



## Determination 2013/050

# The refusal to grant a building consent for retrofitting foam wall insulation in a house at 192 Vinegar Hill Road, Kamo

### 1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to this determination are:

- the owners of the house, R and D Humphries (“the applicants”) acting through a building consultancy business as their agent (“the agent”)
- Whangarei District Council, carrying out its duties and functions as a territorial authority or a building consent authority (“the authority”).

1.3 Airfoam Wall Insulation Limited and Airfoam Wall Insulators (Northland) Limited are considered persons with an interest in this determination on the grounds of being the proprietary system provider and installer respectively. I have referred to both companies as “the insulation provider”. I note that the insulation provider also represented the applicant for the purposes of the building consent application.

1.4 The determination arises from a decision made by the authority to refuse to grant building consent for proposed building work that consisted of retrofitting urea formaldehyde foam insulation (“the insulation”) in the external walls of the applicants’ house. The authority is of the view that the installation will not comply with Clauses E2.3.5 and E2.3.6 of the Building Code (Schedule 1, Building Regulations 1992)<sup>2</sup> to the extent required by the Act.

1.5 Therefore, the matter to be determined<sup>3</sup> is whether the authority correctly exercised its powers in refusing to grant a building consent. In considering this matter, I must consider whether there was sufficient evidence provided in the building consent application for the authority to conclude on reasonable grounds that the building work and the existing building (as altered) would comply with Clauses E2.3.5 and E2.3.6 of the Building Code to the extent required by the Act.

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<sup>1</sup> The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.dbh.govt.nz](http://www.dbh.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> In this determination, unless otherwise stated, references are to sections of the current Act and references to clauses are references to the Building Code

<sup>3</sup> Under sections 177(1)(b) and 177(2)(a) of the Act

- 1.6 In making my decision, I have considered the submissions of the parties, and other evidence in this matter. I have not considered any other aspect of the code compliance of the building work. I emphasise that each determination is conducted on a case-by-case basis.

## **2. The building work**

- 2.1 The house has been described by the insulation provider as being built ‘well before 1940’, with extensive renovations carried out around 1940. It is a single storey detached dwelling located on a lifestyle block of gently sloping land. The exterior walls are clad in Kauri weatherboards, which are directly fixed to the external wall framing (which is also believed to be untreated heart Kauri) without building paper. The corrugated iron roof has eaves of approximately 600mm. The joinery is wooden throughout, and there are two brick fire places.
- 2.2 The building work consists of making a series of holes in the external walls through the weatherboards and pumping insulation into the walls to improve the thermal performance of the house. The holes in the external walls are subsequently plugged and a drying regime is followed while the insulation cures.

## **3. The background**

- 3.1 As noted in paragraph 1.3, the insulation provider, on behalf of the applicants, applied for a building consent on 16 July 2012 to retrofit the insulation. I have not seen a copy of the building consent application form, but the covering letter states that the building work consists of that described in paragraph 2.2.
- 3.2 The documents that were part of the building consent application were as follows:
- A design summary documenting how the building work and existing building would achieve compliance with clauses B1, B2, C1, C2, C3, E2, F2, G9 and H1 of the Building Code. (I note that this design summary is a general summary of the product methodology and is not specific to the particular installation.)
  - An undated ‘Existing Building Investigation’ report, completed following an assessment carried out by the insulation provider to determine if the house was suitable to have insulation installed (refer paragraph 3.4 “the assessment report”).
  - A floor plan showing where insulation would be installed, where invasive moisture testing would be carried out after installation ‘to demonstrate that construction moisture is dissipating’, and the positions of smoke alarms and windows.
  - Proof of the applicants’ ownership of the property.
- 3.3 In addition, the insulation provider noted that a ‘compliance management report’ would be filed with its application for a code compliance certificate for the building work. The report would include:

- results from invasive moisture testing carried out to ensure construction moisture was dissipating
- evidence that smoke alarms had been installed
- evidence that the installation holes had been properly repaired
- evidence that installation had not affected the ongoing compliance of the building
- a copy of the insulation guarantee, and a letter from the owner undertaking to apply a suitable coating to the cladding.

