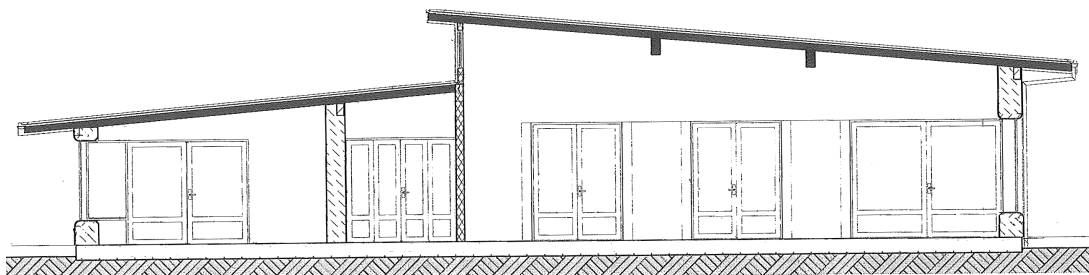




Determination 2011/067

Regarding the refusal to issue a building consent for a house with straw bale walls at 668 Manawahe Road, Whakatane



Section showing the main features of the basic construction

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 applicant is the Whakatane District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority. The other party is the owner and builder of the proposed house, M Lyon (“the owner/builder”), initially acting via the design company for the building work (“the designer”). The designer is also considered to be a person with an interest in this determination.
- 1.2 This determination arises from the decision of the authority to refuse to grant a building consent for a house because it considered that the documentation submitted with the consent application was insufficient to satisfy the authority that the proposed building would comply with certain clauses² of the Building Code (Schedule 1, Building Regulations 1992).
- 1.3 The matter to be determined³ is therefore whether the authority’s decision to refuse to issue a building consent is correct. In deciding that matter, I must consider whether the documentation supporting the consent application is adequate

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.

² In this determination, unless otherwise stated, references to sections and clauses are to sections of the Act and clauses of the Building Code.

³ Under section 177(b)(i) of the Act (prior to 7 July 2010)

considering the particular type of construction used in this proposed house. I address this in paragraph 6.

1.4 The authority's concerns about the consent documentation primarily relate to the straw bale wall system in regard to its structure, durability, and resistance to external and internal moisture ingress (see paragraph 3.9.3). The following aspects of the proposal are therefore associated with the matter to be determined:

- the weathertightness of the straw bale wall system
- the structure of the building, including of the straw bale wall system
- the durability of the straw bale wall system.

1.5 The above aspects are referred to in various parts of this determination; where I consider them relevant to concluding on the adequacy of the building consent documentation. However, I consider them to be peripheral to the primary reason given by the authority (see paragraph 3.10.1) for refusing to issue the consent.

1.6 Matters outside this determination

1.6.1 Other (more minor) matters raised by the authority appear to be in the process of being resolved between the parties and are therefore not considered in this determination.

1.6.2 This determination is therefore limited to the matter described in paragraph 1.3; and may comment on but does not form conclusions as to the code compliance of the proposal. I leave such questions of compliance to the authority to consider once all documentation matters are satisfactorily resolved.

1.7 In making my decision, I have considered the submissions made by the designer on behalf of the owner/builder, the report of an independent specialist experienced in earth and straw bale building construction commissioned by the Department to advise on this dispute ("the specialist"), and the other evidence in this matter.

