Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2012/027

The refusal to grant a building consent for the retrofitting of foam insulation to a house at 201 Ravensbourne Road, Dunedin

1. The matter to be determined

1.1 This is a Determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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.

1.2 The parties

1.2.1 The parties to this determination are:

- the owner of the house, Mrs D Freeman ("the applicant")
    - the applicant engaged Airfoam Wall Insulators (Dunedin) Limited ("the insulation provider") to retrofit insulation to the house (refer also to paragraph 1.2.2 for further explanation of "the insulation provider"). The insulation provider represented the applicant for the purposes of the building consent application
    - the insulation provider is also represented by a building consultancy firm ("the building consultant") which prepared the determination application, and is also acting as an agent to the owner. The building consultant has also provided expert peer review services of empirical test evidence from overseas for the insulation provider
- Dunedin City Council, carrying out its duties and functions as a territorial authority and a building consent authority ("the authority").

1.2.2 Airfoam Wall Insulation Limited and Airfoam Wall Insulators (Dunedin) Limited are considered persons with an interest in this determination on the grounds of being the proprietary system provider and installer respectively. As the determination is primarily about issues relating to the product, methodology, and documentation, I have referred to both companies (and the insulation provider in its role as the applicant's agent) as "the insulation provider".

[1] The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Department are all available at www.dbh.govt.nz or by contacting the Department on 0800 242 243.

1.3 The matters

1.3.1 The determination arises from a decision made by the authority to refuse to grant a building consent for building work that consisted of retrofitting urea formaldehyde foam insulation ("the insulation") because the authority was of the view that the information provided to support the building consent application did not adequately demonstrate compliance with the Building Code (Schedule 1, Building Regulations 1992).

1.3.2 In this case I have considered compliance with the Building Code with respect to the product, methodology and process, and documentation, for both the building work itself, and the effect of the building work on the existing building.

1.3.3 Therefore, the matters to be determined[2] are:

- whether there was sufficient evidence 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
- whether the authority correctly exercised its power in refusing to grant the building consent.

1.3.4 I note that another determination[3] considered the proposed installation of the insulation in a different house. Although the houses have different features, similar issues arose concerning compliance with the Building Code with respect to the product, methodology, and process, and documentation, for both the building work itself and the effect of the building work on the existing building, and I took this into account where relevant.

1.3.5 In making my decision on these matters, I have considered the submissions of the parties, and other evidence in this matter. I emphasise that each determination is conducted on a case by case basis.

2. The building work

2.1 The existing house, which is around 50 years old, is a single storey, detached dwelling, constructed on wooden piles with weatherboard cladding, and aluminium window joinery that has been more recently fitted. I note that that space behind the wall linings, without insulation, provides venting and a drying environment for the framing.

2.2 The building work consists of making a series of holes in the external walls and pumping insulation into the walls to improve the thermal performance of the house. The holes to the external walls are subsequently plugged and a drying regime is followed while the insulation cures.

[2] Under sections 177(1)(a), 177(1)(b) and 177(2)(a) of the Act
[3] Determination 2012/026

3. The background

3.1 As noted in paragraph 1.3.1, the insulation provider, on behalf of the applicant, applied for a building consent on 8 August 2011 to retrofit insulation into the walls of the weatherboard clad house.

3.2 The scope of the building consent application is described as 'installation of [insulation] into the external walls of the house'. The application describes the building work as complying with Clause B1 Structure, Clause B2 Durability, Clause E2 External moisture, Clause E3 Internal moisture, Clause F1 Hazardous agents on site, Clause F2 Hazardous building materials, Clause F3 Hazardous substrates and processes, Clause F7 Warning systems, Clause G4 Ventilation, and Clause H1 Energy Efficiency.