### **3.4 The assessment report**

3.4.1 The assessment report covered items relating to the performance of the existing building, including the electrical wiring, fire-rated walls, fixed appliances and smoke alarms, structural stability, internal moisture and weathertightness.

3.4.2 The assessment report included the following comments (in summary):

- the weatherboards appear well fixed and sound and were painted approximately eight years ago; there is no evidence of leaks
- the house has PVC wiring
- there is wooden joinery throughout, with no signs of cracks, leaks or rot
- there is adequate subfloor ventilation
- the interior is in need of renovation; the internal wall linings, although old, are ‘sound’ and there is no evidence of mould
- roof and gutters are ‘ok’
- overall, the house appears to be ‘in sound condition’.

3.5 In an email dated 26 July 2012, the authority requested further information to demonstrate the proposed building work’s compliance with Clauses B1, B2, E2, F2 and G9 of the Building Code. The authority noted that there was not sufficient information provided as to

- how often moisture readings would be taken, whether the probe locations would be a fair representation of the drying process for the whole house, how long moisture was to be monitored for, the contingency plan should moisture content remain high, and what is a reasonable timeframe for moisture content to return to EMC<sup>4</sup>
- whether the installation of the insulation will affect the weathering of the building in a way that would reduce compliance with Clause E2
- the procedure for ventilation during curing for compliance with Clause F2 (the installation manual was not provided)
- possible negative effects and mitigation in relation to electrical wiring.

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<sup>4</sup> Equilibrium Moisture Content

- 3.6 The insulation provider responded in a letter dated 7 August 2012, noting that the moisture monitoring would continue until such a time as there was evidence that the moisture had dissipated. The authority also received a statement on 11 August 2012 from a registered electrical inspector as regards the wiring. Correspondence continued between the parties about various aspects of the proposed building work's code compliance.
- 3.7 In a letter dated 26 February 2013, the authority refused to grant the building consent for the proposed building work on the grounds that the applicants had not established compliance with Clauses E2.3.5 and E2.3.6 of the Building Code. In particular the authority stated that there was:

**An absence of any product testing or appraisal that supports the performance claims of [the insulation provider] regarding moisture management within the wall cavity.** It is undetermined how compliance with performance criteria of clause E2.3.5 of the New Zealand Building Code will be maintained to the same extent as before the alteration, as required by S. 112 of the Building Act 2004...

**[The authority] is not of the opinion that the matrix detailed in the '[insulation provider's] NZ Building code Compliance Documentation (v4.0), indicates compliance with NZBC clause E2.3.5...** Additionally, while the document was provided in support of this application, a matrix assessment has not been submitted for the subject house. Four of the six [factors listed in the Ministry's guidance document] apply to the subject house, which raises sufficient concern to suggest that compliance with this clause to the extent required by S112 of the Building Act may not be met...

**[There are] unresolved details of the post-installation drying of [the insulation], the monitoring, and compliance with clause E2.3.6 of the New Zealand Building Code.** Given that you proposed to provide evidence of monitoring of the post-installation drying process to confirm compliance with E2.3.6 as the only means of confirming compliance with the clause, [the authority] is not satisfied that the proposal to monitor the drying is adequately detailed in its approach.

(Emphasis is the authority's.)

- 3.8 On 28 February 2013, the insulation provider resubmitted its application for a building consent for the proposed building work. The application was supported by updated information including:
- a new report on the existing house, containing, in addition to the information included with the original building investigation report:
    - the results of invasive moisture probe readings taken in the kitchen (three readings all around 15%), on the house's northern elevation
    - noting the majority of the house is elevated over piles with free flow of air via beneath the timber deck; no vents present at the 'front' of the house where ground clearance is minimal (250mm)
    - the results of an 'Evaluation of compliance with E2.3.5' using the risk matrix tool included in the insulation provider's compliance manual
- The report concluded that the house was suitable to have urea foam insulation retro-fitted in it

