

Determination 2005/120

Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 104

1 THE DISPUTE TO BE DETERMINED

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 (“the Act”) made under due authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicants are the two joint-owners, Mr and Mrs Lumb (referred to throughout this determination as “the owner”), and the other party is the Auckland City Council (referred to throughout this determination as “the territorial authority”). The application arises from the refusal by the territorial authority to issue a code compliance certificate for 6-year old additions to an existing house unless changes are made to its monolithic cladding systems.
- 1.2 The question to be determined is whether on reasonable grounds the monolithic wall cladding as installed to the majority of the timber-framed external walls of the house (“the cladding”), complies with the building code (see sections 177 and 188 of the Act). By “the monolithic wall cladding as installed” I mean the components of the system (such as the backing sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.3 In making my decision, I have not considered any other aspects of the Act or the building code.

2 PROCEDURE

The building

- 2.1 The building work consists of extensive additions to an existing house (“the house”), situated on a level site in a medium wind zone in terms of NZS 3604: 1999 “Timber

framed buildings". The resultant house is two-storeys high, and the external walls are of conventional light timber frame construction built on new concrete block foundation walls, or new or existing timber-framed floors. Apart from some panels of Cedar rusticated weatherboards, both the new and existing external walls are sheathed with monolithic cladding. The house is of a fairly simple shape, but with some complex features, with the pitched roofs having hip, valley, and wall to roof junctions. The eaves have projections ranging from 250mm to 530mm wide and the verges, apart from that to the elevation described on the plans as elevation 4, have 300mm wide projections. A timber balcony with a timber-framed balustrade is situated at the first floor level, and is constructed over a habitable area. A small timber deck and a flight of access steps are constructed at ground floor level. A monolithic-clad timber-framed chimney extends above the roofline.

- 2.2 The owner has produced invoices indicating that H1 treated timber was used on the wall framing of the house. However, this does not provide evidence as to the type of treatment that was applied to the framing timber, which might prevent or delay decay.
- 2.3 The majority of the new and existing timber-framed external walls of the house that are the subject of this determination are clad with a system that is shown on the plans to be a monolithic cladding. In this instance it incorporates 7.5mm thick Harditex sheets fixed through the building wrap directly to the framing timbers. A textured plaster is applied over the sheets.

Sequence of events

- 2.4 The territorial authority issued a building consent on 12 September 1996. There were no conditions relating to the cladding attached to this consent.
- 2.5 According to the owner, the territorial authority carried out various inspections during the construction of the house.
- 2.6 The territorial authority carried out a site inspection on 16 April 2004. In a letter to the owner dated 23 April 2004, the territorial authority regretted that the building might not comply with the building code in a number of respects. The territorial authority attached a Notice to Rectify also dated 23 April 2004 to this letter, together with a set of photographs illustrating items of non-compliance. The "Particulars of Contravention" attached to the Notice to Rectify listed requirements under the following headings:
1. Items not installed per the manufacturer's specifications;
 2. Items not installed per the acceptable solutions of the building code, (no alternative solutions had been applied for);
 3. Items not installed per accepted trade practice; and
 4. Ventilated cavity system.

The Particulars of Contravention also said that the owner was required amongst other items to:

1. Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternative approved system, and ensuring all issues related to the above are resolved...
- 2.7 As confirmed by a letter to the owner from Moisture Detection Ltd dated 11 March 2005, 36 proprietary moisture detection probes were installed throughout the house. The company recorded moisture readings from all probes and in 10 instances the readings exceeded 18%. Moisture levels above 18% at the exterior of the external walls after cladding is in place generally indicate that external moisture is entering the cladding.
- 2.8 The owner applied for a determination on 17 April 2005.

3 THE SUBMISSIONS

- 3.1 In a covering letter to the Department dated 17 April 2005, the owner noted that the house was completed in 1999, but for personal reasons the request for a final inspection/code compliance certificate was not initiated until the end of 2003. The owner noted that the house was not leaking, treated timber was used in its construction and 36 moisture detection probes had been installed.
- 3.2 The owner also forwarded copies of:
- The plans;
 - Some consent documentation;
 - The Notice to Rectify;
 - The letter and information from Moisture Detection Ltd; and
 - Invoices identifying the framing timber and other materials used on the project.
- 3.3 In a covering letter to the Authority dated 3 May 2005, the territorial authority described the Particulars of Contravention and the specific construction defects.
- 3.4 The territorial authority also forwarded copies of:
- The plans;
 - Some of the consent documentation;
 - Some of the territorial authority's inspection records;
 - The Notice to Rectify; and

- The correspondence with the owner.

3.5 Copies of the submissions and other evidence were provided to each of the parties.

4 THE RELEVANT PROVISIONS OF THE BUILDING CODE

4.1 The dispute for determination is whether the territorial authority's decision to refuse to issue a code compliance certificate because it was not satisfied that the cladding complied with clauses B2 and E2 of the building code (First Schedule, Building Regulations 1992) is correct.

