

Determination 2008/84

Refusal to amend a building consent for a house with a monolithic cladding system at 64 Beauvoir Ave, Matakatia, Whangaparaoa



1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners of the building, K and K Hasson (“the applicants”) and the other party is the Rodney District Council (“the authority”) carrying out its duties and functions as a territorial authority or building consent authority.
- 1.2 This determination arose from the decision of the authority to refuse to issue an amended building consent for use of a different cladding system, because it was not satisfied that the house would then comply with Clause E2 “External Moisture” and consequently Clause B2 “Durability,” of the Building Code² (Schedule 1, Building Regulations 1992).

¹ The Building Act 2004 is available from the Department’s website at www.dbh.govt.nz.

² The Building Code is available from the Department’s website at www.dbh.govt.nz.

- 1.3 In the application the applicants stated that the matters for determination were:
- whether the amended cladding system on the upper storey of the proposed house complies with the Building Code
 - whether the amended cladding system requires a 20mm cavity in order to comply with the Building Code
 - whether the decision of the authority to refuse to amend the building consent is correct.

1.4 In addition, during the processing of the application it became clear that the standard of the drawings submitted in support of the amendment to the building consent was also a matter for determination.

1.5 I therefore consider the matters to be determined are:

Matter 1: The code compliance of the proposed cladding

Whether the authority has reasonable grounds for believing that the house, when built as proposed in the amended consent, will comply with the Building Code

Matter 2: The drawings

Whether the drawings submitted in support of the amended consent are to the required standard.

1.6 I consider the matter to be determined falls under section 177(b)(vi) of the Act, namely:

Section 177 Application for determination

A party may apply to the chief executive for a determination in relation to 1 or more of the following matters:

- (b) a building consent authority's decision to –
- (vi) amend a building consent, notice to fix, or code compliance certificate; or

1.7 In this context I consider section 177(b)(vi) can be read as including a “decision to amend or refuse to amend” a building consent, notice to fix, or code compliance certificate.

1.8 In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

2. The building as consented

2.1 The proposed building work consists of a part two storey detached house under construction situated on a sloping site. The site is in a very high wind zone for the purposes of NZS 3604³. As currently consented, the house is to be constructed of concrete filled block walls on concrete slab and foundations to the lower story, with EIFS⁴ over light timber frame construction to the upper floor. The house is moderately complex with a lightweight proprietary shingle roof with eaves with a minimum width of 450mm.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

⁴ External Insulation & Finish System

- 2.2 On the lower floor, concrete blocks are to be plastered with a modified reinforced plaster system. On the upper floor the EIFS cladding is also to be finished with a modified reinforced plaster system, similar to that applied to the concrete blocks.
- 2.3 As originally consented, the EIFS system was to have been Thermaclad, which I assume, in the absence of any submission from the authority, incorporated a 20mm drainage and ventilation cavity.

3. Background

- 3.1 On 22 November 2007 the authority issued a building consent No. ABA-1002189 issued under the Building Act 2004. I understand construction has commenced but I have not been advised of the extent of the work, if any, done prior to the application for a determination.
- 3.2 Subsequently the applicants applied for an amendment to the building consent to use the Hitex Diamond Cavity System (“the Hitex cladding”), as the cladding to the upper storey in lieu of the Thermaclad EIFS system approved in the current consent. The Hitex cladding features grooves cut in a diamond pattern on the back of the polystyrene sheets to provide drainage and ventilation.
- 3.3 On 21 April 2008 the authority declined to issue the amendment unless the Hitex cladding was installed on a 20mm cavity as described in the Acceptable Solution⁵ E2/AS1, which the authority said would be “accepted as an alternative solution”. Alternatively, the authority said the applicants could apply for a determination, or await the outcome of another application for determination which considered a similar matter.
- 3.4 I note that while determinations are made on a case-by-case basis, a decision made in one determination may take account of decisions made in previous determinations.
- 3.5 The Department received the application for a determination on 30 April 2008.

4. The submissions

- 4.1 The applicants made a brief submission stating that the Department had received significant written material about the Hitex cladding, including standard construction details and test results, made in submissions regarding an earlier determination involving the same product.
- 4.2 The applicants forwarded copies of:
- a drawing (not stamped as a consent drawing), described as “Hitex cladding revision 03/04/08”
 - a copy of the original building consent dated 22 November 2007 issued by the authority
 - a copy of a weathertightness risk analysis for each elevation
 - a copy of an email from the authority to the applicants, dated 21 April 2008, stating that the application to amend the consent was, in effect, declined unless

⁵ An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way, but not the only way, of complying with the Building Code. The Acceptable Solutions are available from The Department’s Website at www.dbh.govt.nz.

the proposed amendment was altered to show Hitex cladding fixed over a 20mm cavity (refer paragraph 3.3).

4.3 The authority made no submission in response to the application. Copies of the applicants' submissions and other evidence were provided to the parties.

4.4 I prepared a draft determination which was sent to the parties on 11 June 2008 to provide them with the opportunity to comment and to correct any errors of fact.