3.3 The building consent application was supported by a letter from the insulation provider that included:

- information about Building Code compliance with respect to Clauses B2, E2, and H1
- information about test data for a water absorption test, a compressive strength test, a water vapour transmission test, a thermal resistance test, and an odour emission test
- a checksheet for the initial inspection for both the exterior and interior of the building ("the checksheet")
- a sample producer statement PS3 Construction.

3.4 In a letter dated 24 August 2011, the authority requested further information and stated 'the evidence provided in your application is not based on New Zealand conditions and because [the authority] does not have either the expertise or experience to evaluate your application properly it is recommended you ...

> Provide New Zealand based evidence to show compliance with the [Building Code] and in particular to [Clauses B1 Structure, B2 Durability, E2 External Moisture, E3 Internal Moisture, F1 Hazardous Agents on Site, F2 Hazardous Building Materials, F3 Hazardous Substances and Processes, G4 Ventilation, H1 Energy Efficiency]
>
> To expedite your application we believe that [New Zealand] based evidence could be peer reviewed by a New Zealand expert or experts in all fields.

3.5 The building consultant provided further information to the authority in a report dated 9 September 2011. The report was undertaken by the building consultant's principal mechanical engineer. The report included test data and information and extracts from the insulation provider's installation and training manual ("the manual").

3.6 In summary, the report stated:

Building Code requirement	Evidence of performance
Clause B2.3.1	35 year track record
Clause E2.3.6	Open cell and vapour permeable, antifungal additives, references confirm timber moisture content drops below 20% after curing
Clause F2.3.1	Formaldehyde levels return to normal after curing, measured levels below Department of Labour exposure limit and below 0.1ppm where health effects might be expected
Clause B1.3.1	Open cell and vapour permeable, antifungal additives, references confirm timber moisture content drops below 20% after curing
Clause C1.3.2	Forming practices maintain code required clearances
Clause E2.3.2	Airtightness of wall increased helps to reduce wind driven water through claddings, shrinkage on curing helps to provide moisture bridging disconnect
Clause E2.3.5	Airtightness of wall increased helps to reduce wind driven water through claddings, shrinkage on curing helps to provide moisture bridging disconnect, the insulation allows moisture to diffuse out of wall, building to be well ventilated during curing period to prevent moisture accumulation
Clause G6.3.1	No compliance requirement but the insulation improves acoustic performance
Clause G9.3.1	The insulation is compatible with normal PVC sheathed wiring, if aged wiring present, home re-wired or miniature circuit breakers are installed prior to foaming
Clause H1.3.1	No compliance requirement but the insulation improves the thermal resistance of the wall

3.7 In a letter dated 22 September 2011, the authority refused to grant a building consent for the proposed work. The authority was of the view that the information provided to support the building consent application did not adequately show compliance with the Building Code. The authority stated its reasons for refusal were:

> … the evidence provided is not New Zealand based and not specific to this application and issues with many [Building Code] clauses including B2 Durability, E2 External Moisture, E3 Internal Moisture, F3 Hazardous Substances and processes and G4 Ventilation have not been answered satisfactorily.

3.8 The building consultant subsequently applied for a determination on behalf of the owner and insulation provider and the application for a determination was received by the Department on 25 October 2011.

4. The submissions

4.1 The application for determination was accompanied by a submission from the building consultant which outlined the background to the application and outlined the report and evidence demonstrating compliance. The application included the building consent application and supporting information (described in paragraph 3.3), the report (described in paragraph 3.5), and correspondence from the authority.

4.2 The authority did not make a submission at this stage.

4.3 A draft determination was issued to the parties for comment on 25 November 2011. The authority accepted the draft without comment in a response received on 6 December 2011.

4.4 The building consultant responded to the draft in a letter dated 7 March 2012, The submission reiterated the view that the authority should not have refused the building consent, and (in summary):

- A complete review of the manual has been undertaken, a version control system included and amendments marked
- It is the insulation provider's policy that a 'completion certificate' is submitted to the authority with the request for a code compliance certificate to allow the information to be included in the LIM
- The determination should provide a framework where the authority can accept the retro-fitting of the insulation into a house constructed prior to 1991 and issue a building consent
- The nature of the product and installation doesn't provide for a typical inspection regime to be undertaken by the authority; however agreement should be able to be reached that a code compliance certificate can be issued after written confirmation that the works have been successfully completed.