2. The building work

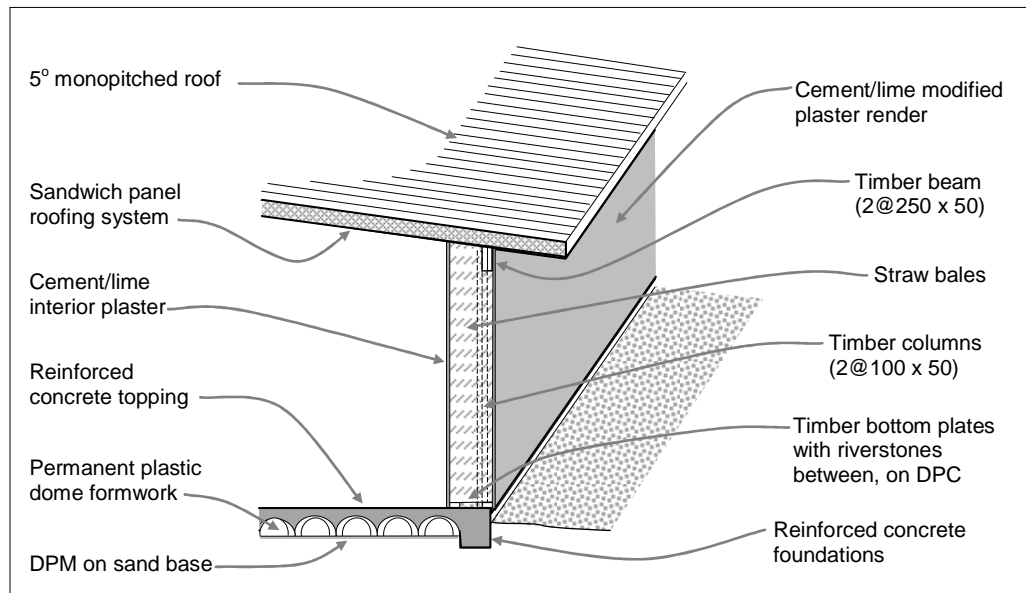
2.1 The proposed building work consists of a single-storey detached house situated on a generally level spur of a ridge in a large rural site, which the expert describes as in 'the upper end' of a high wind zone for the purposes of NZS 3604⁴. Geotechnical soil tests of the site have established a limited platform ("the site platform"), within which most of the house is sited. Outside of that site platform, the foundations are required to be specifically engineered to suit the soil conditions.

2.2 The proposed house is specifically engineered, with reinforced concrete foundations, a proprietary reinforced concrete floor slab system, a timber post and beam structure, straw bale exterior and interior walls, some steel framing, some conventional timber framed interior walls, a proprietary roof panel system and aluminium windows. The panel roof system uses proprietary prefabricated panels with polystyrene sandwiched between pre-finished flat steel sheets.

⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.3 General construction

2.3.1 The general construction appears to be as shown in the following sketch:



2.3.2 The house has two 5° monopitched roofs with a clerestory at the intersection. The lower eaves generally appear to be wider than 1m (including gutter widths), with verges of about 800mm except above the north wall of the kitchen/dining area where the verge extends to more than 3m to form a verandah supported on timber posts. The oblique eaves above the clerestory appear to be about 600mm.

2.3.3 Within the open kitchen/living area, 'feature' macrocarpa posts and beams are exposed, with the ceiling beams extending through the wall to support the north verandah. Below the other verge soffits, exposed feature beams extend out from within the walls.

2.4 The structural elements

2.4.1 The perimeter walls and interior load-bearing walls have reinforced concrete foundations. The floor slabs comprise reinforced concrete topping laid over permanent formwork made up from proprietary interlocking polypropylene dome-shaped modules for which a producer statement PS1 has been provided. A corner of the foundations extends beyond the site platform and this has specifically designed cantilevered foundations.

2.4.2 The ensuite bathroom floor is recessed and surrounded by reinforced concrete that steps down to provide a sunken 'sculptured bathtub', with a concrete upstand wall separating the bathroom from the outside.

2.4.3 The design engineer has provided a 'Producer Statement – PS1 – Design' dated 20 March 2009 for the 'structural design' of various timber posts, beams and diagonal bracing frames, the clerestory steel bracing frame, the panel roof system, the recessed ensuite floor slab and the cantilevered foundation.

