



Determination 2012/036

Regarding the granting of a building consent with a condition requiring a fire resistance rating to be applied to a new window

1. The matter for determination

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.

1.2 The parties to this determination are:

- the owners of the house, G Kurta and A Parfitt (“the applicants”), represented by an agent
- the architect, G Crimp (“the architect”), who is a Registered Architect and therefore a licensed building practitioner under the Building Act², and who is also the applicant’s agent
- Wellington City Council, carrying out its duties and functions as a territorial authority and a building consent authority (“the authority”).

1.3 The dispute arises from the authority’s decision to issue a building consent that included a condition required a fire resistance rating to be applied to a new window to be installed in a house at 58 View Road, Houghton Bay, Wellington.

1.4 The matter to be determined³ is therefore whether the authority correctly exercised its powers in granting a building consent with a condition requiring a fire resistance rating to be applied to a new window. In order to determine this matter, I have considered whether the window is required to have a fire resistance rating applied in order to achieve compliance with Building Code Clause C3 Spread of Fire.

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 Registered Architects are under the Registered Architects Act 2005 are treated as if they were licensed in the building work licensing class Design 3 under the Building (Designation of Building Work Licensing Classes) Order 2010, and therefore the architect is considered a party to the determination.

³ In terms of sections 177(1)(b) and 177(2)(a).

- 1.5 In making my decision I have considered the submissions of the parties, and other evidence in this matter.

2. The building work and background

- 2.1 The applicants are undertaking alterations to an existing house that was originally constructed in 1927. The building work consists of an interior renovation and a westward extension to incorporate two new rooms (“the building work”). The southern wall of the westward extension is adjacent to the neighbouring property, and will be constructed of fibre-cement panels installed over fibre-cement cavity battens and timber framing, with fibreglass insulation and 10mm fire rated plaster board.
- 2.2 The building work in dispute is the installation of a new window into the existing part of the southern wall (“the window”). At the location of the new window, the southern wall is 655mm from the adjacent boundary. The owner wishes to install a standard double glazed unit and the authority has required that a window with a fire resistance rating of -/30/30 FRR be used.
- 2.3 The building consent for the alterations was issued on 16 December 2011, with the following condition:
- It was agreed between [the authority] and [the architect] ... that the specified [window] shall incorporate 6mm [borosilicate float fire resistant glass] and have no openings. Manufacturers certification for this window regarding its fire resisting properties shall be provided to the [authority] prior to the [code compliance certificate] being issued.
- 2.4 The architect disputed the need for the window to have a fire resistance rating, and an application for determination was received on 21 March 2012.

3. The submissions

- 3.1 The application for determination included a copy of the building consent, a BRANZ report about the fire resistance rating of the window as specified in the building consent, the architectural drawings for the alterations, photos of the house and property, and a submission from the architect summarising the dispute. The architect noted:
- the fire rated window will be positioned within an existing timber weatherboard clad and timber framed house which, as an existing structure, offers no significant fire rating
 - the approved fire rated window glazing is fire resistant glass, however the window frame and sash are only timber
 - there is no other structure within proximity of the southern boundary, and the use of the neighbouring site suggests no future structure will be placed within 1 metre of the boundary near the window
 - the exterior wall to the new extension will provide a 30/30/30 fire resistance rating.

3.2 The authority made a submission dated 3 April 2012, noting:

- the architect was advised the spread of fire over the boundary needed to be considered, and as the building work was located within one metre of the adjacent boundary, the requirements of Clause C3 to protect the adjacent property needed to be addressed
- the new work in accordance with section 17 was required to comply with the Building Code and the building, after the alteration, needed to comply to at least the same extent as before
- the options were; fire rating the new wall in accordance with the Acceptable Solution C/AS1 paragraph 7.10.6 and the proposed openings within the new wall and new openings within the existing wall in accordance with the requirements of table 7.1, or demonstrating compliance via an alternative solution or considering a waiver/modification to the Clause C3 under section 67 of the Act
- the proposal was subsequently altered, details of the approved fire rated window were also supplied; the details for the window were confirmed as a non opening window constructed with 6mm ceramic glass with a fire resistance rating of -/30/30 FRR
- a formal submission for non fire rated windows was not submitted to the authority for approval and furthermore, no justification or evidence was submitted to verify how non fire rated windows as part of the alterations would comply with the Building Code requirements.

3.3 A draft determination was issued to the parties for comment on 23 April 2012. Both parties accepted the draft without further comment.

4. Discussion

4.1 Building Code obligations

4.1.1 Section 17 of the Act requires that all building work must comply with the Building Code. In respect of 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.

4.1.2 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.

4.1.3 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.
- 4.1.4 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”.
- 4.1.5 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.
- 4.1.6 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.
- 4.1.7 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.”
- 4.1.8 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.
- 4.1.9 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.

- o continue to comply with the other provisions of the Building Code to at least the same extent as before the alteration.
- 4.1.10 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 with the Building Code.
- 4.1.11 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”.
- 4.1.12 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 building work does not reduce the extent to which the altered 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.

