



Determination 2015/028

Regarding the authority's refusal to grant building consent and whether proposed alterations to an existing building at 1 Warwick Street, Blenheim comply with the Building Code in respect of fire safety

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 and Assurance, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- the owner of the commercial building, R Suleiman ("the applicant"), acting through an agent
- Marlborough District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 I have provided the New Zealand Fire Service Commission ("the NZFS") with the determination documentation for comment by way of consultation under section 170 of the Act².

1.4 This determination arises from a dispute between the parties about the application of section 112 of the Act, and the authority's refusal to accept the applicant's proposed fire alarm system as complying with the Building Code to the extent required by the Act. I have taken the authority's statement that it considers the proposed alterations do not meet the requirements of the Building Code (refer paragraph 3.6) as indicating its refusal to grant consent.

1.5 The matters to be determined³ are therefore

- whether the proposed building work complies with Clauses C1 to C6, and F7 of the Building Code (First Schedule, Building Regulations 1992) to the extent required by the Act
- whether the authority correctly exercised its powers of decision when it refused to grant the building consent.

¹ The Building Act, Building Code, acceptable solutions, verification methods, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

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

³ Under sections 177(1)(a), 177(1)(b), 177(2)(a) and 177(3)(f)

- 1.6 In making my decision, I have considered the submission of the applicant, and the other evidence in this matter. I have not considered any other aspects of the Act or the Building Code. I have not considered compliance with respect to access and facilities for persons with disabilities that may be required under sections 118 or section 112.

2. The building work

- 2.1 The existing 370m² building comprises a joinery workshop, showrooms and office accommodation on the ground floor; and a two bedroom flat (“the flat”) with an outdoor area (“the deck”) on an upper level above the office and showroom.
- 2.2 The building has a concrete floor and a mix of masonry walls, and timber and steel construction to the ground level; and mainly timber framed construction to the upper level. The building is located on or close to the boundaries on the north and west sides, and set back from the street frontages on the east and south sides.

2.3 The existing building

- 2.3.1 The building comprises four distinct sections constructed between 1986 and 1995 as indicated in figure 1 below:

