sanitary fixtures or sanitary appliances must have safe and adequate water supplies. Water that is intended for human consumption, food preparation, utensil washing or oral hygiene must be potable.

Potable water is defined as water that is suitable for human consumption. Where the difficulty arises is in the definition of potable water, as the Building Code does not cite any standard by which the water quality can be measured.

The only reference for water quality is the Drinking-water Standards for New Zealand 2005, which was revised in 2008. It defines drinking-water safety requirements by specifying the maximum amounts of substances or organisms or contaminants or residues that may be present in drinking water, criteria for demonstrating compliance with the standards and remedial action to be taken in the event of non-compliance. It contains comprehensive information for owners and operators to assist in the management of public and private drinking-water supplies.

For rainwater collection systems, the requirements from the standard are:

Minimum treatment requirements	Explanation
<b>Bacterial treatment and low protozoal risk</b> Prefiltration or selective abstraction (such as the use of a leaf screen, first flush diverter, bottom tank inlet or floating top draw-off) followed by chlorine disinfection.	Disinfection is required to inactivate bacterial pathogens, such as <i>Campylobacter</i> spp. and <i>Salmonella</i> spp. that are known to be present in wildlife.
<b>Bacterial and 2-log protozoal treatment</b> Prefiltration or selective abstraction followed by UV disinfection in accordance with one of the following standards – NSF/ANSI 55-2002 Class A (NSF and ANSI 2002b); DVGW Technical Standard W294; oNORM M5873-1 (Osterreichisches Normungsinstitut 2001).	

Components used in the water supply system are not permitted to contaminate the potable water – AS/NZS 4020 Testing of products for use in contact with drinking water is the standard that materials should comply with.

## New from BRANZ

BRANZ has recently published a further title (bringing the total number of titles to 9) in the LEVEL Sustainable Building Series – Wet areas. Coming in May is number 10 in the series – *Plumbing*. Order available titles online at [www.branz.co.nz](http://www.branz.co.nz).

The Build section of the BRANZ website has been recently updated to incorporate the ability to flick through the pages of the magazine on screen. Enjoy the entire magazine virtually.

The lintels and beams web-based calculation tool has had steel beams added as an option when calculating deck support beams. Drawings have also been added to show the beam location.

## Air seals using sealant

Under E2/AS1, sealant can be used as the material providing the airseal around penetrations such as windows and doors. The Acceptable Solution gives a number of standards that the sealant to be used must comply with. Sealants that are BRANZ Appraised comply with the requirements of ISO 11600, which is one of the standards listed in E2/AS1 9.1.6 c ii a.

## On the lookout

When inspecting work, designers and builders need to make sure that:

- bolts installed into timber are not installed with the wrong sized washers – NZS 3604 requires 50 x 50 or 55 mm diameter washers
- coach bolts are not being used to allow the round head to be pulled into the timber so that the head is below the surface to allow sheet materials to be fixed to the structural timber – in these situations, conventional bolts with the washers as noted above should be used
- the top of a drained and vented cavity is not being left open to soffit and roof spaces – drained and vented cavities must have the top of the cavity closed off from all roof spaces, including attic roof spaces and enclosed soffits or verges to prevent the entry of moist air
- an air barrier is being installed where an unlined gable wall is constructed – where a cladding is installed to a gable end wall an air barrier must be incorporated between the cladding and the attic roof space to prevent air entry and to assist in the weathertightness of the cladding.

Also watch out for:

- out of date references appearing in consent documents
- documents that contain details not relevant to the project
- specifications that refer to a standard or compliance document without saying which specific part of the standard of compliance document is to be used. For example, NZS 3604 has always given options or choices, and with the recent addition of the new framing tables for the revised timber grades, these options are even wider, so the designer needs to specify what option they want to be used.

## Alternative Solutions to E2

A common feature still seen in many consent applications relating to weathertightness is a reference to an E2/AS1 detail in support of a detail being submitted as an Alternative Solution. This is fine if the building the detail applies to falls within the scope of E2/AS1. However, if the building falls outside the scope, it is usually considered a higher weathertightness risk (e.g. it is in a specific design wind zone or taller than 10 m). In these instances, what a BCA will be expecting to see is supporting evidence to show how the higher level of risk has been addressed – a reference to an unmodified E2/AS1 detail may not be enough.

For designers and building officials, the BRANZ Compliance path seminar listed below will guide you through the process that needs to be followed when designing and submitting an Alternative Solution for assessment.

### BRANZ Seminars 09

The second seminar for the 2009 year will cover compliance path options for those consent applications that fall outside the scope of Acceptable Solutions. Having Alternative Solutions consented has created some difficulties between designers and BCAs, and this presentation, for both parties, aims to give guidance on the submission and processing of these applications.

Venues and dates are:

4 May	Dunedin	11 May	Auckland
5 May	Queenstown	12 May	Hamilton
6 May	Christchurch	13 May	Tauranga
7 May	Wellington	14 May	Palmerston North

Visit our website for more details and to register online – [www.branz.co.nz](http://www.branz.co.nz) (click on seminars)

In August/September in 22 centres nationwide, BRANZ will be presenting a seminar for designers, BCA officials and builders on 'good' design and construction principles and practices for wet areas within buildings.