

WALL CLADDING APPRAISAL

The BRANZ appraisal process can verify that a wall cladding system is compliant and will be fit for purpose.

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Cladding manufacturers invest considerable time and effort introducing new systems that they are convinced will do the job. Through its Appraisal process, BRANZ can verify that claddings comply with the New Zealand Building Code and are fit for their purpose. This independent third party endorsement can reassure customers and building consent authorities on how the claddings will perform.

The Appraisal process

The BRANZ Appraisal process is a formal one, following the guidelines of ISO Guide 65 for product certification. This ensures that all steps and decisions are traceable and transparent. It also ensures an outcome that can be relied upon by the end users of the Appraisal Certificate.

When an application is made to BRANZ for an Appraisal, the first step is to determine the system's scope of use and all of its components and accessories. From this, the Building Code performance requirements that the system must meet are identified and the evaluation criteria for the Appraisal are developed. Figure 1 outlines the different stages of the Appraisal process.

Appraisals for wall cladding systems fall into two categories: one for buildings that fall within the scope limitations of the Building Code Acceptable Solution E2/AS1, and the other for buildings outside the scope of E2/AS1.

Buildings within the scope of E2/AS1

Buildings that fall within this category are typically residential and light commercial buildings. The Appraisal process for cladding systems for these building types examines several aspects.

TESTING FOR WEATHERTIGHTNESS

First, BRANZ tests all cladding systems for weathertightness, with the only exception being single storey brick veneer. The basis of the Appraisal criteria comes from E2/AS1.

Claddings are either installed over a 20 mm drained cavity, or direct-fixed to the frame. The Appraisal criteria are different for each scenario. Where the cladding incorporates a drained cavity, it is tested to E2/VM1, the weathertightness verification method contained within the Building Code compliance document for external moisture. Where the cladding is installed direct-fixed, BRANZ completes an assessment of the cladding system's weathertightness performance limits to enable

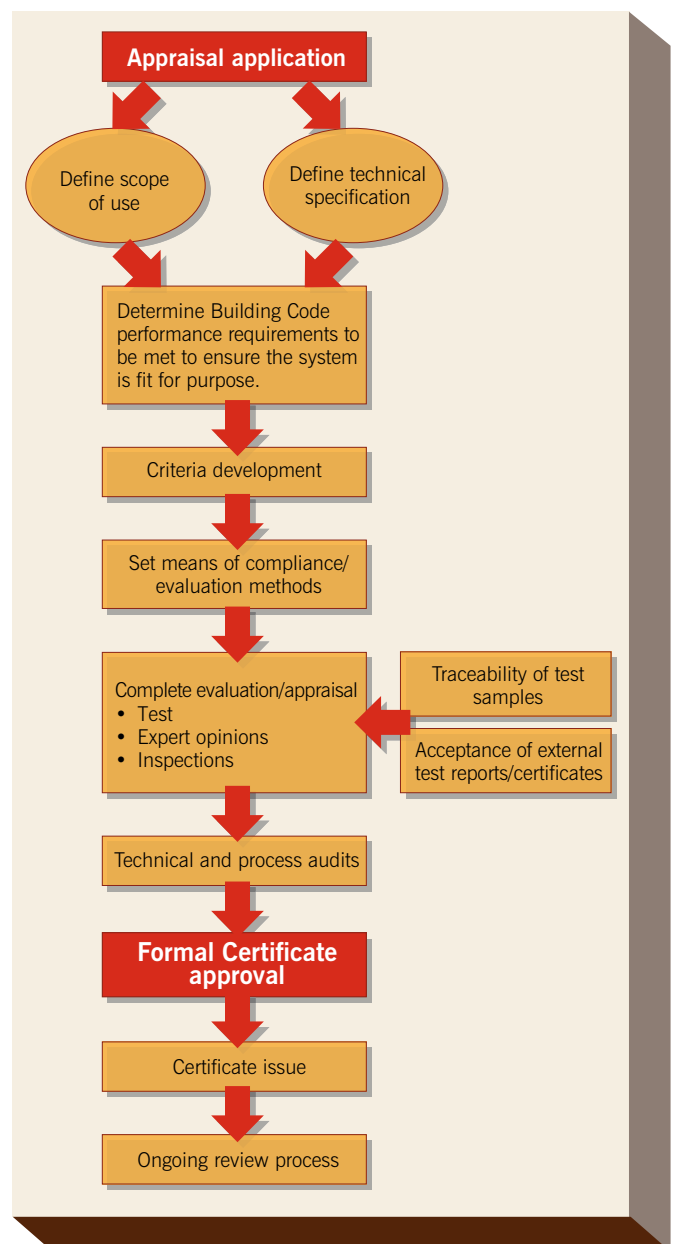


Figure 1: BRANZ Appraisal process flow chart.

a comparison to be made against claddings contained within the Acceptable Solution.