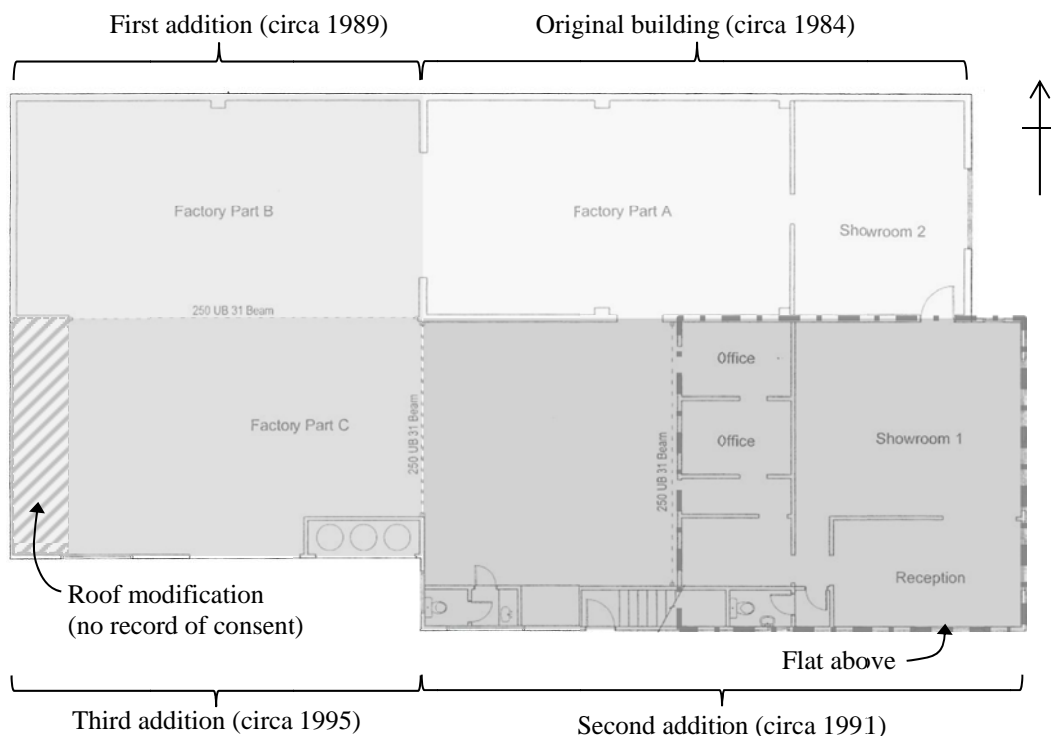


Figure 1: Floor plan of existing building (not to scale)

- 2.3.2 The original 102m² building was constructed from concrete masonry with a parapet wall offset 30mm from the north boundary. The first addition extended this building 68m² using similar construction. The walls to the north and east boundaries and the parapets above the roof line provide fire separation between adjacent properties.
- 2.3.3 The next addition of approximately 140m² extended the workshop and showroom and added a 50m² two bedroom apartment above the new showroom. Fire protection is limited to fire resistant linings to provide for fire separation between the workshop/office, and the stair providing egress from the flat above; and fire resistant

linings to the ceiling/floor structure and supporting walls. There is no evidence of the building being constructed as two separate fire cells.

- 2.3.4 In 1995 the building was extended a further 69m² up to the west boundary. This section is largely timber framed. Walls to the adhesive store and adjacent to the west boundary which require a fire rating are lined but not fire stopped.
- 2.3.5 A code compliance certificate for the 1995 extension was issued on 15 February 2004.
- 2.3.6 Modifications since 1995 include an alteration to increase the height of part of the roof adjacent to the west boundary, and extension of the dust extract system through to a joinery workshop on an adjacent property.

2.4 The proposed building work

2.4.1 The proposed building work (“the alterations”) involves lifting the roof of the joinery workshop, and consists of:

- replacement of the existing roof structure to the workshop and showroom; including
 - steel portal frames with new foundations to the workshop area
 - timber trusses to the single level part of the show room
- demolition of internal masonry walls
- increases in height of the boundary walls above the parapets.
- changes to the windows to bedrooms within the flat
- removal of decorative features and cladding replacement to the east and south faces of the flat and the showroom and offices below
- new linings to provide for fire separation between the flat and the workshop, showroom and office
- additional fire safety precautions; including
 - fire alarm system (refer paragraph 2.4.3 below)
 - exit signage and emergency lighting.