4.5 The applicants responded to the draft determination on 1 July 2008. Their submission is summarised as follows:

- It was accepted by the parties that Hitex cladding is an alternative solution.
- The determination should consider how the authority reached its decision that the Hitex cladding required a 20mm cavity in order to comply with the Building Code.
- the applicants disputed that the Hitex system had not undergone an independent peer review.
- The applicants questioned the method of comparing the cavity provided by the groves in the Hitex cladding with a standard 20mm cavity.
- The draft determination did not make appropriate use of information presented to the Department with respect to another determination which was essentially about the same matter.

I have considered these comments and amended the determination accordingly.

4.6 The authority responded to the draft determination on 15 August 2008, saying that it accepted the draft.

5 The legislation

5.1 The relevant section of the Act includes:

45 How to apply for building consent

- (1) An application for a building consent must-
- (a) be in the prescribed form; and
 - (b) be accompanied by plans and specifications that are-
 - (i) required by regulations made under section 402; or
 - (ii) if the regulations do not so require, required by a building consent authority; and
 - (c) contain or be accompanied by any other information that the building consent authority reasonably requires...

49 Grant of building consent

- (1) A building consent authority must grant a building consent if it is satisfied on reasonable grounds that the provisions of the building code would be met if the building work were properly completed in accordance with the plans and specifications that accompanied the application.

5.2 The relevant sections of the Building Code include:

Building Code Clause E2 External moisture

- E2.3.2 Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements, or both.
- E2.3.5 Concealed spaces and cavities in buildings must be constructed in a way that prevents external moisture being accumulated or transferred and causing condensation fungal growth, or the degradation of building elements.
- E2.3.6 Excess moisture present at the completion of construction, must be capable of being dissipated without permanent damage to building elements.
- E2.3.7 Building elements must be constructed in a way that makes due allowance for the following:
- (a) the consequences of failure;
 - (b) the effects of uncertainties resulting from construction or from the sequence in which different aspects of construction occur;
 - (c) variation in the properties of materials and in the characteristics of the site

Building Code Clause B2 Durability

- B2.3.1 Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified life of the building, if stated, or:
- (a) The life of the building, being not less than 50 years, if:
 - (i)
 - (b) 15 years if:
 - (ii) Those building elements(including the building envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or
 - (iii) Failure of those building elements to comply with the building code would go undetected during normal use of the building, but would be easily detected during normal maintenance.
 - (c) 5 years if:
 - (i)

Matter 1: The code compliance of the proposed cladding

6 The means of establishing code compliance

- 6.1 Establishing whether a cladding complies with the Building Code in a particular case can be done by considering one or more of the following:
- a comparison with the appropriate Acceptable Solution
 - an assessment of weathertightness risk for the building concerned
 - the decisions made in previous determinations
 - a technical assessment of the product and the construction details
 - the quality control procedures to be followed in the cladding's installation.

6.2 Comparison with the Acceptable Solution

- 6.2.1 In evaluating the design of a building it is common practice to make comparisons with the relevant Acceptable Solution⁶, in this case E2/AS1, which will assist in determining whether the features of this house are code compliant. Compliance with E2/AS1 is not a mandatory requirement under the Building Code, so if any detail is not in accord with E2/AS1 that does not mean that it does not comply with the Code. In making a comparison with E2/AS1, the following general observations are valid:
- Some Acceptable Solutions are written conservatively to cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
 - When there is non-compliance with one provision of an Acceptable Solution a process is required to evaluate the building as an alternative solution. It will then be necessary to look for one or more other provisions to compensate for that in order to comply with the Building Code.
- 6.2.2 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of 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 Department and its antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations⁷ (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.
- 6.2.3 Acceptable Solution E2/AS1 provides for a 20mm cavity to be installed behind EIFS cladding in situations in which there is a moderate or higher weathertightness risk. The Hitex cladding system does not have a 20mm cavity so it does not comply with E2/AS1 for claddings with a greater than moderate weathertightness risk.
- 6.2.4 As outlined in paragraph 6.2.1, one approach to take when considering a cladding that does not comply with some aspects of E2/AS1 is to identify those aspects of the proposed system that do not comply with E2/AS1, and then to consider whether there are any features in the proposed system that would compensate for that non-compliance. In this case the non-compliant detail is the use of the Hitex cladding rather than a battened 20mm cavity system. In most other respects the construction details are in accordance with the details published in E2/AS1.
- 6.2.5 I have been presented with no evidence to suggest that the Hitex cladding, as it intended to be installed on this house, demonstrates any inherent weaknesses that are likely to fail to prevent the penetration of moisture.

6.3 Weathertightness risk

- 6.3.1 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions may be less

⁶ An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way, but not the only way, of complying with the Building Code. The Acceptable Solutions are available from The Department's Website at www.dbh.govt.nz.

⁷ Copies of all determinations issued by the Department can be obtained from the Department's website.

robust. In any event, there is a need for both the design of the cladding system and its installation to be carefully carried out.

