

Medium-rise compliance

Going higher may help to provide much-needed housing, but there are concerns about how to demonstrate compliance when the guidance is often limited to buildings up to 3 storeys.

BY GREG OVERTON, BRANZ BUILDING PERFORMANCE ENGINEER

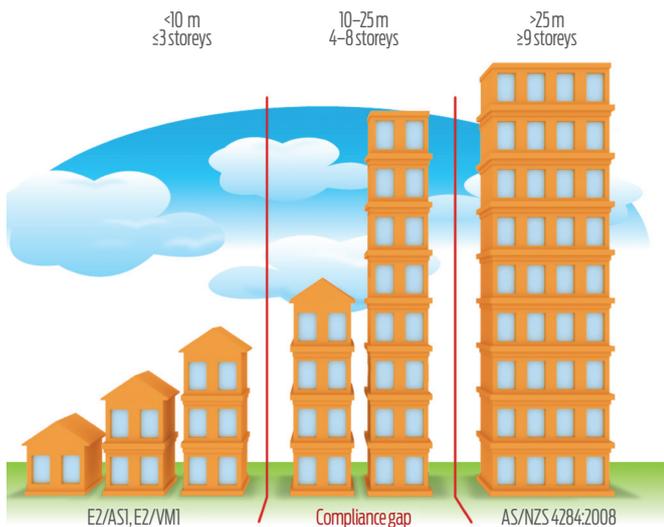


Figure 1: Medium-rise buildings currently have unclear compliance pathways for several clauses of the Building Code, including E2 External moisture.

TALLER BUILDINGS, such as apartment blocks, are one answer to the push for higher housing density in areas such as Auckland. However, buildings taller than 3 storeys (particularly those in the 4-8 storey range) currently pose challenges for the industry. These include how to demonstrate compliance with the Building Code at the consenting stage and how to deliver a building that actually works.

Compliance gap for medium-rise

Let's consider the issue of weathertightness or, more specifically how to demonstrate that a medium-rise building will meet the requirements of clause E2 *External moisture* of the Building Code.

Acceptable Solution or Alternative Solution

The basic approach is to use either an Acceptable Solution or an alternative method (this becomes an Alternative Solution when consented).

The scope of E2/AS1, the Acceptable Solution to clause E2, is limited to buildings of 3 storeys or fewer, so all medium-rise buildings fall outside this. This leaves an alternative method, which can be achieved in several ways. However, each way of proving an alternative method currently has some issues associated with it. What we find is that we have a compliance gap for medium-rise buildings.

Verification Methods and other testing limitations

One way of demonstrating that an alternative method complies with the Building Code is to use a Verification Method. For weathertightness, the existing Verification Method, E2/VM1, is also limited to buildings of 3 storeys or fewer, and so isn't directly applicable.

Another test option is AS/NZS 4284:2008 *Testing of building facades*. This standard describes a suite of tests that can be performed on a façade that cover not just water penetration but also factors such as structural and seismic performance.

AS/NZS 4284:2008 was not developed for residential style façades, such as a multi-layered wall with absorbent cladding. It was developed for curtain wall systems. NZS 4284: 2008 is also not a deemed-to-comply option.

Expert peer review is another option

Another option is for an expert peer reviewer to look at the proposed design and comment on its likelihood of meeting the requirements of the Building Code using a producer statement.

This is a valid option, but the demand for peer reviewers currently exceeds the number available. Also, the rationale used by the peer reviewer isn't always clear to the building consent authority (BCA).

Check scope of product certification

Product certification, such as CodeMark, means that a product or system is deemed to comply with the Building Code. However, BCAs need to be satisfied that the conditions on the certificate for the CodeMark product have been met and its proposed use is within the scope of the certificate.

BRANZ Appraisals also form part of the product certification framework. Although not a deemed-to-comply option, they are often used in support of consent applications. Unfortunately for medium-rise buildings, the scope of most Appraisals is again limited to 3 storeys or fewer.

Back to first principles

Designers can demonstrate an alternative method by applying first principles. This option is rarely used by designers, and there is limited information available to support them in this process.

BRANZ looking for answers

Clearly, the industry needs improved compliance pathways for medium-rise buildings. This may include increasing the scope of E2/AS1.

BRANZ has already been active investigating the weathertightness of medium-rise buildings and is expanding this work as part of its medium-density housing research programme. This research will address some of the issues described earlier and also learn from real-life failures of existing medium-rise buildings.

Even if there was a clear compliance pathway for medium-rise buildings, we are still left with the more important question of how to deliver a building that actually works. Learning from the experience of prominent façade consultants is a sensible place to start (see *Build 145, Avoiding risky behaviour*), along with utilising an increased amount of field testing or commissioning.

Ultimately, the biggest factors in delivering quality medium-rise buildings are likely to be the skills in the sector and the incentives for constructing a building that performs over its lifetime. Both of these will be investigated as part of BRANZ's wider medium-density housing research programme. ◀