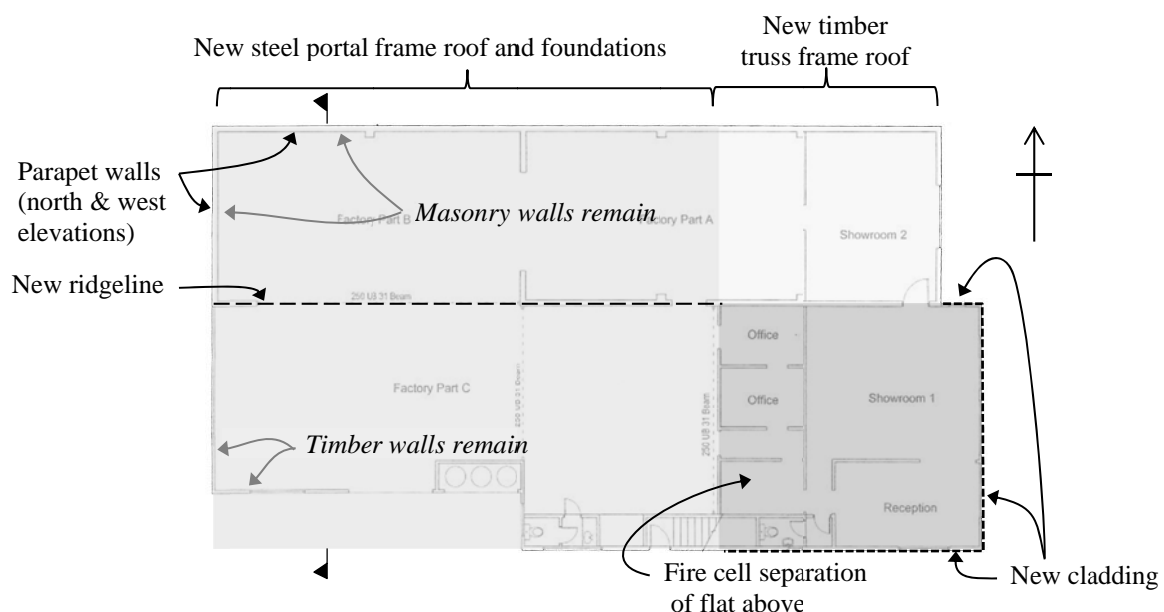


Figure 2: Floor plan indicating alterations (not to scale)

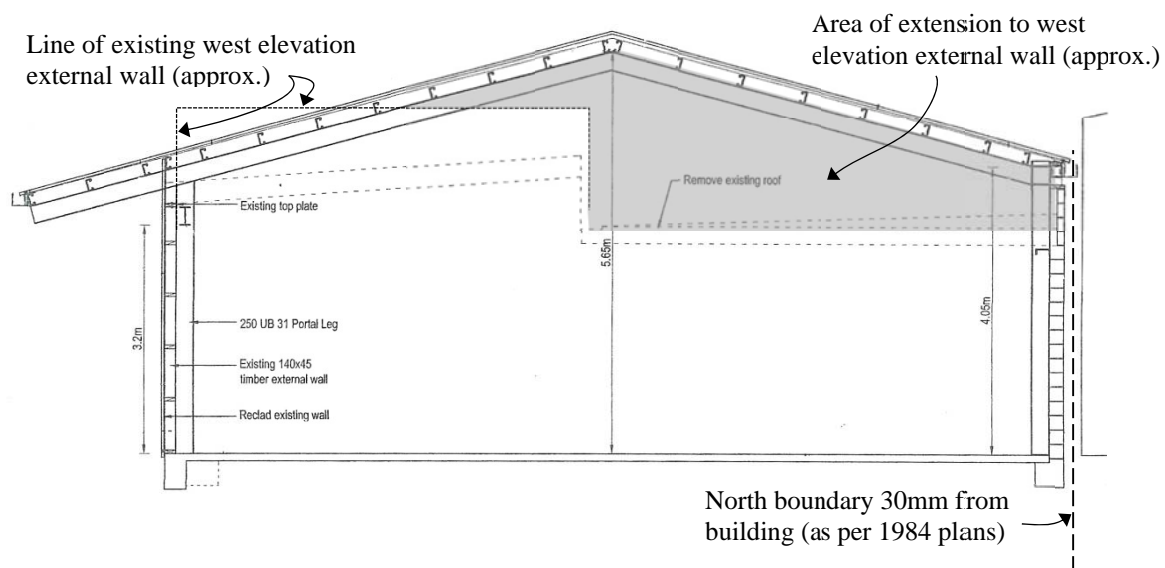


Figure 3: Cross section indicating alterations (not to scale)

- 2.4.2 The new roof structure increases the height of part of the building and changes the roof shape from a series of low pitch roofs with internal gutters to a gable roof with fascia gutters.
- 2.4.3 The proposed alterations include an additional fire safety system. The building consent application included a fire report proposing a Type 4 system (refer paragraph 3.3), however the applicant has proposed to use a different system. The system proposed by the applicant – a ‘F1-3 Single Zone Conventional Fire Alarm System’ – is described in the product literature as ‘a low cost single zone electronic Fire Alarm system for applications where brigade connection is not required,’ and referred to as complying ‘with the New Zealand Fire Alarm Standard (NZS4512:2010⁴/NZS4512:2003) for single zone Fire Alarm systems and with the requirements of the New Zealand Building Code for Type 1 systems.’
- 2.4.4 I note here that the reference to the Type 1 system in the product literature may refer to the Type 1 system that was deleted in 2001⁵. This system was a non-monitored manual fire alarm system. A Type 1 system is now a domestic smoke alarm installed in accordance with Acceptable Solution F7/AS1.
- 2.4.5 The system proposed by the applicant appears to be a Type 2 manual call point system with three detectors: two within the workshop and one within the office.