- a statement as to how ‘compliance will be met and demonstrated’ with respect to the building work and the existing building, noting
  - invasive moisture readings to be taken on the slowest drying elevation to demonstrate that construction moisture had dissipated, with the application for a code compliance certificate made when evidence shows moisture has dissipated; readings to be taken pre-installation, at installation and two dates post-installation
  - the process for sealing the installation holes described in the ‘evidence of compliance with building consent’ report (see below) and the application for a code compliance certificate to be made after the exterior has been coated
  - the ventilation pathway noted on the floor plan, and ventilation process described in the insulation provider’s manual
- a new floor plan showing where insulation would be installed, where invasive moisture testing would be carried out after installation, and the positions of smoke alarms and windows
- a blank copy of an ‘Evidence of compliance with the building consent’ report, which would be filed with the application for a code compliance certificate. When complete, the report would contain evidence of post-construction moisture readings, how the penetrations in the external cladding had been repaired, and when construction vapour had cleared
- a copy of the insulation provider’s ‘NZ Building Code compliance documentation for timber, fibre cement and stucco claddings’, dated February 2013. This included a risk matrix tool for assessing the likelihood that the existing building would continue to comply with Clause E2.3.5 of the Building Code after the building work had been completed and detailed information about how compliance with Clause E2.3.6 would be achieved.

3.9 The insulation provider responded by letter dated 1 March 2013 to the authority’s letter of 26 February. With respect to compliance with Clause E2.3.6, the insulation provider stated that:

- moisture readings are taken in preparation for the building consent application and would then be taken on the day that the insulation was installed, and again within 2 months; if pre-installation moisture levels had not been reached at this second reading, then a further reading would be taken 4 weeks later
- further moisture readings on the house’s southern elevation would be taken the day before installation
- where moisture levels remain high there is an escalation policy detailed in the insulation provider’s compliance manual
- the monitoring of moisture is sufficient as a means of demonstrating compliance; ‘a number of determinations [have] concluded that the process for monitoring post construction moisture levels is acceptable’.

3.10 With respect to compliance with Clause E2.3.5, the insulation provider stated that it used the risk matrix tool ‘to demonstrate how each of the factors [is] considered’.

The insulation provider also identified those factors it considered decreased or increased the risk of non-compliance with Clause E2.3.5 as follows:

Decreasing risk of non-compliance

- The house was constructed pre-1940 and is not very airtight
- I believe the framing is heart Kauri
- 3 elevations of the house are elevated thereby allowing an excellent airflow, which provides adequate cross flow ventilation. In support of this I saw no evidence of dampness underneath the house
- The weatherboard cladding is well maintained, and
- Permeable internal linings have been used throughout the house

Increasing the risk of non-compliance

- No building wrap has been used under the external cladding.

3.11 Based on this assessment the insulation provider concluded that the house, despite the absence of building wrap, is at a low risk of water ingress and non-compliance and that the installation of the insulation would not increase the risk.

3.12 The authority responded in an email dated 7 March 2013, in which it repeated its decision to refuse the application for a building consent.

3.13 The applicants' agent subsequently applied for a determination on behalf of the applicants and the application was received by the Ministry on 15 April 2013. With the application, the agent provided copies of:

- the original building consent application, together with its supporting documentation
- correspondence between the parties
- the revised building consent application dated 28 February 2013, together with its supporting documentation
- the latest version of the insulation provider's *NZ Building Code Compliance Documentation (for timber, fibre cement & stucco claddings)*, dated February 2013.

## 4. The draft determination and submissions

4.1 On 24 May 2013, I issued a draft determination to the parties for their comments.

4.2 The applicants responded in an email dated 28 May 2013, advising that they accepted the draft determination. The applicant also requested that I rephrase the wording of my decision to better reflect the matter to be determined.

