

CHANGES TO BRANZ INSULATION APPRAISALS

Thermal insulation materials must now comply with the requirements of AS/NZS 4859.1. This has brought changes to BRANZ insulation Appraisals, including random testing.

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A amendments to New Zealand Building Code Clause H1 *Energy efficiency* have caused some changes to the BRANZ thermal insulation Appraisals. Phased in since last October, these amendments have resulted in many insulation companies reviewing their product range and introducing new products to meet the higher energy efficiency requirements.

Along with introducing the need for manufacturers to have new products tested, the thermal insulation Standard AS/NZS 4859.1: 2002 *Materials for the thermal insulation of buildings* has become the only means of demonstrating compliance with the performance requirements of Building Code Clause H1.

In Australia, compliance with AS/NZS 4859.1 has been compulsory for building insulation products for the past 3 years, and many insulation manufacturers and importers are using the product certification schemes to demonstrate compliance with this Standard.

Since its publication in 2002, BRANZ has used AS/NZS 4859.1 as the basis for testing thermal insulation products, along with test standard ASTM C518. The BRANZ thermal testing laboratory is IANZ accredited for both standards.

Thermal insulation Appraisals

BRANZ has appraised thermal insulation products since the 1990s. Current materials include glasswool, polyester, rockwool, wool, wool polyester blends and polystyrene. In the past, these Appraisals had common criteria for compliance with the Building Code for all performance requirements except energy efficiency.

Since 2005, all appraised insulation products have needed an initial thermal resistance type test to AS/NZS 4859.1. A



type test involves multiple measurements of thermal conductivity to establish, as accurately as possible, what the thermal resistance is likely to be at the nominal specifications for thickness and density. This contrasts with the much simpler, single ASTM C518 measurement, which is limited to determining the thermal performance of the particular test specimen.

The AS/NZS 4859.1 method is still not a definitive determination that the product complies with its specification and therefore its claimed R-value. Rather, it is a check that it is capable of doing so if it is manufactured consistent with that specification.

As well as introducing the concept of type testing, the inclusion of AS/NZS 4859.1 in the Building Code introduces the requirement for insulation products to claim compliance with the Standard and have a means for demonstrating it. New Zealand has not yet followed Australia down the route of product certification. Therefore, proving compliance requires the insulation company to maintain a quality system and a thermal testing programme demonstrating that the claimed performance is being met on an ongoing basis. It is up to the insulation company to

decide how they structure their quality control systems, but the end result is that, when products are randomly and independently sampled, the measured thermal resistance must always meet or exceed the nominal value on the label.

Check Appraisals listing

A BRANZ Appraisal is a means of demonstrating compliance with the Building Code thermal requirements for thermal insulation products. Currently, all appraised insulation products have passed AS/NZS 4859.1 type testing. Some products may not be on the Appraisals listing as the manufacturer has chosen to not have them in the Appraisal, or they haven't yet passed the type testing. As time goes on, more products will be added.

Random sampling and testing of some appraised products have begun already. Depending on the outcome of the random testing, products may be withdrawn from the Appraisals listing until confidence in their performance can be restored.

One consequence is that it is now more important than ever to check the Appraisal listing on the BRANZ website (www.branz.co.nz) to ensure that the product you want to use is currently appraised.

Another reason to regularly check the listing is that changes are occasionally made to the product specifications, such as happened recently with some of the wall products. Some products had been specified at a nominal thickness of 95 mm; others had been specified at 90 mm (the current standard framing depth). Similar issues can arise with ceiling insulation; knowledge of both the nominal and likely maximum product thicknesses may be needed to ensure adequate ventilation space is maintained above the ceiling insulation.

Thermal insulation Appraisals update

Key updates for the thermal insulation Appraisals include:

- requirements to control packaging and storage conditions as the thermal performance of a product is dependent on adequate re-loft from packaging. This will require either a manufacturing date and expiry time or an expiry date to be included on the label
- references to the BRANZ *House insulation guide*, Third Edition 2007
- references to third party performance labelling schemes are included in the Appraisal, provided the manufacturer can prove that the products meet all the required criteria and that the performance being highlighted has relevance.

Also, all products covered by the Appraisal are:

- type tested to AS/NZS 4859.1: 2002
- independently and randomly tested at no more than 2-yearly intervals.

Appraisal requirements

The thermal insulation Appraisal criteria has been strengthened to ensure that consumers, designers and consent authorities can have confidence that any appraised thermal insulation product meets or exceeds the stated label R-value.

All thermal insulation Appraisals are assessed for durability. Insulation products must have a serviceable life of 50 years and be able to maintain their thermal performance during this period. All fibres, binders and additives are analysed by the BRANZ materials team to ensure that all appraised products can meet this claim.

The manufacturing facilities of all appraised insulation products are audited and reviewed by BRANZ on an ongoing basis to ensure compliance to specific criteria.

Health and safety requirements for individual product types are reviewed, and any special requirements are noted in the Appraisal.

The thermal laboratory provides test reports for non-appraised products (for example, products destined for Australian certification), as well as appraised products, but it is only as part of the Appraisal process that BRANZ reviews all the reports relating to a product to determine its fitness for purpose. The user of a report from a test performed on a non-appraised product must make their own decision as to whether it is fit for purpose and meets the claimed performance.

What the Appraisal provides

The Appraisal gives design guidance, maintenance requirements and any special installation requirements such as for the new high-density wall and under-floor products. It provides all the required reference documents and, above all, assurance that the products listed can meet a minimum standard – information consumers and decision-makers can rely on and manufacturers can be held accountable to.

The Appraisal does not provide a guide to using specific R-values for specific jobs, neither does it specify what system R-values are required for specific buildings to meet compliance, or how the interaction of building elements (such as different cladding types) will affect the overall system R-value.

For an up-to-date listing of all valid and current thermal insulation product Appraisals, go to www.branz.co.nz. ◆