3. Background

- 3.1 On 27 March 2014 the applicant applied for a building consent for the alterations. The documentation provided with the consent application to demonstrate compliance with clauses C1 to C6 (protection from fire) was limited to a fire assessment drawing showing the fire hose reel and extinguisher locations, escape routes and lengths of travel and the exit locations for the ground floor.

⁴ New Zealand Standard NZS 4512:2010 Fire detection and alarm systems in buildings

⁵ Approved Document for New Zealand Building Code Warning Systems Clause F7 Third Edition 1 December 2000. Effective from 1 June 2001.

- 3.2 On 29 April 2014 the authority requested further information, including a gap assessment⁶ (refer paragraph 6.2.6).
- 3.3 The additional information and Fire Safety Report, dated May 2014 (“the fire safety report”), was submitted to the authority with a covering memo, on 17 June 2014. In summary, the relevant sections of the fire report stated:
- ‘The proposed works or future use of the building will not include ‘Hazardous Substances’, therefore F3/AS1 has been excluded from this report.’
 - The building is considered as two firecells. Firecell 1, the workshop and showroom, is 357m² and is classified as WB. Firecell 2, the flat, is 47m² and classified as risk group SM.
 - A total occupancy load of 10, based on advice from the applicant, compared with the occupant load of 38 shown as calculated from Table 1.2 of C/AS5.
 - ‘Type 4 or 5 alarm system is required for both floors’.
 - The number, heights, widths and lengths of the existing escape routes comply.
 - Lighting and signage will be provided in compliance with F6/AS1 and F8/AS1.
 - A requirement for a 60 minute life rating⁷ for both the workshop and the flat; 60 minute Property rating⁸ for the flat; and a 120 minute property rating for the workshop. Based on this it is proposed that:
 - The floor and supporting walls, and the wall between the SM area and the workshop are rated to 60 minutes; and the ceiling above the showroom is to be rated a distance of 5m, out from the external wall of the flat, to provide for separation and ensure vertical fire spread is restricted.
 - ‘The external walls of this building are existing and will not have any changes’.
- 3.4 The applicant’s covering memo to the authority states that it is not proposed to install the Type 4 fire alarm for the following reasons:
- a) Short Egress routes
 - b) 60 minute fire rating to the [flat]
 - c) Designated external escape path for the [flat]
 - d) Existing smoke alarms (type 1) in the [flat]^[9]
 - e) Existing sprinkler system already installed within the offices (below [flat]) for insurance purposes^[10]
 - f) Fire hose reel with dedicated^[11] water supply in factory (existing)
 - g) The proposed work does not affect the means of escape from fire, and therefore in the context of means of escape the works is minor resulting in a building score of less than 12 and not requiring assessment. [Refer paragraph 6.2.4]

⁶ Guidance Requesting information about means of escape from fire for existing buildings, A guide for Building Consent Authorities and Territorial Authorities (*Ministry of Business, Innovation and Employment*) December 2013, p9.

⁷ The *fire resistance rating* to be applied to elements of *construction* that allows movement of people from their location in a *building* to a *safe place*.

⁸ The *fire resistance rating* to be applied to elements of *construction* that allows for protection of *other property*.

⁹ Not verified.

¹⁰ Refer to 5.2. No sprinkler system observed as in place.

¹¹ Not verified.

3.5 In subsequent correspondence with the authority on 3 July 2014 the applicant indicated he had spoken to an officer in the Ministry and understood that there was no requirement to comply fully with the current standards, but to comply as near as reasonably practicable. To address the concerns raised by the authority the applicant modified the alarm proposal to provide for early warning and 24 hour coverage, and provided additional reasons why the applicant considered a Type 4 alarm is not reasonably practicable. These included:

...the cost of upgrade to a type 4 alarm system is around 15-20% of the proposed build cost and would make the development unfeasible (the status quo would remain, no improvement to fire requirements).