4.3 The authority responded on 13 June 2013 that it did not accept the draft determination. In an accompanying letter, the authority requested that the determination limit itself to considerations under section 177(1)(a) of the Act, namely whether the proposed building work complies with the Building Code, and not consider the authority's exercise of its powers under section 177(1)(b). However, the applicants requested a determination about the exercise of the authority's powers;

accordingly I have not amended the matter to be determined as described in paragraph in paragraph 1.5. However, in considering the exercise of the authority's powers I have also had to consider the code compliance of the building work, and the outcome of my decision in that respect would be the same.

- 4.4 The authority also commented that the information supplied by the applicants after the authority's letter of 26 February 2013 refusing to grant a building consent should not be taken into account for the purposes of the determination.
- 4.5 The information was supplied as part of the application for a determination and under sections 186(1)(c) and 186(5) of the Act I must receive and consider it. My assessment of the adequacy of the information supplied by the applicants in support of their application for a building consent is set out in paragraphs 5.4 and 5.5 of this determination. I note that the authority itself received and considered this information, before confirming its decision to refuse the application in an email on 7 March 2013; accordingly I am of the view it is relevant to both the authority's decision and the code compliance of the proposed work.
- 4.6 The authority raised several other matters to do with the code-compliance of the building work and the compliance information supplied by the applicants, in particular the risk matrix tool. I have taken these comments into account in the discussion and in making my decision.
- 4.7 In regards the Ministry's approach in the determination, the authority submitted that:
- The Ministry's determinations contain insufficient guidance and are not backed up by expert advice; the Ministry has not sought the opinions of technical experts with respect to the insulation's compliance with Clause E2.3.5 (water accumulation and transfer) and past determinations 'simply give individual viewpoints on technical issues', and 'give virtually no reasons for the judgments given'. The authority's 'objective' in being a party to this determination is to 'seek information and understanding' about the technical issues associated with the insulation that it can then apply in other situations.
  - The authority is concerned that the Ministry has not given adequate weight to the BRANZ tests, and that these findings are not referred to in the determination. (See page 3 of the authority's submission; second bullet point.)
  - The authority does not understand how the determination can make certain statements about the performance of the insulation with respect to Clause E2.3.5, thinks they are 'speculative' and queries what technical information/expert opinion/testing they are based on.
  - The authority also considers that limiting the determination to the facts of this case makes it difficult for authorities to get guidance from it, and requests the Ministry revise the decision 'to fully outline the considerations of installations without building paper/wrap'.

- 4.8 In response to the points raised by the authority in its submission, I note that:
- Determinations are decided on a case by case basis. The Ministry has issued guidance through numerous determinations and general guidance on retrofitting insulation, and has also conducted an internal study on the insulation and commissioned two experts to report on it in relation to a previous determination (2008/35). It is the authority's responsibility to look at available information and make a reasonable grounds assessment.
  - The Ministry is aware of the BRANZ study; however I note the study has limited scope and is unsupported by other evidence, in particular the record of satisfactory performance of this insulation and that of similar insulation products used overseas (refer also Determination 2008/35).
- 4.9 The Ministry received a letter dated 14 June 2013 from the applicant's agent responding to the authority's submission. The agent submitted that
- the matter was correctly framed in the draft
  - the authority's refusal was expressed again on 7 March 2013 after additional information had been provided
  - the information provided to the determination is relevant and should be considered
  - the risk matrix tool demonstrations consideration has been given to the factors set out in the Ministry's guidance document; external maintenance issues can be the single most significant contraindication for insulating a home.

The agent also confirmed that moisture readings would be taken from the south elevation.

## 5. Discussion

- 5.1 The matter for determination is whether the authority correctly exercised its powers in refusing to grant the building consent. In considering this matter, I must consider whether there was sufficient evidence provided in the building consent application for the authority to conclude on reasonable grounds that the building work and the existing building (as altered) would comply with the Building Code to the extent required by the Act.
- 5.2 I have issued a number of determinations about the requirements of the Act, as they relate to alterations to existing buildings, including those that involve retrofitting urea foam insulation. They include determinations 2012/026, 2012/027 and 2013/005. These determinations set out the Building Code obligations that apply to building work of this nature, both with respect to the building work itself and with respect to the existing building. The Ministry has also issued guidance under section 175 of the Act on Building Code compliance for retrofitting insulation in external walls that is relevant to this determination<sup>5</sup>.