2.5 The straw bale walls

- 2.5.1 Most of the exterior and interior walls are straw bale construction, made up of a timber post and beam structure with timber cross bracing. The structure is in-filled with non-loadbearing straw bales to form mass walls about 500mm thick with a modified plaster applied to both sides. The straw bale infill walls are formed from 900mm x 450mm x 350mm straw bales stacked on the flat and ‘pinned’ together within the post and beam structure.
- 2.5.2 At exterior and internal wet area straw bale walls, a base is formed from 100 x 50 bottom plates on DPC with drainage gravel between. For the bottom straw bale course, the exterior plaster is applied over two layers of building wrap and extends from the straw bales over the bottom plate, to overlap the foundation wall.
- 2.5.3 On the 10m long north wall to the living room, exposed structural beams and posts frame recessed macrocarpa shelving; and the straw thickness is reduced to about 160mm behind the shelves, with plaster applied to both faces of the straw.
- 2.5.4 Apart from the exposed macrocarpa beams and posts and the bottom plates, which are noted as ‘H3’ on the drawings, the documents are silent as to the proposed species and/or treatment levels for the timber elements within the straw bale walls, with the specification calling for general compliance with NZS 3602⁵.

2.6 The straw bale plaster and coating

- 2.6.1 The straw bale walls are to be finished both externally and internally with a specialised three-coat vapour permeable modified plaster system (“the plaster”) reinforced with metal wire mesh, with additional fibreglass mesh close to the surface.
- 2.6.2 The proprietary plaster product combines traditional raw materials with ‘modern super plasticizers’, water inhibitor and powdered adhesives, and incorporates about 10% lime, which allows vapour permeability and allows the wall system to ‘breathe’. The plaster is applied using automated plaster mixing and application pumps. The specification is silent as to the specific proposed paint coating system for the stucco.

3. Background

- 3.1 The owner/builder lodged an application for a building consent for the building work on 23 April 2009 (No. 18735).
- 3.2 As part of its standard operating procedure for the ‘specific design component of any building consent application’, the authority arranged an engineering external peer review of the proposed structure and forwarded documentation to the engineers on 1 May 2009.
- 3.3 In a letter to the owner/builder dated 26 May 2009, the authority listed 18 areas where further information was required. In regard to the clauses considered in this determination, these included (in summary):
- peer review required for the straw bale construction method

⁵ NZS 3602:2003 Timber and wood-based products for use in building

- the beam penetrations through the straw bale walls
- the need for a ‘structural skeleton’ to show structural elements
- various product information required for:
 - the membrane to the bathrooms
 - the proprietary roof panel system, including loads, flashings etc
 - the proprietary floor slab system
 - the glazing types
 - details and appraisals of proposed products as alternative solutions
- various other minor additional information required on the drawings.

3.4 The designer responded to the above on 4 June 2009, providing additional information. In regard to the requirement for a peer review of the straw bale wall system by ‘an approved certification agency’, the designer stated:

Over the last 6 years “no plans” submitted to numerous [authorities] throughout NZ by [the designer] have been required to be peer reviewed. [The authority] has consented and has issued code of compliance (sic) for this type of structure, with comparable documentation previously.

3.5 In a letter to the owner/builder dated 6 June 2009 the authority explained that in order to approve the consent application it ‘must be satisfied on reasonable grounds the proposal meets the relevant provisions of the NZ Building Code’. The designer’s response was not considered to ‘greatly progress the matters identified earlier as requiring clarification’ and the authority advised that the application was therefore ‘on hold pending the provision of required additional information’, adding:

Accordingly, you may wish to ask your designer to give further consideration to the issues identified in our initial letter and reconsider the reply he has provided. Adequately answering the questions asked and demonstrating how compliance with the building code requirements is to occur is needed in order for your application to be progressed.

3.6 On 19 August 2009, the designer met with the authority, which suggested that a determination could be sought if its requests for further information were considered to be unreasonable. In a letter to the owner/builder dated 26 August 2009, the authority confirmed these discussions and asked the owner/builder for ‘advice as to how you would like matters to proceed’.

3.7 In a letter to the authority dated 27 November 2009, the design engineer confirmed that a number of issues had been brought to their attention by the external engineer peer reviewer and these matters had been satisfactorily addressed in correspondence between the engineers. (However, it appears that the designer was not clear whether the responses to the engineers were satisfactory and there was no specific request to alter the proposal.)