4.5 The building consultant's submission included a copy of the manual and comments on the amendments to that manual and the matters raised in paragraph 6.4 in respect of the information provided to establish compliance. I have included these parts of the submission in the tables in paragraphs 6.4.3 and 6.4.5.

4.6 The authority subsequently provided comment in response to the building consultant's submission dated 9 March 2012. The authority was of the view that:

- the manual 'makes no reference to how the product complies with the Building Code. As this question is at the heart of the issue … the [authority's] ability to grant a building consent for this product' has not been progressed
- each building consent application needs to stand on its own merits and it would not be satisfactory to adopt the proposal of the building consultant
- the comment of the building consultant that the authority does not have the knowledge to understand the technical aspects of the chemistry is correct. New Zealand based research or confirmation of Building Code compliance is required and it is not acceptable to simply 'submit a raft of overseas based information and expect [an authority] to decipher and understand it'.

5. Discussion

5.1 Outline for assessing the matters to be determined

5.1.1 The matters I have set out for determination are:

- whether there was sufficient evidence available to 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
- whether the authority correctly exercised its power in refusing to grant the building consent.

5.1.2 In order to consider these matters, I must consider the requirements for alterations to existing buildings under the Act. I have issued a number of determinations about the requirements of the Act, as they relate to alterations to existing buildings, including repairs and remedial work. These determinations include 2010/140, 2010/139, 2010/080, and 2011/117.

5.1.3 The Department has also issued guidance under section 175 of the Act that is relevant to this determination[4], including:

- Guidance on Building Code compliance for retrofitting insulation in external walls
- Using the Product Assurance Framework to Support Building Code Compliance – A Guide for Manufacturers and Suppliers of Building Products.

5.2 Requirements for alterations to existing buildings

5.2.1 Section 17 of the Act requires that all building work must comply with the Building Code. It doesn't matter whether the building work is to construct a new building or carry out alterations or repairs to a building, all such building work must comply with Building Code.

5.2.2 The Building Code is made up of clauses that set out the performance requirements that buildings and building work must meet. Most clauses of the Building Code have a subject to which the Building Code obligations are expressed to apply. It is that subject that defines the scope of the Building Code obligation. Just because building work is being carried out doesn't mean the building work has to comply with every clause of the Building Code. Building work to alter or repair a building only has to comply with the Building Code obligations that are applicable to building work of that scope.

[4] The guidance documents are available on the publications section of the Department's website http://www.dbh.govt.nz/publications

5.2.3 There are Building Code obligations that apply to:

- a building or household unit
- particular building elements of a building
- different building systems within a building
- amenities for a building
- building materials
- other characteristics of a building or matters associated with a building or building work.

5.2.4 There are express limitations on the types of building to which particular Building Code provisions apply set out in the "limits on application" column of the Building Code. Further definition of a number of the features of buildings to which Building Code obligations apply are provided in the Building Code for the terms "building", "household unit", "building element", and "amenity".

5.2.5 Some Building Code obligations apply to more than one feature of a building. For example, the Building Code obligations relating to structure in B1.3.1, B1.3.2 and B1.3.3 apply to "buildings", "building elements" and "sitework" and are thus triggered when constructing a new building, carrying out repairs or alterations to building elements, or carrying out sitework.

5.2.6 Section 17 of the Act also makes it clear that building work must comply with the Building Code regardless of whether a building consent is required. The circumstances when a building consent is not required are set out in section 41 of the Act, including work that is exempt from the requirement to obtain a building consent under Schedule 1 of the Act.

5.2.7 Where a building consent is required, section 49 of the Act gives effect to the requirements of section 17 by specifying that a building consent will not be granted unless the authority "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."