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<sup>5</sup> Copies of the determinations and The guidance documents are available on the publications section of the Ministry's website [www.dbh.govt.nz/publications](http://www.dbh.govt.nz/publications)

5.3 The approach established in these determinations applies in the current case. However, these determinations considered all aspects of compliance. In the current case, I have confined my discussion to the proposed building work's compliance with Clauses E2.3.5 and E2.3.6, as these are the clauses where the authority considers compliance has not been established. With respect to the remaining clauses, the authority has been able to satisfy itself, on reasonable grounds, that compliance will be achieved and they are not in dispute between the parties.

## 5.4 Compliance of the building work

5.4.1 The relevant Building Code obligation for the building work is:

### Clause E2.3.6

- Excess moisture present at the completion of construction must be capable of being dissipated without permanent damage to building elements.

5.4.2 The applicants provided the following information with their renewed application for a building consent to demonstrate how compliance with Clause E2.3.6 would be achieved. Some of the information is general to the product installation methodology; some is specific to the proposed building work.

Document	General information provided
Statement as to how compliance will be met and demonstrated	<p>‘Invasive moisture readings will be taken on the slowest drying elevation to track dissipation of construction moisture.</p> <ul style="list-style-type: none"> <li>• Locations of sites noted on floor plan.</li> <li>• CCC application will be made when evidence of construction moisture has dissipated has been achieved.’</li> </ul>
Evidence of compliance with the building consent	Blank form to be completed as part of the CCC application. Includes table for recording the results form ‘Monitoring of construction moisture’: pre-installation; at installation; and post-installation.
NZ Building Code Compliance Documentation v4.0	<p>Includes 2-page process for ensuring compliance with clauses E2.3.6.</p> <p>‘Walls must be monitored to ensure that after the installation of [the insulation] material construction moisture is dissipating (reducing) to provide evidence of compliance with E2.3.6.’</p> <p>Process covers:</p> <ul style="list-style-type: none"> <li>•equipment used</li> <li>•‘Pre-construction moisture evaluation of the existing timber wall framing’</li> <li>• post-installation monitoring</li> <li>• what happens where moisture levels are &gt;18% after 3 months:</li> </ul> <p>‘If the moisture levels are above 18% after 3 months there is a small risk that damage might have occurred to the timber framing. Therefore in these instances, the issue needs to be escalated to head office. Head office will engage the services of a building surveyor to identify the causes for the slow drying and establish if any structural damage has occurred.’</p>
	<b>Specific information provided about the building work</b>
Report of assessment of existing building	‘Moisture management assessment’: readings from three locations in the kitchen, on the house's Northern elevation.
Existing floor plan	Shows locations where moisture readings will be taken

- 5.4.3 I am satisfied that the process described for monitoring post-construction moisture levels is acceptable. From earlier determinations involving the insulation provider, I am aware that it has taken steps to strengthen its processes and consent documentation. I am satisfied that the documentation supplied to the authority is sufficient to demonstrate compliance with Clause E2.3.6.
- 5.4.4 I note that one of the authority's grounds for refusing the building consent application was the location of the moisture readings. The authority considers its concerns regarding the moisture monitoring had not been addressed and that ample time had been given for the application to be reviewed and revised to accord with the insulation provider's literature. The authority, in its submission to the draft determination, also noted that 'had the applicant at any time prior to the refusal altered the proposal to monitor the south elevation as required by their own process documents, it is agreed by the [authority] that this issue would have been satisfactorily addressed.'
- 5.4.5 The insulation provider has subsequently explained that the readings were to be taken from the northern elevation at the applicants' request, and has undertaken to take fresh readings from the southern elevation in line with the provider's manual. I am satisfied with this approach, and that if the process detailed in the applicants' consent documentation is followed, compliance will be established.
- 5.4.6 I note also that it would have been open to the authority, had it decided to issue a building consent, to make it a condition of that consent that monitoring was to occur in an alternative location. Given my finding that the insulation provider's post-construction monitoring process is acceptable, this would have been a straightforward way for the parties to address the authority's concerns.
- 5.4.7 The authority has advised in its submission to the determination that it has subsequently addressed the issue of moisture monitoring in two other consent applications by including a condition that the authority is to be advised at three months after installation if framing moisture content has not reached less than 18%.