This testing is carried out for several reasons. First, Appraisals of proprietary cladding systems cover considerably more details than those covered by E2/AS1. Typically, BRANZ evaluates and offers an opinion on 20–30 different installation details. Second, subtle variations in the installation detailing of the system can lead to a cladding that leaks. Finally, the weathertightness testing verifies the performance of the interface between the cladding system and cladding penetrations, such as window joinery.

OTHER ASPECTS EVALUATED

In addition to the weathertightness assessment, several other equally important aspects of the cladding system are evaluated. First, most cladding systems are tested in some way for resistance to wind loading and impact. Heavy monolithic claddings are tested for earthquake and serviceability loading and in some cases for other movements such as thermal or moisture.

Cladding systems are also evaluated for durability. This can be complex where the materials that make up the system have little history in our climate, but BRANZ does hold the majority of the building product durability expertise in New Zealand. Durability assessment is very broad based as it covers all of the Building Code properties the cladding system must continue to meet over its serviceable life. It includes all of the system's components and accessories, including fixings, flashings and the interface with the rest of the building. It also includes how the cladding system will weather and the ongoing maintenance that will be needed.

Texture-coated fibre-cement sheet is a special case. These systems, including proprietary jointing and texture-coating systems, must be tested to BRANZ EM4 to demonstrate they can meet the performance requirements of the Building Code.

Spread of fire is also checked where the cladding system's scope of use is not restricted to more than 1 m from the boundary, and assessment of the system's peak rate of heat

release and total heat released is required. This is done through cone calorimeter fire testing.

BRANZ also checks that the cladding system will not cause any moisture related problems, i.e. it will allow excess moisture present at the completion of construction to dissipate without permanent damage to the building elements and also that it does not create condensation problems. In some instances, the cladding system is able to assist with the thermal performance of the building and this is also reviewed.

Buildings outside E2/AS1

Buildings that fall outside the scope of E2/AS1 are typically commercial. Appraisal criteria for cladding systems for these buildings are very scope-of-use-specific.

Weathertightness verification testing to E2/VM1 is not relevant for commercial structures, which must instead be completed in accordance with AS/NZS 4284: 1995 *Testing of building facades*.

Other areas of assessment are:

- structural fixing for resistance to wind loads
- resistance to earthquake and other movement
- durability of the cladding, fixings, sealants, flashings etc
- weathering and serviceable life
- fire safety
- design
- practicability of installation
- quality.

A BRANZ Appraisal of these systems will provide the designer and the building consent authority with the basis for the design and approval of the cladding, especially the durability, structural fixings, inter-panel weathertightness, and fire properties. However, in *all* multi-storey construction, specific design by competent experts will also be required for each building.

Review of technical literature

The review of cladding systems supporting technical literature is a very important part

of the evaluation process. The literature must provide clear guidance for designers and installers.

Construction site inspections are completed as part of every Appraisal. The site inspections check that the literature contains clear installation information and that the system can be installed as intended by people with the relevant skills.

The Appraisal process requires that there are adequate quality control procedures in place for the manufacture and/or fabrication of the system. The manufacturing quality will be inspected and checked regardless of whether the system's components and accessories are manufactured locally or overseas. This is also where the properties of the product as manufactured are compared to those tested and supplied to the market.

Ongoing validity

Following the successful completion of a BRANZ Appraisal, BRANZ carries out ongoing surveillance of the cladding system. This monitors aspects such as quality control, specifications, field performance, technical literature and any changes to codes and standards.

Timing

If all the required information is available, an Appraisal Certificate can be produced in around 12 weeks. However, other factors such as testing, ongoing product development, durability evaluations, technical literature development, implementing manufacturing quality procedures, delays in sourcing and supplying information, and marketing issues can typically increase the time between six and 12 months.

Provided the system manufacturer/ marketer has adequate supporting information available, a BRANZ Appraisal is a straightforward, cost-effective process. It is only when the supporting information is insufficient that time and costs can increase. ❖