

PROPRIETARY CLADDING SYSTEMS

Proprietary cladding systems are now the norm. It's important that when a system is selected, the total system is used and all the manufacturer's instructions and specifications are followed.

By Mike Reed, BRANZ Technical Manager

When selecting a cladding product, designers have three options: a proprietary cladding system; a generic product covered by a compliance document; or something in between. The in-between option is made up either by the designer or the builder, and therein lie traps for the unwary.

Cladding options were once limited

In the past, the designer's options for cladding were limited to materials like brick, weatherboards, hardboard, asbestos cement, tiles, slate, copper, lead, corrugated iron and bitumen sheet. Manufacturers' instructions were thin on the ground. Such materials were usually supplied as generic materials to a standard and were installed by trained tradespeople and craftspeople.

After the Second World War, faster construction times and reduced costs were needed to cope with burgeoning population growth. New building materials started to enter the market. These were not generic materials – they were products made of physically different materials that needed to be worked and handled differently. There were different shapes and profiles, which meant that special jointers, flashings and fixings needed to be made or supplied. It soon became obvious that methods of construction needed to change.

Birth of cladding 'systems'

And so the proprietary cladding system was born, where manufacturers designed and supplied a range of components to enable their

products to be assembled on site to make a total cladding system.

At the start, this seemed to be working, mostly due to the skilled tradespeople of the time. Even the boom housing of the 1970s seems to have survived, mostly as a result of the shape and size of the houses. In reality, only lip service was paid to manufacturers' information. It was common practice for builders to make up their own flashing and sealing details on site with a variety of materials. Then the wonder material called sealant replaced the need for bending

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pieces of metal into flashings.

Into the 1980s, more cladding systems became available, and they became more complicated, as did the manufacturers' literature. Bigger houses incorporated more complicated shapes and architectural styles.

Builders left to 'get on with it'

It was typical at that time for the project building contract drawings to show very little detail for the cladding, usually referring to the cladding manufacturers' literature. The builder was left to get on with it, and it was common for them to substitute specified claddings, make up their own details and to mix and match products and materials.

This was all very well until things went wrong. If the manufacturer's instructions had not been followed or a mixture of materials were used, manufacturers could walk away and leave the builder with the problem.

E2/AS1 sets minimums

It was not until the 'leaky homes' crisis that the real importance of proprietary systems was highlighted. It can be argued that this came about because of the need to be able to apportion responsibility and liability. The Department of Building and Housing produced the compliance document for New Zealand Building Code Clause E2 *External moisture*, which presented a range of prescriptive cladding Acceptable Solutions.

The cladding range and the extent of details provided is possibly the most comprehensive of any Building Code document in the world. But E2/AS1 still does not cover the whole range of products on the New Zealand market, nor does it contain all the details necessary to build buildings. It does, however, set a template for the minimum requirements to put a cladding system together.

Councils (Building Consent Authorities) have the responsibility of issuing consents and Code Compliance Certificates. For them to do their job properly, all the components of a cladding need to be specified and identified. They also need to know the way in which the cladding is to be assembled and installed, plus they need some form of traceable verification that the cladding will perform to the Building Code performance requirements.



Example of a BRANZ Appraised cladding system

For generic products, this can be via an Acceptable Solution, but somebody still has to work out the details that are not prescribed in the Acceptable Solution and pull it all together. This is the designer's job, but if information is lacking, it can be a complicated and risky way of doing things.

Proprietary cladding systems reduce risks

The best solution is for one identity to take responsibility for the design of the total system. This is where the proprietary cladding system comes in. The manufacturer or the marketer designs the total system. The system's scope of use is specified: the type of building and structure it can be applied to, the maximum wind exposure and any limitations on size, pitch and shape that might apply. How all the components and materials are to be assembled and installed on site is specified.

Comprehensive detailing is now contained in most manufacturers' technical literature. This makes the job for the designer much more straightforward and risk adverse. It also defines the materials and methods for the builder to use.

All this detail provided by the cladding system proprietor should be traceable back to the testing of the system to demonstrate its compliance to the Building Code – testing such as NZBC E2/VM1 for weathertightness, structural for wind face loading and serviceability racking, and durability for in-service performance. This is important for the Building Consent Authority and their Code compliance processes.

Stick to the specs and instructions

Using the total system is important. It isn't always obvious what has taken place during the testing and development of the cladding system. Sometimes, what is seen as a minor change can seriously upset the performance of the system.

The proprietor has put a lot of effort into verifying their system to ensure that it can be reliably constructed and installed on site and that it will comply with the Building Code performance requirements. The materials have been specified for their performance and compatibility and the fixings for their proven structural strength and durability. The type of window frame profiles will have been tested for weathertightness. All the details have been minutely examined.

Some designers feel such systems restrict their design flexibility and builders' options for the supply of materials (and the associated costs when restricted to certain products), but it's all a matter of who wants to take responsibility. Deviating from a proprietary system will transfer some responsibility and liability to those that make and approve the changes.

The Building Consent Authorities' job of determining Code compliance is so much easier if the consent documents and the technical literature have been followed. So why take the risk? Stick to the manufacturer's instructions and specifications. And if you specify BRANZ Appraised cladding systems, you know that the manufacturer's technical literature has been thoroughly reviewed and that the information is traceable back to thorough testing. ♦