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Determining the extent of the wall component of thermal envelope for houses with attached garages

Where garages are considered to be outside a domestic building's thermal envelope, for H1 *Energy efficiency* compliance, the wall between the garage and the living spaces must be considered as an external wall and therefore must be insulated to meet Building Code requirements.

For steel-framed buildings, such walls will require the installation of a thermal break on the outer face of the framing, as is required for all other external walls, to prevent the occurrence of cold bridging at stud, dwang and plate locations. The minimum R-value of the thermal break material must be R0.25.

Flashing materials suitable for use with cement-based plaster systems

Powder-coated aluminium or unpainted galvanised steel flashings can be used with exterior cement-based plaster systems. E2/AS1 Tables 21 and 22 refer to these materials as being not compatible when unpainted, but when the plaster is painted (as a cement-based plaster should be), they become compatible.

The requirements of NZS 4251.1:2007 *Solid plastering – Cement plasters for walls, ceilings and soffits* (namely stucco) for flashings is that they be one of type 304 or 316 stainless steel, powder coated aluminium, uPVC or hot-dip galvanised steel with minimum zinc coating of 400 grams per square metre.

This zinc coating requirement asks for a higher (zinc) coating mass than is provided for with most components manufactured from flat sheet galvanised steel. Other materials may be used, provided sufficient supporting evidence (such as their durability when used with a cement-based plaster) is provided to the building consent authority to satisfy them that the completed installation will be Code compliant.

Clarification of NZS 3604:2011 *Timber-framed buildings* skillion roof fixing requirements for rafters to top plates

Table 10.1 of NZS 3604 (rafters for all wind zones) has fixing types E (4.7 kN capacity or 2/90 x 3.15 mm skew nails + 2 wire dogs) or F (7 kN capacity or 2/90 x 3.15 mm skew nails and strap fixings) for fixing rafters to the top plate.

Currently, Table 10.18 (the nailing schedule for hand and power-driven nails) says in the first row of the table, 'Rafter or jack rafter to ridge board or top plate (except skillion roofs).' NZS 3604 clause 10.2.1.3.7 then references Figure 10.6 of the standard, which requires 7 kN capacity fixings, namely type F.

E2/AS1 Table 20 Material selection – derivation of prefinished metal cladding and flashing 'types'

The prefinished metal cladding and flashing 'types' specified in Table 20 of E2/AS1 are taken from Table 1.1 of AS/NZS 2728:2007 P*refinished/prepainted sheet metal products for interior/exterior building applications – Performance requirements*.

Table 1.1 of the standard subdivides prefinished metal products into types (classifications) relative to quality and performance of the organic coating system applied to the metal as well as the severity of the environment in which they would be suitable for use.

The types apply the following classifications of environmental severity and the expected corrosion rates of mild steel and are rated by numbers. The corrosion rate is equivalent to those defined in AS/NZS 2312:2002 *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings*:

- 1 = very low (exposure zone A)
- 2 = low (exposure zone B)
- 3 = medium (exposure zone C)
- 4 = high or tropical (exposure zones D and F)
- 5 = very high industrial (exposure zones E and I)
- 6 = very high (exposure zones E and M – geothermal, marine).

Further information is given in Appendix C of the standard.

It is worth noting that the latest version of AS/NZS 2728 published in 2012, which has an expanded range of products within its scope, is not called up by E2/AS1.

Meeting H1 *Energy efficiency* minimum requirements

Regardless of which method is used to show compliance with Building Code clause H1 (schedule method, calculation method, modelling method or BPI), the R-values used must not be less than those set by E3/AS1, the internal moisture compliance document.

The minimum construction R-values in E3/AS1 are:

- timber-framed walls or other framed construction with cavities = R1.5
- single-skin masonry or concrete walls without cavities = R0.6
- roof or ceiling construction of any type = R1.5.

Using galvanised brackets in exposed locations in exposure zones B and C

Table 4.1 of NZS 3604:2011 appears to permit the use of 5 mm minimum thick fabricated galvanised steel brackets in exposure zones B and C in both sheltered and exposed locations.

It is BRANZ's recommendation that the use of galvanised brackets and bolts should be limited to sheltered locations within exposure zones B and C.

The reason for this recommendation is that, in exposed situations in zones B and C, stainless steel bolts are required by NZS 3604, and it is not good practice to use stainless steel bolts with galvanised brackets because of the reaction that can occur between the stainless steel and the galvanised components, particularly where they are likely to be exposed to other contaminants such as dirt, moisture and copper timber treatments that can accelerate corrosion, as typically occurs in a deck.

Therefore, in exposed situations in exposure zones B and C, only stainless steel bolts and brackets should be used.

New BRANZ publications

The latest title in the BRANZ Building Basics publication series *Building Controls* will be available in early February, as will a new edition of the BRANZ Good Practice Guide *Long-run Metal Roofing*.

BRANZ 2013 Seminars: NZBC Fire Acceptable Solutions

This seminar will cover the significant changes in the new set of Acceptable Solutions for Building Code clause C *Protection from fire*. These became effective on 10 April 2012, with a 12-month transition period. After 10 April 2013, the new compliance documents must be used.

This seminar series will cover the structure of the new documents and the types of buildings for which the documents are applicable. The dates and venues for the seminar are:

Monday 18 February	Auckland - North Shore	Spencer on Byron Hotel
Tuesday 19 February	Auckland - Ellerslie	Ellerslie Events Centre
Wednesday 20 February	Hamilton	Claudelands Conference & Exhibition Centre
Thursday 21 February	Tauranga*	Baypark
Monday 25 February	Napier	War Memorial Conference Centre
Tuesday 26 February	Wellington	Westpac Stadium
Wednesday 27 February	Christchurch	Sudima Hotel
Thursday 28 February	Dunedin	The Dunedin Centre

All seminars are from 1.00pm-4.00pm except the Tauranga* seminar, which is from 12.30pm–3.30pm.