6.3.2 In relation to these characteristics I find that this house:

- is to be built in a very high wind zone
- is to be a maximum of two stories high
- is moderately complex in plan and form
- will have eaves that provide protection to the upper storey walls
- generally has cladding to the upper storey with grooves on the reverse face, that will provide some ventilation and drainage of trapped moisture
- will have external wall framing that is treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

6.3.3 The house has been evaluated using the E2/AS1 risk matrix (refer paragraph 4.2). The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting level of risk can range from 'low' to 'very high'. The risk level is applied to determine what cladding can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

6.3.4 When evaluated using the E2/AS1 risk matrix, two elevations of the house demonstrate a low weathertightness risk rating, one a medium weathertightness rating and one a high weathertightness rating. The walls with a medium and high weathertightness risk rating would require a drained and ventilated cavity to comply with the current requirements of E2/AS1.

6.3.5 However, I note that the wall with a high weathertightness rating includes an enclosed deck which raised the risk rating from medium to high. The design of the deck is such that it does not in fact affect the weathertightness of the adjacent walls at the upper storey (the deck is built on a concrete floor slab and the balustrade is separated from the cladding and fixed only to the concrete slab).

6.4 Previous determinations

6.4.1 Determination 2008/53 considered the code compliance of a house where the Hitex cladding had been installed. That house contained similar construction to that featured in the house that is the subject of this determination and had a similar level of weathertightness risk. The Determination found that the completed Hitex cladding complied with Building Code Clauses E2 and B2.

6.4.2 In a significant number of other determinations the Department has found that EIFS cladding systems have met the requirements of Clause E2 in moderate risk situations without the EIFS system incorporating a 20mm cavity.

6.5 Technical assessment

6.5.1 In the material provided by the applicants is a review, by an independent consultant, of research done on the Hitex cladding. The consultant reviewed drainage and drying research and tests, and moisture content monitoring of some houses that had used the Hitex cladding. The consultant concluded that the Hitex cladding provides

both drainage and drying and, as an alternative solution, can meet the performance requirements of Building Code Clause E2 External Moisture.

6.6 Quality control procedures

- 6.6.1 I consider it is reasonable to take into account the extent to which the building work is likely to be subject to quality control procedures for the manufacture of the product and construction of the work and the extent to which it is possible to be confident that those procedures are adequate and will be faithfully observed. The presence of good quality control procedures will diminish the risk of failure of those parts of a building subject to those procedures.
- 6.6.2 I consider that the Hitex cladding is associated with an appropriate level of documented quality control by the company, including quality control of the installation process. I consider that the quality of installation assured by that process is likely to reduce the risk of moisture penetration through the cladding system.

7 Conclusion

- 7.1 I have taken account of the evidence submitted by the applicants concerning the proposed cladding to this house. I note the absence of any evidence to suggest that the cladding will not be installed in accordance with the manufacturer's instructions and subject to the manufacturer's quality control procedures described in paragraph 6.6.2. I also note that the authority has provided no evidence to suggest that the proposed cladding, if considered as an alternative solution, could not comply with Clauses E2 and B2 of the Building Code.
- 7.2 I conclude that the Hitex cladding when installed on the upper walls of this house, which I consider all to have either a low or medium weathertightness risk, will comply with the Building Code Clause E2 External Moisture. In addition, I consider that compliance with the Building Code will be achieved irrespective of whether the Hitex cladding is installed over a 20mm cavity or not.
- 7.3 I emphasise that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system may be established as being code compliant in one situation does not necessarily mean that the same cladding system will be potentially code compliant in another situation.

Matter 2: The drawings

8 Discussion

- 8.1 Plans submitted in support of a building consent, or an amendment to a consent, must provide sufficient information to show the authority, and the builder, how compliance is to be achieved and to show how joints, intersections and other details are to be constructed. It is not sufficient to supply a catalogue of details, some of which might apply to other buildings, and expect the authority or the builder to work out which ones are relevant to the building in question.
- 8.2 Until the documentation requested by the authority has been supplied, the authority is entitled to refuse to amend the consent. Without adequate documentation, the authority cannot be satisfied on reasonable grounds that the provisions of the Building Code will be met if the proposed building work is completed in accordance

with the plans and specifications that accompanied the application to amend the consent (see sections 45 and 49 of the Act).

8.3 I note that the Department has also provided guidance information on how to apply for a building consent which includes information on the preparation of drawings⁸.

9 Conclusion

9.1 I consider that the authority is entitled to require the applicant to clearly demonstrate how compliance is to be achieved, and for this to be documented to the authority's satisfaction. I conclude that the provision of revised drawings are reasonable in this case.

10 The Decision

10.1 In accordance with section 188 of the Building Act 2004, I determine that:

- the decision of the authority to refuse to issue an amendment to the building consent is correct, and
- the amendment to the building consent is to be issued once the authority is satisfied with the standard of documentation submitted in support of the amended consent.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 17 September 2008.

John Gardiner
Manager Determinations

⁸ Guide to applying for a building consent (simple residential buildings): Department of Building and Housing, January 2007