5.2.8 These requirements in section 49 apply to any building consent regardless of whether the building work is to construct a new building or building work for alterations or repairs to a building.

5.2.9 Section 112 of the Act contains specific requirements for alterations. Section 112 relates to the compliance of the existing building (which is the whole building as altered, not merely the alteration). It does not detract from the section 17 requirement that all building work must comply with the Building Code or the provisions of sections 67 to 70 as to waivers or modifications of the Building Code. Under section 112(1):

- Any new building work must comply fully with the Building Code (subject to any waiver or modification granted by the authority).
- After the alteration, the existing building, as a whole must:
    - comply as nearly as reasonably practicable with the provisions of the Building Code that relate to means of escape from fire and access and facilities for people with disabilities
    - continue to comply with the other provisions of the Building Code to at least the same extent as before the alteration.

5.2.10 Therefore, section 112(1)(b) prevents an authority granting a building consent for an alteration if one of the effects of the proposed building work will be to detrimentally affect the compliance of the existing building (as altered) with the Building Code.

5.2.11 Section 112(1)(b) states that before an authority can grant a building consent for alterations, the authority must be "satisfied that, after the alteration, the building will continue to comply with the other provisions of the building code to at least the same extent as before the alteration".

5.2.12 It is important to distinguish between the need for building work (i.e. retrofitting insulation) to comply with the Building Code, as required by section 17 of the Act, and the need to ensure the retrofitted insulation does not reduce the extent to which the building complies with the Building Code, as required by section 112(1)(b) of the Act. These two requirements relate to different parts of the building, the extent of code compliance is different, and they can relate to different Building Code performance criteria.

6. Whether there is sufficient evidence to conclude retrofitting insulation complies with the Building Code to the extent required by the Act

6.1 In order to form a view about whether there is sufficient evidence to conclude the proposed retrofitting of the insulation to this house would comply with the Building Code to the extent required by the Act, I have taken account of the regulatory requirements for alterations to buildings as I described in section 5.2, and how this applies to this situation and the items in dispute between the parties.

6.2 The Building Code obligations for the building work

6.2.1 The purpose of retrofitting insulation is to provide improved thermal resistance. The relevant Building Code obligation Clause H1.3.2E is to the building ('Buildings must be constructed to ensure that their building performance index does not exceed 1.55'.). Therefore Clause H1.3.2E is not applicable to the retrofitting of insulation as this building work is an alteration to the existing thermal envelope.

6.2.2 The Building Code obligations for the building work are:

- compliance with Clause B2, with respect to the other Code clauses
- compliance with Clause E2, with respect to the dissipation of the excess moisture present at the completion of construction (E2.3.6)
- compliance with Clause F2, with respect to the installation of the insulation and its ongoing effects (Clause F2.3.1).

6.3 The Building Code obligations for the existing building (as altered)

6.3.1 With respect to the impact of retrofitting insulation, the altered building needs to comply to at least the same extent as before the building work is done. Therefore, it is necessary to consider the impact of installing the insulation to the existing building elements and components of the building, and the way in which the components work (e.g. the affect on moisture transfer inside the walls, the change in drying rates). This is both in terms of the installation and drying process, and the dry insulation.

6.3.2 The relevant components of the building and Building Code obligations are:

Clause B1 (B1.3.1)

- the structural performance of the framing is not reduced, with respect to the accumulated moisture causing damage to the framing (relates to Clause E2)
- the structural performance of claddings and internal linings (for withstanding normal loads in use and providing bracing units where relevant) is not reduced

Clause B2 (B2.3.1)

- the durability of the building elements is not reduced, with respect to the extent that other performance requirements apply

Clause C1 (C1.3.2)

- the compliance of appliances that generate heat must not be reduced, so the insulation must not cover the appliances or affect their physical or mechanical properties or function

Clause C3 (C3.3.5)