3.8 In a letter to the owner/builder dated 4 December 2009, and forwarded to the authority; the designer provided some information on the roof panels, the fire flue and the proprietary floor slab system; while very briefly responding to the remaining items in the authority’s original list of requirements (see paragraph 3.3).

3.9 The authority's internal review and memorandum

- 3.9.1 Following further correspondence without resolution, the authority reviewed the adequacy of the information supplied by the designer in response to its queries. The authority concluded that assessment of the straw bale system as an alternative solution was still outstanding, with Clause E2 being the 'main item where compliance is not demonstrated'. The authority advised the owner/builder that the consent application would be formally declined and a determination would be sought.
- 3.9.2 In an internal memorandum dated 5 February 2010, the authority summarised the background, noting that it had initially requested a peer review of the straw bale system in May 2009 as it lacked the necessary in-house expertise or resource to evaluate this. However the designer had specifically declined to 'proceed or even agree on that approach to the assessment and evaluation of the alternative solution'.
- 3.9.3 The authority stated that the 'contentious part of the project is the straw bale component', and considered that compliance of the construction system with Clauses B1 Structure, B2 Durability, E2 External Moisture and E3 Internal Moisture was not adequately demonstrated in the consent application documents or within subsequent correspondence with the designer.
- 3.9.4 The authority considered that the proposal did not 'specifically address each' of the performance requirements of Clause B1, although the authority did not provide specific information or examples to support that view. The authority subsequently clarified its position in regard to the structure of the building (see paragraph 4.4.2).
- 3.9.5 In regard to Clause B2, the authority included the following comments (in summary):
- as the straw bale walls make it difficult to detect any underlying failure, the cladding requires a 50-year durability to match that of the structure
 - submitted reports on moisture performance of straw bale houses do not fully reflect actual in-service conditions and on-going maintenance is not discussed
 - the documentation does not adequately address concerns about the control of moisture during construction of the straw bale walls.
- 3.9.6 In regard to Clause E2, the authority included the following comments (in summary):
- the specification calls for a proprietary plaster system to the walls, with no manufacturer's information and no demonstration that it will meet the 15-year durability requirement
 - stucco plaster is prone to cracking and movement, so is likely to allow moisture into the wall
 - there is a lack of substantive and credible in-service performance data for stucco plastered infill straw bale construction
 - the design provides the walls with very little protection from wind blown rain.
- 3.9.7 In regard to Clause E3, the authority noted that its concerns particularly applied to the bathroom, ensuite and 'wet area shower' and considered that the information on the proposed membrane does not cover its suitability for use over stucco walls, which appears to be outside the scope of the product appraisal.

3.9.8 The authority also noted that a ‘full and comprehensive assessment’ of the proposal could not be made until the required information was submitted, after which additional information may still be required. It outlined some ‘options for progress’, one of which was to modify the specified intended life of the house, which would allow the construction to proceed, ‘more fairly distribute the liability’ and allow the performance of the system to be demonstrated.

3.10 The authority’s refusal to issue the consent

3.10.1 Following its internal review of the proposal, the authority formally refused to issue the building consent in a letter to the owner/builder dated 9 February 2010. The authority stated:

After a comprehensive review of all the information provided in support of this application, [the authority] is not satisfied on reasonable grounds the documentation demonstrates compliance of the building will be achieved with the relevant provisions of the NZ Building Code.

3.10.2 The authority quoted extracts from Clauses B1, B2, E2 and E3 of the Building Code within its letter without providing further explanation or specific reference to the proposed building; and advised that it intended to seek a determination.

3.11 The Department received an application for a determination from the authority on 26 February 2010.

3.12 The Department sought further information from the parties in order to clarify the authority’s stance in regard to outstanding structural questions about the proposed building. The authority responded in an email dated 4 May 2010, providing various examples of where it considered documentation to be insufficient or unclear. The designer’s response on the same day debated the authority’s view.

4. The submissions

4.1 The authority made a submission dated 19 February 2010 in which it summarised the background to the dispute and its repeated requests for further information, noting:

After the passage of some 11 months, and as a consequence of the unsuccessful “more information” requests [the authority] formally declined to issue the [owners] building consent application on 9 February 2010.