4.2 There are no Acceptable Solutions that have been approved under section 22 of the Act or section 49 of the Building Act 1991 that cover this cladding. The cladding is not an Acceptable Solution approved under section 22 of the 1991 Building Act nor certified under section 269 of the Building Act 2004. I am therefore of the opinion that the cladding system as installed must now be considered to be an alternative solution.

4.3 In several previous determinations, the Department has made the following general observations, which in my view remain valid in this case, about acceptable solutions and alternative solutions.

- Some acceptable solutions cover the worst case, so that in less extreme cases they may be modified and the resulting alternative solution will still comply with the building code; and
- Usually when there is non-compliance with one provision of an acceptable solution, it will be necessary to add some other provision to compensate for that in order to comply with the building code.

5 DISCUSSION

General

5.1 I have considered the submissions of the parties, and the other evidence in this matter. The approach in determining whether building work complies with clauses B2 and E2, is to examine the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing. The Building Industry Authority and the Department have described the weathertightness risk factors in previous determinations (Refer to Determination 2004/01 *et al*) relating to monolithic cladding and I have taken these comments into account in this determination.

5.2 I am of the opinion that the detailed information supplied in the Notice to Rectify, together with the report from Moisture Detection Ltd in this case, enables me to

determine the issue without the need to appoint an independent expert to further investigate the cladding.

Weathertightness risk

5.3 In relation to the weathertightness characteristics, I find that the house:

- Has eaves or verge projections to most locations that could provide some protection to the cladding areas below them;
- Is in a medium wind zone;
- Is 2 storeys high;
- Is fairly simple on plan, but with some complex aspects, and with roofs that have hip, valley, and wall to roof junctions;
- Has one external balcony that is constructed over a habitable space; and one external deck; and
- Has external wall framing that is unlikely to be treated to a level that would help prevent decay if it absorbs and retains moisture.

Weathertightness performance

5.4 The territorial authority's Notice to Rectify describes items of non-compliance as regards the cladding, and the photographs provided by the territorial authority further illustrate these. In particular, I notice the extensive cracking evident in the cladding that these photographs show, and the presence of moisture in the external wall cavity as indicated by the recorded moisture readings. While I accept the likely accuracy of the probe readings at present I observe that the long-term reliability of the probe system is not yet proven. The installation and use of the probes should not be seen as a substitute for regular, and thorough, inspection and maintenance of the cladding system.

5.5 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I do not accept that the lack of a drainage and ventilation cavity in itself prevents the house from complying with the weathertightness and durability provisions of the building code.

5.6 I note that two elevations of the house demonstrate a medium weathertightness risk rating and the remaining elevations a high rating as calculated using the E2/AS1 risk matrix. The matrix is an assessment tool that is intended to be used at the time of application for consent, before the building work has begun and, consequently, before any assessment of the quality of the building work can be made. Poorly executed building work introduces a risk that cannot be taken into account in the consent stage, but must be taken into account when the building as actually built is assessed for the purposes of issuing a code compliance certificate.

6 CONCLUSION

- 6.1 I am satisfied that the current performance of the cladding is not adequate because of the areas of non-compliance described by the territorial authority, and the presence of moisture in the external wall cavity. Consequently, as I have received no evidence to the contrary, I am not satisfied that the cladding system as installed on the house complies with clause E2 of the building code.
- 6.2 In addition, the house is also required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the building code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the cladding faults on the house may at present, or eventually will, allow the ingress of moisture, the house does not comply with the durability requirements of clause B2 of the building code.
- 6.3 I note that effective maintenance of monolithic claddings is important to ensure ongoing compliance with clause B2 of the building code. That maintenance is the responsibility of the building owner. The code assumes that the normal maintenance necessary to ensure the durability of the cladding is carried out. For that reason clause B2.3.1 of the building code requires that the cladding be subject to "normal maintenance". That term is not defined and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular cleaning, re-painting, replacing sealants, and so on.
- 6.4 In the circumstances, I decline to incorporate any waiver or modification of the building code in this determination.

7 THE DECISION

- 7.1 In accordance with section 188 of the Act, I hereby determine that the cladding system as installed on the house does not comply with clauses B2 and E2 of the building code. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- 7.2 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring the house into compliance with the building code. The Building Industry Authority has found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance can be achieved. I concur with that view. A new notice to fix should be issued that the owners to bring the cladding into compliance with the building code, without specifying the features (in particular a cavity, although the parties may conclude that this is the best system) that are required to be incorporated. It is not for me to dictate how the defects are to be remedied. How that is done is a matter for the owner to propose and for the territorial authority to accept or reject, with either of the parties entitled to submit doubts or disputes to the Chief Executive for another determination.

7.3 Finally, I consider that the cladding will require on-going maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 August 2005.

John Gardiner
Determinations Manager