- the compliance of any fire rated walls must not be detrimentally affected

Clause E2 (E2.3.2, E2.3.5)

- the ability of the external wall to prevent the penetration of water that could cause undue dampness or damage must not be reduced
- the ability of the cavity to prevent external moisture being accumulated or transferred must not be reduced

Clause G9 (G9.3.1, G9.3.2)

- the compliance and continued safety of the electrical wiring must not be detrimentally affected

Clause H1 (Clause H1.3.1, H1.3.2E, H1.3.3)

- the thermal performance of the building envelope must not be reduced

6.4 The application of the Building Code obligations and the evidence provided

6.4.1 Building consent applications for retrofitting insulation need to cover the proposed building work and demonstrate compliance with the Building Code and show that the existing building, as altered, will comply to at least the same extent as before the building work was carried out.

6.4.2 The evidence provided as a part of the building consent application includes:

- information about Building Code compliance
- test data and analysis about the application of the results
- extracts from reports and studies
- thermal imaging results for three other properties with different external cladding systems
- extracts from the manual, and the checksheet.

6.4.3 I have also taken into account the information provided in response to the draft determination, including the revised manual.

6.4.4 The following table compares this evidence with respect to the Building Code obligations for the building work (refer to paragraph 6.2). The building work in question must comply with the Building Code.

Building Code obligations	Information provided	My view
Clause F2	There is test data showing results of formaldehyde present after installation below the current Department of Labour exposure limit (although that limit relates to occupational exposure) and below 0.1ppm (0. 1ppm is widely used as a guideline for non occupational exposure level for formaldehyde). Formaldehyde levels decrease rapidly after installation and typically return to ambient house levels within several days. The building must be continually cross ventilated for the whole curing period of about one month, which is covered in the manual. The manual requires the indoor area be continually cross ventilated for the whole curing period. The manual (revised during the determination process) addresses the need for cross ventilation and the use of reminder stickers by requiring the installer to select the windows to be kept ajar and to put a reminder sticker on it. There are follow-ups at one week	This relies upon owners' behaviour and therefore adequate information and instruction being provided to owners, and possible follow up visits or inspections being integrated into the system. Clear procedures are required to ensure the ventilation requirement is adhered to. I accept that the process described in the manual (revised during the determination process) is sufficiently robust.

	and then one month. Persistent presence of unpleasant odour would require a sample test and possibly the installation of blower fans.	
Clause E2 Clause B2	The foam is open cell, with 'average' water vapour permeability[5] and as such will not create an unwanted vapour barrier in the wall that could restrict dissipation of water. The catalyst formula contains three different antifungal additives to hinder the growth of fungi. Independent testing supports the fact that the foam is not a source of food for mould or fungi, rather, as moisture vapour migrates out of the foam, the fungicide is carried with it and penetrates the interior of the wall cavity, thereby helping inhibit the growth of fungi on interior wall components. There is a variability of cavity drying rates, however, the use of fungicides provides protection whilst high moisture levels decrease to appropriate levels. The installation track record indicates moisture in walls as a result of the product installation has not been an issue based on customer feedback records and the records of installation (15,000 houses in New Zealand over the last 31 years and has been used in the USA for about 35 years).	Factors that will affect the drying potential of the insulation include the vapour permeability of the wall linings and claddings, the rain and wind environment, the ground conditions and foundation connections to a wall, the condition of the existing cladding, the ventilation rate within the cavity, and the relative temperature of the external and internal wall surfaces. Whilst the presence of fungicides provides a compensating feature, the evidence based on customer feedback records is empirical at best. I note that the records of installation are not relevant to the test being applied (with respect to Clauses E2 and B2). The compliance relies upon monitoring possible negative effects. Robust decision making, and clear procedures and guidance is required on what to look for and what to do in the case that certain thresholds or timeframes are exceeded.