4.2 The authority forwarded copies of:

- the drawings and specifications
- the engineer’s calculations and producer statement - design
- the correspondence with the owner/builder and the designer
- various other statements and information provided by the designer.

4.3 The owner/builder acknowledged the application but did not make a submission in response.

4.4 The first draft determination

- 4.4.1 A first draft determination was issued to the parties for comment on 25 May 2010.
- 4.4.2 The authority generally accepted the first draft determination on 29 June 2010 and included comments that I have taken into account; amending the draft as I consider appropriate. The authority's comments included (in summary):
- The consultant engineer reviewed only what was provided with the initial consent application. Until the application documentation is complete, the adequacy of the structure in its totality cannot be confirmed by the engineer.
 - The designer refused to accept that the design is an alternative solution, proposing that the authority carry out required research rather than following the Department's guidelines for alternative solutions⁶. Designers need to provide comprehensive applications that demonstrate compliance.
- 4.4.3 The designer did not accept the first draft determination, with their detailed response not received until 11 January 2011. The designer also attached:
- sketches of two recently consented designs in other regions
 - descriptions of testing carried out to experimental structures
 - the moisture testing of two buildings and an external wall.
- 4.4.4 The designer considered that the demonstrated satisfactory performance of their past projects counteracted the opinions expressed in the draft. They also described the problems experienced in communicating with the authority; contrasting this to their experience with other authorities.
- 4.4.5 The designer also requested technical assistance from the Architectural Designers NZ Inc. ("ADNZ") and from the manufacturer of the plaster proposed for the straw bales. ADNZ referred the designer to a senior member ("the reviewer") to 'obtain an independent Peer Review'. In a commentary dated 24 August 2010, the reviewer did not accept the draft determination although agreeing that some documentation could be improved. I have considered the reviewer's detailed comments and attached reports, and have amended the draft as I consider appropriate.
- 4.4.6 The plaster manufacturer responded in a letter to the designer dated 13 July 2010 and I have included some of the technical information on the proposed plaster system in this determination.
- 4.5 A second draft determination was forwarded to the parties on 22 December 2010. The owner/builder (directly and not through the agent) accepted the second draft without comment on 14 January 2011, and the authority accepted the draft without comment on 17 January 2011.
- 4.6 Up to that point, the designer was involved in the determination as the agent of the owner. As he would have been considered a "person with an interest in the determination" had he not been an agent I gave the designer the opportunity to make a further comment on the second draft in his capacity as the designer. After a number of requests for progress, the designer responded on 7 June 2011, providing

⁶ Means of establishing compliance: alternative solutions. Available from the Department's website at www.dbh.govt.nz.

details of consent processing experienced when submitting proposals to several other authorities. The submission was accompanied by three sets of drawings with details for a number of straw bale houses. The designer also made comments on the draft, which I have considered; making several minor amendments to matters of fact.

5. The specialist's report

- 5.1 I sought advice from an independent specialist who has considerable experience with alternative construction methods including earth and straw bale construction. The specialist is the Chairman of the Standards Technical Committee for earth building and has been the primary author for BRANZ⁷ on straw bale guidelines.
- 5.2 The specialist examined the consent application documents and discussed various matters with the designers, who he described as 'very experienced straw bale builders/designers'. The specialist provided a report dated 30 March 2010, which described the general construction of the proposed house and described the site as being at the 'upper end' of a high wind zone.
- 5.3 As part of his consideration, the specialist consulted with experienced colleagues and commented in some detail on:
- the level of protection afforded by the roof overhangs
 - the general construction of the straw bale walls, including the plaster system
 - the general weathertightness of the proposed details.
 - the adequacy of the documentation.
- 5.4 The specialist considered that some 'fundamental issues of weather protection to the walls and the penetration details do require serious reassessment'; and concluded that the proposed building is 'at high risk of failure with meeting the requirements' of Building Code Clauses B2, E2 and E3, noting:
- Strawbales are at risk of failure mostly from decay caused by excessive moisture. If E1, E2 and E3 details are not adequate, or roof durability is not adequate, then there is a risk of moisture induced damage, leading to failure.