Existing security alarm system provision (connected to a security company)

The existing building has all the necessary building consents and code compliances and complied with the fire requirements at the time.

3.6 On 3 July 2014 the authority advised the applicant that the system was considered ‘an alternative solution’ that would need to be reviewed by the [engineering unit of the NZFS]¹². The authority also stated that it considered the alterations are not “minor” and advised that it ‘considers that it would be failing in its duty of care if it accepted [the applicant’s] proposal for such a high risk building when it believed that [the] proposal does not meet the requirements of the Building Code.’

3.7 The Ministry received an application for determination on 4 November 2014.

4. The submissions

4.1 The applicant provided a written submission with their application for determination. This included information about the existing building and the proposed new roof structure, a summary of the issues for determination, and reasons for the applicant’s proposal to install an alternative to the Type 4 alarm system. The applicant queried the application of section 112, whether the building was required to comply fully with the Building Code, and what is ‘as nearly as is reasonably practicable’ in this case.

4.2 In support of the application the applicant contended that:

- the proposed work is classed as a re-clad and structural strengthening and as such, in accordance with the Auckland Council Practice note¹³ Section 6 and Section 8 (“the practice note”), the works do not require assessment against section 112 of the Act
- the gaps between the buildings fire systems and features and the requirements of the Building Code were ‘a 60 [minute fire rating] between the [flat] and workshop and a Type 4 fire alarm system’
- the applicant accepts that there is a risk with the sleeping activities (which exists currently) and proposed installing the 60 minute fire rating
- ‘the Type 4 fire alarm system was too expensive and the cost of the installation and ongoing compliance would render the development unviable’

¹² Under Section 46; New Zealand Gazette, No.49; and Fire Service Act 175 Section 21A certain applications for building consent are required to be submitted to the New Zealand Fire Service Commission. These include buildings providing employment for 10 or more persons ‘where compliance with the clauses C1-6, D1, F6 or F8 of the Building Code will be established other than by compliance with the provisions of an applicable compliance document’.

¹³ Auckland Council April 2014 Practice Note Applying the term as near as is reasonably practicable. Document number: AC2226
Version: 5.

- the building has a range of existing safety features; whilst not complying with the current Building Code these do provide for additional fire safety. These features include a Type 14 fire hose reel and a sprinkler system under the flat
- taking these additional features into account, the applicant proposes not to install the Type 4 alarm, but to install a Type 1 fire alarm system ‘with 3 detectors (two in the factory, one in the office) and 3 speakers (one in factory, one in office and one in the flat) also a manual call point in the factory and in the office (at the exits)’
- the proposed fire rating, fire alarm system in conjunction with the existing fire safety features is ‘considered as nearly as is reasonably practicable to complying fully with the Building Code.’ This conclusion is supported by reference to Determination 2006/78^[14] ‘which came to a similar conclusion’
- the benefits of the proposal outweigh the sacrifices.

4.3 In support of the application and in response to a request to provide additional information, the applicant provided copies of the following documentation:

- Consent documentation dated as received by the authority on 27 March 2014 including the application, drawings, a Producer Statement – PS1 – Design for the steel purlins, portal frames, bracing and foundations, a Producer Statement for the truss design, and structural calculations.
- Correspondence dated 29 April 2014 from the authority seeking additional information.
- Email correspondence with the authority dated 30 April 2014 to 1 May 2014; 17 June 2014 and 3 July 2014.
- The fire safety report dated May 2014.
- A revised set of drawings dated 8 June 2014 showing a section through the flat and exit signage, emergency lighting and fire separations.
- Auckland Council Practice Note AC2226 Version 5 ‘Applying the term as near as is reasonably practicable’.
- Product literature for a ‘F1-3 Single Zone Conventional Fire Alarm System’.
- Determination 2006/78.

4.4 The authority did not make a submission in response to the application.

4.5 A draft determination was issued to the parties for comment on 14 April 2015.

4.6 The authority and the applicant accepted the draft without further comment in responses received on 22 and 28 April 2015 respectively.