6.4.5 The following table compares this evidence with respect to the Building Code obligations for the existing building (refer to paragraph 6.3). <u>The existing building must comply to at least the same extent as before the building work in question was carried out.</u>

Building element	Building Code obligations	Information provided	My view
External wall framing, external cladding and internal linings (bracing and normal loads)	Clause B1 Clause B2	There is a variability of cavity drying rates, however, the use of fungicides provides protection whilst high moisture levels decrease to appropriate levels. The installation track record indicates moisture in walls as a result of the product installation has not been an issue based on customer feedback records. The structural performance of claddings and linings are not altered as part of the installation process, other than the small holes for installing the product, which are subsequently reinstated.	Although I acknowledge fungicides provide a compensating feature, the structural performance may also be affected by excessive or prolonged moisture being present in the cavity. Maintaining the structural performance for bracing and normal loads of the framing, claddings, and internal linings relies upon monitoring possible negative effects. Robust decision making, and clear procedures and guidance is required on what to look for and what to do in the case that certain thresholds of moisture levels or timeframes are exceeded.

[5] of 4.4ng/m2.s.Pa

Appliances	Clause C1	The insulation is fire resistant. The insulation must meet the code requirements for clearances to things like flues and heat generating devices in walls like lighting dimmers. This requirement is addressed in the manual. The manual requires the position of the chimney or flue to be identified, however, allows for a complete fill of the void around the chimney or flue. The manual (revised during the determination process) states that all combustion appliances with flues against, through or adjacent to a cavity wall that is to be filled should be operated prior to filling to observe performance and refers to specific testing procedures.	It is unclear how the requirement that the appliances be operated prior to the insulation being installed matches the information provided that clearances are considered.
Fire rated walls	Clause C3	The insulation is fire resistant. The integrity of any fire rated wall would be maintained by reinstatement if penetration of the rated wall occurs for the installation process. The predominant installations are to single houses and therefore there are no fire rated walls present. In respect of unit requests, the insulation provider's policy is to have a fire engineer review and comment.	The integrity of any reinstatement relies upon this step being integrated into the quality assurance process. Clear procedures and guidance is required on identification of this case, and what to do. Although I note the comment made about units, this requirement is not incorporated in the checksheet.
External wall and cladding system	Clause B1 Clause B2 Clause E2	The effect of the insulation on the compliance of an existing wall depends largely on the condition of the wall. The manual requires this be assessed with respect to whether the walls are structurally sound and weathertight. The retrofitting of the insulation increases the airtightness of the wall to reduce pressure differences across the cladding and the fact the insulation does not readily absorb moisture contributes to compliance. The installation track record indicates moisture in walls as a result of the product installation has not been an issue based on customer feedback records. The small holes made to the external cladding are filled with	This requirement relies heavily on the structural integrity of the existing building, and its current weathertightness performance. The manual and checksheet references most of the significant items, but does not provide a means of considering the implications of these items, and what actions might be taken to ensure the Building Code clauses would be complied with. The judgement of the suitability of a building is a key aspect and there is not sufficient information about this. A more detailed pre-installation report is required, with more information showing the factors affecting the house, analysis of the house, and the decision making process. I accept the technical information provided with respect to the