5.5 The drawings

- 5.5.1 The specialist noted that the set of drawings was 'very large and comprehensive', but noted some errors, missing details, inconsistencies and a general lack of cross-referencing. While some items are minor and easily remedied, others are more substantial and require addressing.
- 5.5.2 The specialist included the following comments on the drawings (in summary):
- some details are not adequately or correctly labelled/titled and/or not cross-referenced to locations
 - roof overhangs are not dimensioned and are inconsistent when scaled

⁷ Building Research Association of New Zealand

- paint coatings must be specified, as it is important that coatings do not provide vapour barriers that reduce the ‘breathability’ of the straw bale walls
- it is not clear whether control joints are proposed
- there are no details of junctions at the pool feature, where bales on flat meet bales on edge on one side and 140mm thick straw on the other side (the designers have since signalled their intention to remove the pool feature)
- it is not clear how straw bales are to be laced and pinned under the roof
- the netting around the straw bales is shown in the first scratch coat of the plaster, whereas plaster reinforcing mesh must be within the second coat
- there are no details of jamb to sill flashing junctions, window seals and additional reinforcing mesh at corners of the plaster (the designer has offered to provide a 3D sketch if requested by the authority)
- there are no details of junctions between bathroom fixtures and straw bale walls
- while bottom plates are noted as H3, the proposed treatment of timber posts and beams within the straw bale walls is unclear
- mulseal over the footings is noted on some drawings but not shown on others
- as E2/AS1 window details do not apply to straw bale walls, flashing dimensions should be shown on drawings
- flashings at wall to soffit junctions are shown in some drawings but not others
- the running of water pipes through straw bale walls need to be expressly prohibited, due to the risks of plumbing leaks and/or condensation moisture
- there is no specification of the type of glazing (double, safety etc)
- the location of the house on the site plan is not dimensioned.

5.6 The specialist’s report was forwarded to the parties on 1 April 2010. The authority generally accepted the specialist’s findings in a letter dated 19 April 2010.

5.7 The designer responded to the specialist’s report in a letter dated 16 April 2010, which discussed various general matters and raised a number of issues. The two main issues were that:

- the independent specialist is expert in earth type construction rather than straw
- straw construction is different from earth construction and, because of the permeability of the plaster covering to the straw; plastered straw bale exterior walls do not need the same protection from weather as earth construction.

6. The documentation supporting the consent application

6.1 The authority considers that documentation supplied with the consent application is not sufficient to provide reasonable grounds that the building would comply with the Building Code if built in accordance with the plans and specifications.

- 6.2 Section 45(1) of the Act requires an application for a building consent to be accompanied by plans and specifications and to ‘contain or be accompanied by any other information that the building consent authority reasonably requires’. An authority can be satisfied that a proposed building will comply by various means, including:
- the credentials of the designer and builder (if known)
 - the adherence with the stated means of compliance
 - the completeness or certainty of information submitted
 - a lack of errors, conflicts and/or omissions apparent in the documentation.
- 6.3 Although the specialist describes the designers as ‘very experienced’ in straw bale design and construction, the owner is also the proposed builder and I have no information on his building experience, particularly in straw bale construction. Documents must therefore provide sufficient instruction and certainty on those areas of the building that are specifically designed elements or alternative solutions.
- 6.4 The documents call for compliance with various standards and clauses of the Building Code. This compliance requires the provision of clear definition of which elements are specifically designed, and for the straw bale walls how these will comply with the requirements of Clauses B1, E2, and E3 as well as the related durability requirements of Clause B2.
- 6.5 The designer in his submissions has argued that insufficient weight has been given to his experience as a designer plus the performance of his buildings in considering whether the building will comply if built in accordance with the plans and specifications. It is my view that experience is a valid form of evidence to support a consent application; however it should be presented in a form that is both verifiable and if possible supported by third party review. The evidence of this nature provided to support the consent was insufficient in this regard.