4.2 The Building Code obligations for the window

- 4.2.1 The scope of the building work consists of the new building elements to the southern wall (the westward extension and the new window to the existing wall) which together form a significant part of the southern wall.
- 4.2.2 In respect of the fire safety requirements of the Building Code, I therefore am of the view that the Building Code obligation Clause C3.3.5 applies to this new building work. The building after the alteration is required to comply to at least the same extent as before the alteration.
- 4.2.3 Clause C3.3.5 requires that:

External walls and roofs shall have resistance to the spread of fire, appropriate to the fire load within the building and to the proximity of other household units, other residential units, and other property.’
- 4.2.4 The relevant provisions of C/AS1 amount to a means of compliance with the performance requirements of Clauses C of the Building Code. In terms of the requirement of Clause C3.3.5, C/AS1 provides some guidance on how this requirement can be achieved. The relevant paragraphs of C/AS1 are included in Appendix A.
- 4.2.5 If this was a new building being constructed with the same details and location to the boundary, the C/AS1 solution to satisfy C.3.3.5 is that the external wall of the house close to the boundary (it is within 1 metre) would need to have a fire resistance rating of 30/30/30 to provide protection to the adjacent property, with fire resisting glazing permitted in accordance with Table 7.1 of C/AS1.
- 4.2.6 In considering the building work, I note that in terms of the westward extension, the overall hazard to the adjacent property is increased by this extension, regardless of the fact that the external wall to the extension is to have a 30/30/30 fire resistance

rating. This is due to the fact that the floor area has increased significantly, and there is no internal separation.

- 4.2.7 A glazing solution with no fire resistance rating is not a like for like substitute for the existing plasterboard and weatherboard wall in terms of the amount of fire protection provided. Neither are likely to achieve a significant fire resistance rating, however, the window will offer an inferior level of protection to that currently provided by the external wall.
- 4.2.8 In terms of the compliance of a glazing solution that does not have a fire resistance rating, I note that thermal radiation calculations could be done to demonstrate the effects of fire, but in my opinion it is unlikely that the heat flux acceptance criteria would be achieved by a standard double glazed window unit located this close to other property.
- 4.2.9 I also note that even if these criteria were met, there may be an issue with the sufficiency of the protection provided to avoid collapse of the southern wall over the boundary in the event of fire.
- 4.2.10 In response to the architect's submission that the window frame and sash are only timber, I note that timber is recognised as being able to provide some fire resistance properties, although this does depend on the configuration and its ability to char.
- 4.2.11 I note that the architect may be able to develop an alternative solution proposal that provides justification for a -/30/- glazing solution, rather than the current -/30/30 glazing solution. It is likely that this would have a lesser cost than the window described in the building consent condition.
- 4.2.12 I also note that I have considered the arguments put forward for the compliance of the standard double glazed window unit, and I note that there is insufficient technical justification to demonstrate Building Code compliance with respect to the spread of fire. I also note that these arguments were not made in the building consent application, and therefore a proposed alternative solution proposal for the standard double glazed window unit was not considered by the authority.

5. Decision

- 5.1 In accordance with section 188 of the Act I hereby determine that the authority correctly exercised its powers, and accordingly I confirm its decision to grant a building consent with a condition requiring a fire resistance rating be applied to the new window.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 11 May 2012.

John Gardiner
Manager Determinations

Appendix A

A1 The relevant paragraphs of C/AS1 are:

7.1.1 External walls and roofs shall be constructed to avoid

- (a) Vertical fire spread up the outer face of the external wall of a building
- (b) Horizontal fire spread by thermal radiation or structural collapse, which could endanger:
 - (i) other property, or
 - (ii) adjacent buildings containing purpose groups DC, SD, SA, SR, or SH
 - (iii) external safe paths.

7.1.2 The necessary protection shall be achieved by a combination of:

- (a) Building separation.
- (b) Providing an adequate FRR for primary and secondary elements.
- (c) Restricted use of combustible surface finishes.
- (d) Limiting unprotected areas, including rooflights, where close to a relevant boundary.
- (e) Providing parapets, spandrels or aprons

...

7.10.6 For detached dwellings (purpose group SH), in which the household unit firecell contains no more than three floor levels, the external walls are required to be fire rated only if less than 1.0m from the relevant boundary. In that case the external wall shall have a FRR of no less than 30/30/30. The same provisions apply to multi-unit dwellings (purpose group SR), provided that adjacent household unit firecells are located only at ground level and are not one above another.

5.3.1 F ratings apply to primary and secondary elements within a firecell, including walls and floors which are fire separations, together with their supporting elements within the same firecell.

5.8.1 Glazing in fire separations shall be fixed fire resistant glazing having the same integrity and insulation values as the fire separation, except where uninsulated glazing is permitted by paragraph 5.8.2.

5.8.2 Uninsulated fire resisting glazing, having the same integrity value as the fire separation is permitted in:

- (a) External walls for Type B areas of fire resisting glazing meeting the requirements of Paragraph 7.4