		filler and finished.	reinstatement of the claddings after the installation process.
Electrical wiring	Clause G9	Existing wiring is typically completely encased with insulation, thus the issue of compatibility and the heat dissipation of wiring needs to be considered. The confirmation of compatibility with plasticised PVC wiring sheathing with the insulation is supported by a technical investigation[6]. The issues of electrical safety are addressed in the manual, which requires that a home is re-wired if aged electrical wiring with perished sheathing exists or 'sealed circuit breakers' are installed. It is the insulation provider's policy not to foam unsafe or old wiring. The pre-installation check list requires identification of wiring and confirmation from the client, and the manual states that foaming old wiring is a fire hazard.	The manual and checksheet references (revised during the determination process) most of the significant items, but does not provide a means of considering the implications of these items, and what actions might be taken to ensure the Building Code clauses would be complied with. The judgement of the suitability of a building is a key aspect and there is not sufficient information about this. A more detailed pre-installation report is required, with more information showing the factors affecting the house, analysis of the house, and the decision making process.
Thermal performance	Clause H1	The compliance of retrofitted insulation with H1.3.1 is not a requirement for retrofit situations where the thermal envelope of the building is not being replaced. There are many references identifying the thermal conductivity of the insulation, tests conducted by BRANZ identify the average thermal conductivity to have a translated R value of R2.25 for a 90mm thickness. I note thermal performance is a matter between the insulation provider and a homeowner.	I note that there is sufficient evidence to conclude the energy performance of the house will be improved, although the extent to which this is achieved will depend on the effectiveness and durability of the installation and possible shrinkage of the insulation in the wall. In respect of the test required to be applied under the Act, I consider the information provided is adequate to provide reasonable grounds with respect to the technical information and operational procedures.

6.4.6 Taking account of my findings in paragraph 6.4.3 and 6.4.5, I therefore conclude that:

- there was insufficient information to provide reasonable grounds the building work will comply with the Building Code
- there was insufficient information to provide reasonable grounds the existing building (as altered) will comply with the Building Code to the extent required by the Act.

[6] BRANZ Investigation into the Performance of Urea Formaldehyde Foam Insulation DR0303/3 30 April 2010

6.4.7 With respect to the quality assurance procedures in place, I note the building consent application did include a completed pre-installation form which referenced most significant items relating to the work but did not fully explain the implications of these items and what actions might be taken to ensure the Building Code clauses would be complied with and the relevant requirements met.

6.4.8 The manual explains the importance of judging the suitability of a building for the insulation, and it is my view that there was not sufficient information about this particular building. A more detailed pre-installation report should be provided, with more information showing the factors affecting the house, analysis, and the decision making process.

6.4.9 I note that in respect of the operational procedures, it is my view that the manual and the procedures to ensure it is adhered to are a critical part of the system that ensures that this particular methodology when applied in appropriate circumstances, meets the appropriate tests under the Act for compliance with the Building Code. This is a key aspect of this particular methodology that should be considered as a part of the building consent application.

6.4.10 It is my view that the quality assurance procedures, including the pre-installation inspection and documentation, must be sufficient to ensure robust decision making with respect to the application of this particular methodology, and that all the requirements of the manual are considered.

6.4.11 I note that the building consultant submitted the manual (revised during the determination process) includes a date of issue and identifies amendments. I am of the view that the manual does not adequately address issues relating to the code compliance of the insulation and the existing building, and the issues around Building Code compliance and the quality assurance and operational procedures in place described in paragraphs 6.4.7 to 6.4.10.

6.4.12 It is strongly recommended that the insulation provider look at a more formal assessment of the methodology using some of the concepts in the Departments guidance on the product assurance framework.[7]

7. Whether the authority was correct to refuse to grant the building consent

7.1 The building consent application process

7.1.1 The authority considers that documentation supplied with the consent application is not sufficient to provide reasonable grounds that the building work would comply with the Building Code to the extent required by the Act if carried out in accordance with the plans and specifications.

7.1.2 In order to consider the authority's decision to refuse to grant the building consent, I need to take into account the requirements for building consent applications in terms of section 45 and section 49 of the Act.

[7] http://www.dbh.govt.nz/UserFiles/File/Publications/Building/Compliance-documents/Product-Assurance-Framework-guidance.pdf

7.1.3 Section 49 of the Act requires an 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.'

7.1.4 In terms of the basic information required to support an application for a building consent, section 45(1) of the Act states:

> 45 How to apply for a building consent
> (1) An application for a building consent must–
> (a) be in the prescribed form; and
> (b) be accompanied by plans and specification 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; and
> …

7.1.5 The Act provides for an authority to set reasonable requirements for the documentation that accompanies applications for building consents. An authority is entitled to set minimum requirements to ensure that the proposed building work is clearly documented and to require designers to clearly demonstrate and document how compliance with the Building Code is to be achieved. The authority has a 'Guide to completing applications for building consents' that sets out the documentation that is required, the documentation that is sometimes required (depending on the type of application) and the types of plans and drawings that are required to support an application.

