

H1 schedule method and partially heated floors

The question that has arisen is how does one treat a floor, for H1 schedule method compliance, where only part of the floor area is heated? Typically, this occurs where heating elements are laid immediately below a tiled floor finish.

Replacement Table 3 in the Acceptable Solution H1/AS1 simply refers to heated floors and does not differentiate between heating that is embedded within a concrete floor slab, installed under the flooring or installed immediately below the tiles. Table 3 sets specific R-value requirements.

Because a heated floor system – whether within or on top of the floor – heats the floor and also the attached surface finish, which is then transferred to the space, BRANZ believes the whole floor should have an R-value of 1.9 to comply with the requirements of the schedule method given in Replacement Table 3.

In both the 2004 and 2009 versions, NZS 4218 defines a heated floor as 'a floor having embedded pipes, electrical cables or similar means of raising the temperature of the floor for room heating'.

Section 3.3 of the 2009 edition of NZS 4218 (while not yet cited in the compliance documents) is titled **Embedded floor heating** and states that 'where building elements form part of the thermal envelope, those building elements shall have construction R-values no less than those in Table 1 of the standard'.

BRANZ Weathertight Solutions Volume 4 – Roofing

The question has been asked as to why the internal metal gutter details in the above publication show an angled transition between the gutter base and the side wall rather than a tight fold.

The reason is that the angled junction facilitates cleaning of the gutter and thus lowers the risk of debris being left in a tightly formed corner and accelerating the potential for deterioration.

H1 BPI

One of the options for demonstrating compliance with clause H1 *Energy efficiency* is NZS 4218:2004 modified by H1 3rd edition. This document gives the designer three options for determining the thermal performance of buildings. These are the:

- schedule method
- calculation method
- modelling method.

A fourth option is using the building performance index (BPI) given in H1/MM1 1.2 to meet the requirements of H1 clause H1 3.2A (a), H1.3.2C (a) and H1.3.2E.

The BPI method, implemented in ALF3.2 (available on the BRANZ Website), is a specific design tool to determine the thermal performance of the proposed building. When compared to the schedule and calculation methods, it gives a better overall representation of a building's thermal performance by taking account of:

- orientation of the building
- the direction windows face and the actual size of the windows, to determine both the heat gain and potential heat loss
- the presence of thermal mass
- actual construction methods used.

See the H1 Support Page on the BRANZ website for more information.

Doing our sums

Terms are often used in the building industry without the formal definition of the term being fully understood. Here are definitions of three contractual terms:

- **Contingency sum or allowance:** This is a sum of money included in a contract or tender to cover an unforeseen circumstance. Generally, such sums are removed from the contract as the first variation order. They are usually authorised to be spent as a variation when an activity arises that

could not have been foreseen before construction commences. In a number of contracts, the money allowed may not be expended.

- **PC (prime cost) sum:** This is an allowance within the tender price for the purchase cost of a specific article, e.g. a stove or a wood burner. A PC sum does not cover the cost of labour and fitting, which the contractor should allow for in their tender
- **Provisional sum:** This is an allowance of money where the actual cost of doing the work is difficult to predict before construction starts or the extent of the actual work is unknown, so an estimate of cost is made, meaning that tenderers' prices are submitted on the same basis.

The conditions of contract for the project should spell out the procedures for the authorisation of work covered by the above sums.

Occasionally, BRANZ may withdraw an Appraisal for technical or contractual reasons.

A reflection from 'Guideline' April 2004

The closer a building is designed to the minimum requirements, be they Building Code or other regulatory requirements – weathertightness, fire safety, structural, thermal, safety glazing, etc – the greater the risks, especially if building conditions during construction mean compromises are made. This could mean that the building will not perform as designed and may not even comply with the Building Code. For example, a complaint can lead to site inspections that can literally mean the building is taken apart again (and the quality of construction re-examined).

For example, a leaky window leads to a floor rotting to such an extent that someone's foot goes through it. This leads to a wider examination that shows deficiencies in cladding detailing that have allowed water to get into the wall cavity. Opening the wall shows that insulation levels are inadequate because of substituted products. Further leaks discovered in the walls at higher levels lead to the investigation of membrane roofing detailing, which has been compromised by floor levels and parapet caps penetrated by fastenings.

It's clear that, if design and construction practices are purposely aimed at ensuring that only the minimum requirements are met, the risk of cumulative faults developing is high, thus creating a sort of 'house of cards' approach to design.

BRANZ Seminars 09

BRANZ research has identified wet areas within buildings, such as bathrooms, as a potential problem if the spaces are not detailed and constructed to contain the water and/or the materials selected are not durable in a damp environment. Excessive levels of moisture, mould and coldness were also identified as significant problems. Our current seminar is visiting 22 centres nationwide (having begun in Invercargill on 3 August) and looks at the design and construction principles for these areas. This is a must for designers – including specialist kitchen and bathroom designers – builders, building officials, tilers, waterproofing applicators and plumbers.

Dates and locations remaining for August are:		Dates and locations for September are:	
26 Aug	Rotorua	1 Sep	Kapiti Coast
27 Aug	Gisborne	2 Sep	Wellington
28 Aug	Napier	3 Sep	Masterton
31 Aug	Palmerston North	4 Sep	Upper Hutt (Trentham)
		7 Sep	Greymouth
		8 Sep	Nelson

See www.branz.co.nz (click on **Wet Areas** seminar) for more details and to register online.