6.6 The adequacy of the documentation

- 6.6.1 I consider the documentation submitted with the application for the building consent was inadequate in a number of areas. These areas include (but are not limited to):

General

- lack of specification of necessary maintenance of straw bale walls.
- lack of general clarity and errors regarding:
 - clear labelling of spaces, materials etc on plans, elevations and sections
 - clear cross references between details and plans, elevations and sections
 - clear titles and descriptive notes to details
 - the lack of dimensions on the site plan.

Structural

- lack of key drawing(s) to clearly show and provide cross-references for structural elements

- lack of clear information regarding posts and beams in the straw bale walls (for example the post spacing)
- uncertainty as to design intentions and construction requirements regarding:
 - confirmation that specifically engineered elements of the building will be observed by the design engineer during construction, with a ‘Producer Statement – Construction Review’ to be provided on completion
 - confirmation that the designer will observe straw bale laying to ensure that the fit between the structural timbers will be sufficiently tight to resist expected lateral loads.

External and internal moisture

Areas where details are missing, unclear or are not sufficient to ensure the resistance to external and internal moisture include (but are not limited to):

- in regard to the joinery, the lack of:
 - details of jamb to sill flashing junctions, window seals and additional reinforcing mesh at corners of the plaster
 - head drip edges and sill projections to curved plaster reveals
 - wrap over the head flashing upstands to protect the junction
 - flashing dimensions
 - clear specification of glazing types
- in regard to other junctions, the lack of:
 - overlap and drip edges to the base of the stucco plaster
 - detail at the junction with the pool feature
 - sealed junctions of the horizontal beams with the stucco
- in regard to the plaster, the lack of clarity regarding:
 - the specification of the plaster system
 - the specification of paint finishes to the plaster
 - the installation of control joints
 - the position of the mesh reinforcing within the plaster
- conflicts, errors, lack of detail and confusion regarding:
 - dimensions of roof overhangs
 - specific treatment/species for posts and beams in the straw bale walls
 - mulseal over the footings inconsistently shown
 - some flashings inconsistently shown and/or not dimensioned
 - the method of replacing roof panels without damage to the bales
 - the method of lacing and pinning of bales under the roof
 - the building wrap to the bottom course of bales
 - areas where straw is ‘stuffed’ into gaps and framed walls
- in regard to internal moisture, the lack of clarity regarding:
 - plumbing pipes in straw bale walls

- junctions of straw bale walls with plumbing fixtures
- the bathroom waterproofing membrane.

6.6.2 I note that some of the above items appear to have been clarified in correspondence following the preparation of the first draft determination. However, it is important that all clarifications and confirmations are appropriately incorporated within the consent documentation.

7. Conclusion

7.1 I consider that examination of the consent documentation has established that the documentation submitted with the consent application does not adequately demonstrate that the proposed building would comply with Clauses B1, B2, E2 and E3 of the Building Code.

7.2 As shown in paragraph 6.2, the Act allows the authority to set reasonable requirements for the documentation that accompanies applications for building consents. The authority is entitled to set minimum requirements to ensure that the proposed building work is clearly documented and to require the designer to clearly demonstrate and document how compliance is to be achieved for those areas it considers unclear.

7.3 Until the shortcomings in the documentation are satisfactorily resolved, the authority is entitled to refuse to issue 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).

7.4 I also note that the specialist's report described a primary concern about the weathertightness of the proposed straw bale walls relating to the lack of protection afforded by roof overhangs to the straw bale walls and I draw this matter to the authority's attention for its consideration as it considers appropriate.

7.5 I suggest that the entire building consent application should be modified and resubmitted, taking into account the findings of this determination and including the items outlined in paragraph 6.6.1. If remaining details cannot be agreed with the authority, any items of disagreement can then be referred to the Chief Executive for a further binding determination.

8. The decision

- 8.1 In accordance with section 188 of the Act, I hereby confirm the authority's decision to refuse to issue the building consent, based on inadequate documentation to establish that the proposed straw bale wall details would comply with Clauses B1, B2, E2 and E3 of the Building Code.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 June 2011.

John Gardiner
Manager Determinations