7.1.6 The Department has also issued guidance under section 175 of the Act that describes the minimum documentation that should be supplied with an application to demonstrate compliance with relevant clauses of the Building Code – 'Guide to applying for a building consent (residential buildings)' (second edition October 2010).

7.2 The authority's decision to refuse to grant a building consent

7.2.1 In section 6.4, I considered the evidence that was provided in support of the proposed building work to demonstrate compliance with the Building Code and that the building work will not adversely affect the performance of the existing building (as altered).

7.2.2 In its letter refusing the grant the building consent dated 22 September 2011, the authority was of the view that :

- the evidence provided was not New Zealand based and not specific to the application
- issues with respect to Building Code Clauses B2, E2, E3, F3, and G4 have not been answered satisfactorily.

7.2.3 As I have found that there is not sufficient evidence to demonstrate compliance with respect to the relevant Building Code obligations (refer to paragraph 6.4.6), it follows that there was not sufficient evidence provided as a part of the building consent application and the authority was correct to refuse to grant the building consent.

7.2.4 The Act makes specific requirements of both an applicant and an authority when a building consent is being sought; the applicant is required to provide sufficient relevant information to clearly describe the proposed work, and the authority must clearly articulate the reasons for an application being refused (if the application is not adequate).

7.2.5 The application for consent included a significant amount of information, some of it specialist in nature. I accept that if an authority receives material that is outside its area of expertise it is entitled to have the material peer reviewed at the applicant's expense. I also note that if information is provided from another country or standards cited from another jurisdiction as part of demonstrating compliance with the Building Code, it is necessary to justify how the standards and information are relevant to the New Zealand situation.

7.2.6 As described in paragraph 6.4.8, I also consider that the building consent application did not include sufficient information about the particular building. A more detailed pre-installation report should be provided.

7.2.7 With respect to the Building Code Clauses for which the authority believed that there was insufficient evidence to demonstrate Building Code compliance, it is my view that the authority should have more clearly articulated the issues it believed were outstanding. I am unclear of the relevance of Clause E3, which relates to the generation and accumulation of internal moisture, and the relevance of Clause F3, which relates to the construction of buildings where hazardous processes are to be undertaken or hazardous substances stored.

7.2.8 I strongly suggest the parties take cognisance of the above when submitting and processing future applications for building consents.

8. What is to be done now

8.1.1 I suggest that the building consent application should be modified and resubmitted, taking into account the findings of this determination. The modified building consent application should provide evidence to demonstrate compliance for this work. Paragraphs 6.2, 6.3, and 6.4 provide my view of the appropriate methodology to be used to shape the building consent application for this building work.

8.1.2 As a response to this determination, I expect that the insulation provider will modify the manual accordingly to update it with new information that this determination has identified as being required, particularly with respect to the affect of the insulation to the existing building, particularly with respect to the affect of the insulation to the existing building.

8.1.3 Until the shortcomings in the documentation are satisfactorily resolved, the authority is entitled to refuse to grant a building consent on the basis that, without adequate documentation, it 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 for the consent (see section 49 of the Act).

9. Decision

9.1 In accordance with section 188 of the Act, I hereby determine that:

- there was not sufficient evidence to provide reasonable grounds to conclude that retrofitting the insulation to this house would comply with the Building Code

- there was not sufficient evidence to provide reasonable grounds to conclude that the existing building (as altered) would comply with the Building Code to the extent required by the Act

and accordingly I confirm the authority's decision to refuse to grant a building consent for retrofitting the insulation to the house.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 10 April 2012.

John Gardiner
Manager Determinations