

## Determination 2008/55

### Refusal to issue a code compliance certificate due to concerns about the dark colour, and hence the durability, of the cladding to a new house at 38 Davies Drive, Nelson



#### 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, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is the owner, P Coulson and the other party is the Nelson City Council (“the territorial authority”). The applicant has identified the builder, Tasman Homes (1996) Ltd (“the builder”) as a person with an interest in the matter.
- 1.2 The matter for determination is whether the territorial authority was correct in its decision to refuse to issue a code compliance certificate for a new house because it was not satisfied that the cedar cladding installed to part of the house complies with

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<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

Clause B2 Durability of the Building Code<sup>2</sup> (Schedule 1, Building Regulations 1992), considering the colour of the coating applied to the cladding.

- 1.3 As the applicant has restricted the matter to be determined to the colour of the cedar cladding, and the territorial authority has raised no other issues regarding the building, this determination is limited to the durability of the cedar cladding.
- 1.4 I therefore consider that the matter for determination is whether the cedar cladding as installed to some of the walls (“the cladding”) complies with Clause B2 Durability of the Building Code (Schedule 1, Building Regulations 1992).
- 1.5 In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

## **2. The building**

- 2.1 The building consists of a new 2-storey detached house situated on an excavated sloping site. The house walls are partially clad with cedar weatherboards.
- 2.2 The cedar cladding consists of 165mm vertical shiplap weatherboards, with an exposed face of about 140mm in width. The weatherboards are installed over 6mm fibre-cement “Eterpan” sheets, which are fixed over a “ventclad” 20mm drained cavity system to the framing over the building wrap. The cavity battens are H3.2 treated and are castellated on both sides in order to provide drainage to the horizontal battens that allow for sheet fixing. The cedar cladding has been finished with a black oil stain.

## **3. Background**

- 3.1 The territorial authority issued a building consent (No. 051222), which I have not seen, sometime during 2006.
- 3.2 I have received no records of inspections carried out during construction, but according to the applicant:
- the cedar cladding was installed during January and February 2007
  - cupping of the boards was evident by May 2007.
- 3.3 In an email to the applicant dated 19 July 2007, the builder expressed his concerns about the colour of the cladding, noting that the boards had cupped and could split if sufficiently stressed during summer and warning that, if the weatherboards deteriorated, they would not be covered by warranty. However the builder also noted:
- This cupping is not likely to affect the weathertightness or structural integrity of the building, but it may become unsightly with time, especially if splitting occurs.
- 3.4 The territorial authority carried out a final inspection on 24 September 2007, and the inspection record notes:

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<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

The dark coloured cedar weatherboards are showing signs of cupping which may in time allow water entry to the cavity system.

- 3.5 In a letter to the applicant dated 10 December 2007, the territorial authority noted the dark colour of the cladding, the signs of cupping and shrinkage in the boards and the builder's concern regarding the colour. The territorial authority expressed concern that the colour could result in excessive shrinkage, checking and consequential failure of the cladding, concluding:

Nelson City Council is not satisfied that the timber weatherboard cladding as installed will meet the 15 year durability requirements of the NZ Building Code for claddings. Because of this, Nelson City Council will not be in a position to issue a Code Compliance Certificate.

- 3.6 The Department received an application for a determination on 16 May 2008.

## **4. The submissions**

- 4.1 In a summary accompanying the application, the applicant described the cladding and its installation, noting that:

- The cedar cladding is essentially a “cosmetic option” as there is weathertight cladding underneath.
- The depth of cupping is an average of 1mm, with a maximum of 2mm.
- The degree of cupping appears to be unchanged over the past year.
- The boards on the shaded south wall are cupped as much as on the sunny walls.

- 4.2 The applicant forwarded copies of:

- elevations and wall detail drawings
- the email dated 19 July 2007 from the builder
- the letter dated 10 December 2007 from the territorial authority
- photographs of the cedar cladding on the north and west elevations.

- 4.3 A copy of the applicant's submission was provided to the territorial authority and the builder. The territorial authority did not respond.

- 4.4 The builder responded with a submission dated 19 May 2007, which outlined the background to the situation, explaining that during the final inspection the territorial authority had requested a copy of his email to the applicant dated 19 July 2007, the purpose of which was to warn the applicant that the builder was not prepared to replace or maintain the cedar boards if they deteriorated due to the dark colour, noting:

I did not believe there were weathertightness issues but simply felt that the cedar could become unsightly if not adequately maintained and I conveyed this message in the email.

The builder went on to describe the construction details of the cladding installation, explaining that the Eterpan substrate would guard against moisture entering the cavity should the cedar boards split, and any deterioration in the boards would be

completely visible as a maintenance issue for which the territorial authority is not responsible, noting:

In the very unlikely event that moisture did get beyond the Eterpan, it would run down the wet side of the cavity and out the drainage holes at the base or simply evaporate due to air movement within the cavity. That is exactly what the cavity is designed to do, so any moisture will never reach the building wrap, let alone the wall framing. The worst case scenario is that the cedar will become unsightly if not adequately maintained.