## 5.5 Compliance of the existing building (as altered)

- 5.5.1 The relevant Building Code obligation, with respect to the compliance of the existing building to the same extent as before (as required by section 112), is:

### Clause 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

- 5.5.2 The applicants provided the following information with their renewed application for a building consent to demonstrate how compliance with Clause E2.3.5 would be achieved. Some of the information is general to the product installation methodology; some is specific to the proposed building work.

Document	Specific information provided about the building work
Report of assessment of existing building	'The house was built pre 1940...It is clad in Kauri weatherboards.' 'The weatherboards are in very good condition.'

	<p>'Generally the house is in good condition.</p> <p>'Linings are suitable...Very old plasterboard...Average condition.'</p> <p>'There is no building warp.'</p> <p>'Timber framing: Heart Kauri non treated.'</p> <p>'All joinery is of timber framing...Condition of joinery is good. [No] signs of cracks, leaks or rot.'</p> <p>'The majority of the house is elevated over piles with free flow of air via beneath the timber deck. No vents at the front of the house where ground clearance is minimal.'</p> <p>Moisture probe readings for three locations in the kitchen (Northern elevation):</p> <ul style="list-style-type: none"> <li>• Location kitchen 1: 14.8%</li> <li>• Location kitchen 2: 15.2%</li> <li>• Location kitchen 3: 15.1%</li> </ul> <p>The report also contains the results of an 'Evaluation of compliance with E2.3.5' using the risk matrix tool included in the insulation provider's compliance manual. The evaluation assign values to all of the factors that need to be taken into account in evaluating compliance, and gives an overall score for the applicants' house of 8.5, placing it in risk category 1 (low risk).</p>
	<b>General information provided</b>
<p>NZ Building Code Compliance Documentation v4.0</p>	<p>Includes a 3-page process and 2-page risk matrix tool for evaluating whether, after the installation of the insulation, the existing house will continue to comply with Clause E2.3.5 of the Building Code to the extent required by the Act.</p> <p><u>The process</u></p> <p>Refers to the Ministry's guidance on retrofitting insulation into external walls, and explains that the risk matrix tool 'has been developed to demonstrate the logic associated with applying the guidance in a way that is: replicable..., and takes into account factors that are dependent and those that are interdependent.'</p> <p>Lists the factors that tool takes into account – E2/AS1 risk score, building wrap; type of exterior cladding; maintenance of exterior cladding; durability of timber; subfloor ventilation.</p> <p>Explains how values are ascribed to each of these factors, and the formula used to calculate an overall value for the house.</p> <p>Categorises houses into risk categories depending on their overall score.</p> <p>Explains how to interpret the results.</p> <p>States: 'The value that is calculated is not intended as a statement of compliance. Instead it is a tool that allows the [insulation provider] and home owner to talk about the likely future performance of the house and the actions that will need to be undertaken to make it more likely that future performance will meet the intent of E2.3.5.'</p> <p>And: 'The retrofitting of insulation in external walls where existing maintenance exists...increases the possibility of the house not complying with the building code. Therefore [the insulation provider] requires homeowners to complete all relevant maintenance...'</p>

5.5.3 The authority has refused to grant the building consent on the grounds that the insulation provider's risk matrix tool does not indicate the building's continued compliance with Clause E2.3.5. The authority is concerned that it is '...unable to verify the validity of the considerations of the matrix, and ...there has not been any

form of testing or appraisal carried out to support the rationale behind the matrix.’ The authority also states that several of the factors, identified in the Ministry’s guidance on retrofitting insulation in external walls as increasing risk of non-compliance, apply to the applicants’ house, raising concerns about its continued compliance.

