

GUIDELINE

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Thermal mass amendment

A meeting of the NZS 4218 committee held after the August Guideline was issued has settled on 215 kg/m² as the minimum weight for a thermal mass material to comply with the Standard. This differs from the 220 kg/m² published in Guideline.

Mould warning

If you are opening up a wall and you find black mould on the framing, back of the plasterboard or fibre-cement, you should stop work immediately. Take a small sample and send it to a testing lab such as Biodet to determine what the mould is. Cover the opened area with plastic. If toxic mould (stachybotrys) is identified then specific removal procedures by specialists need to be followed.

Retirement

Bill Irvine has officially retired from his liaison role with Building Research. If Bill carries out on any work on behalf of BRANZ in the future it will be clearly identified in the promotional material.

H1 and E3 and Mixed construction

There are a number of building designs that incorporate a mix of construction types. One example is a 20 series solid masonry ground floor wall construction with a timber-framed wall clad with bevelback weatherboards to the upper level. Compliance with Building Code clauses E3 and H1 must be assessed independently.

When calculating insulation requirements the minimum E3/AS1 R-values may set the minimum permissible R-value irrespective of what might be needed to show compliance with H1. In effect, no R-values can be less than those required by E3/AS1.

For mixed construction you cannot use the schedule method of NZS 4218 to show compliance with NZBC Clause H1. Therefore, the calculation or modelling method must be used

For mixed construction the reference building R-values for all components, whether solid or non-solid, shall be taken from the non-solid Table in NZS 4218 – Replacement Table 1. The heat loss of the proposed building of mixed construction must be equal to or have better performance than the reference building to comply. This allows the levels of insulation provided within elements to be varied as long as the minimum requirements of E3/AS1 are met and are not below the 40% reduction allowed by Clause 3.2.6 of NZS 4218.

When using the calculation method, Clause 3.2.6 of NZS 4218 allows a 40% reduction in the schedule method R-values for individual elements provided the R-values of other elements are increased to compensate.

First floor framed walls – A non-solid wall in climate zone 3 may have an R-value of not less than R 1.2 (40% of the schedule method requirement of R2.0 from Replacement Table 1). However, this level of insulation would not meet the minimum requirements of E3/AS1 which stipulates a minimum R-value of 1.5 – therefore this wall component can only be reduced to R 1.5.

Ground floor solid masonry walls where sufficient thermal mass is exposed to the interior (insulation on the outside). For our zone 3 example the minimum wall R value can be R1.2 (the R-value given in Replacement Table 2b Option 3a). Applying the 40% reduction allows this to be reduced to R0.72. This R-value is above the minimum requirement of E3/AS1 (R0.6) for single skin normal weight masonry wall construction without a cavity, and would comply.

In this case, with an R-value of R0.72, there would need to be a significant increase in the R-value of other components to ensure the total heat loss is less than that calculated for the reference building. Depending on the type of construction used, this option may not give very good thermal performance for the lower floor even though the total heat loss may comply (as a result of stacking the level of insulation in the upper floor).

The method below must be used when the insulation is on the inside of the masonry wall – that is considered as a non-solid wall.

Ground floor solid masonry walls with the insulation on the inside – Where the insulation is on the inside of the masonry wall, the minimum R-value for the reference building is R2.0 from Replacement Table 1.

In this situation the wall must be considered as a non-solid wall and may have an R-value of not less than R 1.2 (40% of the schedule method requirement of R2.0 from Replacement Table 1).

In this case this R-value exceeds the minimum requirement of E3/AS1 (R0.6) for single skin normal weight masonry based wall construction without a cavity and would comply.

The R-value can be achieved with strapping on the inside at 600 mm centres and lining with insulation having an R-value of at least R1.2 (from the BRANZ House Insulation Guide Third Edition).

For more detail on insulation options and performance for solid masonry walls refer Build 106 June/July 2008.

Housing affordability – something to consider

One easy way to make houses more affordable is to make them smaller – with good planning; functionality and amenity need not be compromised.

Pipe penetrations through cladding

Pipes and flues that penetrate through cladding must be installed before the wall cladding (such as weatherboard) is fixed or the brick veneer is fully erected. If the penetration is not installed first it is almost impossible to tape it off to the wall underlay to ensure that the water drainage path around the penetration is maintained. Punching the hole for the penetration after cladding is completed can result in significant damage to the wall underlay which means it will not perform as expected. In one recent example the culprit for the damage was the heat pump installer and the easiest way the situation could be remedied was to remove the brick veneer cladding around the penetration to allow access to repair the badly torn wall underlay.

New publications from BRANZ

BRANZ has published two new titles in the LEVEL Sustainable Building Series – Materials and Coatings. Being published towards the end of September is the eighth in the series Heating and Ventilation. Order online at www.branz.co.nz

BRANZ Seminars

Sustainable Design Series – Passive Design

Registrations are open for this seminar which is aimed at architects and designers. Attendees will come away with a better understanding of:

- Knowing where to go to find information on Passive Design;
- How to distinguish the difference between favourable and unfavourable sites;
- Understanding the need to balance window area and orientation with external shading and ventilation;
- Understand the role of the insulation in relationship with thermal mass;
- Understand how thermal mass can work effectively as part of a design;
- How to manage microclimate by relationship with local landscape and vegetation;
- How good passive design can be incorporated into the retrofitting of existing buildings.

Venues and dates for September are – 15th Dunedin, 16th Christchurch, 17th Auckland, and 18th Hamilton. The Wellington seminar is **fully booked**.

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