4.5 A draft determination was issued to the parties and the builder on 17 June 2008. The draft was accepted without comment.

## 5. The relevant requirements

5.1 The relevant provisions of the Building Code are:

### **B2 Durability**

#### **Performance**

B2.2 Building materials, components and construction methods shall be sufficiently durable to ensure that the building, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the building

B2.3.1 Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code...

(b) 15 years if:

(ii) Failure of those *building elements* to comply with the *building code* would go undetected during normal use of the building, but would be easily detected during normal maintenance.

### **E2 External moisture**

#### **Performance**

E2.3.2 Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness or damage to building elements.

5.2 The relevant sections of the Acceptable Solution E2/AS1 are:

### **9.4 Timber weatherboards**

#### **9.4.1.2 Vertical weatherboards**

This Acceptable Solution is limited to the use of direct fixed vertical weatherboards....

#### **9.4.9 Finishes**

Where a protective finish is required by NZS 3602, all timber surfaces....

#### **COMMENT**

With tangentially-sawn weatherboards, particularly painted or stained in dark colours, cupping is possible. Providing additional fixings may help restrain the board, but will usually result in splitting of the boards.

5.3 The relevant section of NZS 3602<sup>3</sup> is:

### **111.2 Weatherboards and exterior finishing timbers**

<sup>3</sup> NZS 3602: 2003 Timber and wood-based products for use in building

**111.2.5**

For a “no finish” or “stained finish” condition only the following species are permitted; redwood, heart cypress, western red cedar....

**6. Discussion**

- 6.1 The applicant and the builder have submitted that the cupping and potential splitting of the cedar weatherboards is a cosmetic and maintenance issue rather than a weathertightness matter, due to the underlying fibre-cement sheet and drained cavity.
- 6.2 In assessing the weatherboards, the territorial authority is of the opinion that the colour of the weatherboards is likely to lead to splitting that could allow moisture to penetrate into the cavity.
- 6.3 The builder submits that the underlying fibre-cement sheet will prevent any moisture reaching the cavity. In the unlikely event of any moisture penetration past the fibre-cement substrate, the cavity is designed to allow water to run down the wet side of the cavity and drain out at the base without even reaching the building wrap.
- 6.4 I note that an Acceptable Solution is a prescriptive design solution that provides only one way of complying with the Building Code. The vertical cedar weatherboards do not fall within the scope of E2/AS1 and must therefore be considered as an Alternative Solution, requiring assessment of the cladding’s likely performance within the context of this house.
- 6.5 In the case of the vertical cedar weatherboards, I make the following observations:

<b>The legislation</b>	<b>The cedar weatherboards</b>
<p><b>Clause B2</b> The weatherboards shall be sufficiently durable to maintain weathertightness for a minimum of 15 years.</p>	<p>The condition of the cedar weatherboards will be clearly visible and able to be easily monitored, with the boards able to be maintained. The consequences of the boards failing would not lead to damage of associated building elements, and the boards can be replaced if necessary.</p>
<p><b>Clause E2</b> The exterior walls shall prevent the penetration of water that could cause undue dampness or damage to building elements.</p>	<p>The weatherboards are applied over a weathertight substrate of fibre-cement sheets. The substrate is installed over a drained cavity designed to allow any moisture that might penetrate the cavity from reaching the building wrap and the wall framing.</p>
<p><b>E2/AS1</b> The Acceptable Solution warns of cupping and possible splitting resulting from dark colours on timber weatherboards, but only as a comment.</p>	<p>The cupping is restricted by the narrow width of the boards (about 140mm). Any splitting that may result from the dark colour will be clearly visible and able to be maintained.</p>
<p><b>NZS 3602</b> Cedar does not require the addition of protective coatings to maintain durability.</p>	<p>The cedar weatherboards could have been left uncoated.</p>

- 6.6 Taking into account the above observations, I consider that any damage resulting from the dark colour of the cedar weatherboards will be cosmetic only, and will not

compromise the weathertightness of the building during the minimum 15-year durability requirement for weatherboard claddings.

6.7 I therefore conclude that the cedar weatherboards will comply with the performance requirements of Clause B2 of the Building Code and I am of the opinion that, in the circumstances applying to this particular house, the territorial authority is incorrect in refusing to issue a code compliance certificate due to the colour of the cladding.

6.8 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular colour for a wall cladding has been established as being code compliant in relation to a particular building does not necessarily mean that the same coating colour will be code compliant in another situation.

## **7. The decision**

7.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the cedar weatherboards as installed to this building comply with Clause B2 of the Building Code, and accordingly instruct the territorial authority to issue the code compliance certificate for the house.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 June 2008.

John Gardiner  
**Manager Determinations**