- 5.5.4 The insulation provider has stated that the risk matrix is a tool for assessing ‘the likely future performance of the house’. The matrix combines the factors in the external moisture acceptable solution E2/AS1<sup>6</sup> risk matrix and the Ministry’s guidance on retrofitting insulation in external walls<sup>7</sup>, and allocates each factor a value. The insulation provider has submitted that the building in question has a risk score of 8.5 and based on this approach it would appear there is a moderately low risk of non-compliance with respect to E2.3.5<sup>8</sup>.
- 5.5.5 I have considered the risk matrix and am of the view that it is a good concept, and it is a useful tool to assist with evaluation and decision-making. I am of the view that the insulation provider has generally identified the relevant attributes and factors that need to be taken into account in assessing compliance. I note that the matrix is not intended as a decisive tool for determining whether or not a house complies, but rather as a basis for discussing the risk factors that apply to particular houses, and the mitigating steps that home owners will need to take if they want their houses to remain compliant.
- 5.5.6 The process explanation for the tool states that the insulation provider ‘requires homeowners to complete any relevant maintenance’ as part of the installation process. In my opinion, although the risk matrix is a useful tool, the overall value calculated by it is less relevant to ensuring compliance than the identification, using the tool and the pre-installation inspection, of any outstanding maintenance issues for a given house.
- 5.5.7 The identification of these maintenance issues, and gaining the homeowner’s agreement to remedy them before the insulation is installed, is crucial to ensuring the ongoing compliance of the house to the extent required by the Act after the insulation has been installed. I note that the insulation provider’s “Evidence of Compliance with Building Consent” report, which is filed with the application for a code compliance certificate when the building work is complete, includes provision for certifying that the outstanding maintenance work identified pre-installation has been done. This will enable the authority to be satisfied that any factors that could potentially affect the ongoing compliance of the house, and that are capable of being addressed, have been addressed.
- 5.5.8 I accept that in this case, the insulation provider has identified all of the relevant factors affecting the ongoing compliance of the applicants’ house and concur with its assessment that, despite the absence of building paper, the house is low risk and is likely to continue to comply with Clause E2.3.5 to the extent required by the Act after the installation of the insulation. This assessment is set out in the insulation

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<sup>6</sup> Contained in: Department of Building and Housing. (2011). *Compliance Document for New Zealand Building Code Clause E2 External Moisture*. Available on the publications section of the Ministry’s website <http://www.dbh.govt.nz/publications>

<sup>7</sup> Department of Building and Housing. (2011). *Guidance on Building Code compliance for retrofitting insulation in external walls*. Available on the publications section of the Ministry’s website <http://www.dbh.govt.nz/publications>

<sup>8</sup> Version 3

provider's compliance documentation, and is reiterated in its letter dated 1 March 2013, sent in response to the authority's decision to refuse to grant the building consent (see paragraph 3.10). In my opinion, the summary of factors in this letter is useful, and in future could be included in the insulation provider's consent documentation.

- 5.5.9 I also accept that the installation of the insulation will not increase this risk. The insulation is open-cell foam and does not readily absorb water. Post-installation shrinkage will mean that there is still capacity for any water that does penetrate the external cladding or internal linings to dissipate. Because of the age of the house and the type of cladding used, there will still be sufficient ventilation for this to occur. Post-installation monitoring will ensure that any construction moisture is dissipated.
- 5.5.10 I note here that all determinations are decided on a case-by-case basis and that in different circumstances the absence of building paper may be a material factor.

## **5.6 Conclusion**

- 5.6.1 I am therefore of the view that sufficient evidence was provided in the building consent application for the authority to conclude on reasonable grounds that the building work and the existing building as altered would comply with Clauses E2.3.5 and E2.3.6 of the Building Code to the extent required by the Act.

## **6. Decision**

- 6.1 In accordance with section 188 of the Act, I hereby determine that the authority incorrectly exercised its powers in refusing to grant a building consent for retrofitting the insulation in the applicants' house, and accordingly I reverse that decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 2 September 2013.

John Gardiner  
**Manager Determinations and Assurance**