4.7 A copy of the draft determination was provided to NFSC on 14 April 2015. The NZFS made a written submission on 4 May 2015 through legal advisers regarding matters directly relevant to NZFS. The NZFS is of the view that:

While the focus of NZFS is to ensure that all fire safety systems are adequate, fit for purpose and complying with the Code, there is also the need for the practical consideration of whether any features of the complying system could cause any practical problems. In this case, it is anticipated that there is the potential for the use of smoke detection within the workshop to result in a large number of false

¹⁴ Determination 2006/78 Upgrading the means of escape from fire on the alteration of an office building at 110 Symond Street, Auckland (Department of Building and Housing) 25 August 2006.

alarm activations. False alarms activations are obviously an inconvenience and cost to all parties concerned. The solution to this potential issue is available in C/AS2, paragraph 2.2.11, which permits the use of heat detection where the environment is challenging for smoke detection.

In consideration of this issue NZFS proposes that the draft determination recognises that in the workshop heat detection may be more appropriate than smoke detection, as part of the proposed complying alarm system. ...

In all other respects, NZFS supports the draft determination.

5. The site visit

5.1 An officer of the Ministry visited the property on the 15 January 2015 and subsequently reviewed the consent documentation.

5.2 The following observations were noted:

- There is no indication that fire separation currently exists between the workshop and the flat to provide for two fire cells.
- The fire rating wall to the stair appeared to be in place.
- Some indication that elements of the internal walls and ceiling beneath the flat are or were previously fire rated.
- There is no indication fire rating currently exists to the ceiling/floor structure or walls supporting the deck area to the flat.
- Recessed lights installed to the showroom ceiling below the flat are likely to compromise any existing fire rating.
- Timber finishing to the underside of the beam support to the floor of the flat above.
- Detectors are provided to the workshop and showroom¹⁵.
- Sprinklers are not provided.
- The only alerting device appears to be the external security alarm.
- A single fire hose reel is provided within the workshop.
- A section of the roof, adjacent to the western boundary, has been modified since 1995 to accommodate storage. There is no evidence of fire rating.
- There is no indication that the timber framed section of the wall, adjacent to the western boundary, or the return wall, is fire rated.
- A dust extract system is in place with ducting from the plant, and separate conduit, extending between this building and a workshop building on an adjacent property. These two buildings are used together to accommodate the joinery operation.
- No provision for nosings or handrail to the stair to the flat.

¹⁵ Most likely to be heat detectors. The authority advises that there is no Compliance Schedule for the property.

5.2.1 In respect of the consent application for the alterations the officer observed:

- The alterations appear to extend the fascia of the building over the north boundary.
- No provision in the documentation submitted for consent to:
 - fire rate the new sections of wall above the existing boundary walls where the height has increased
 - replace or modify the framing on the west boundary walls up to the new roof so that the framing is supported between structural elements
 - fire rate part of the workshop roof adjacent to the upper level (as proposed to the showroom ceiling in the fire report)
 - demonstrate how the fire rating is provided to the flat or will be achieved around the deck and the existing partitions to establish the flat as a separate firecell
 - detail fire rating requirements where the external cladding is being altered.
- The change to the roof structure above the showroom, in conjunction with the proposed fire rating to the wall between the flat and showroom, impacts on natural light and ventilation compliance to the two bedrooms.

6. Discussion

6.1 Application of sections 17 and 112

6.1.1 Section 17 states:

All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.

6.1.2 The requirements of section 112 apply when an existing building is altered. Section 112 states:

(1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—

(a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—

(i) means of escape from fire; and

(ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118); and

(b) the building will,—

(i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or

(ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.

- 6.1.3 The applicant has queried the application of section 112 in regards to the proposed alterations. In questioning this, the applicant refers to the practice note and the guidance document published by the Ministry¹⁶ (“the guide”).
- 6.1.4 The guide discusses the type and extent of information required to determine the code compliance of an existing buildings’ means of escape from fire when new building work (i.e. additions and alterations) is proposed. I have discussed the guide in relation to the proposed alterations in paragraph 6.2.4 below, however I note that section 112 applies whether or not the proposed building work is considered minor, moderate or significant in terms of the guide.
- 6.1.5 I do not accept the applicant’s view that the alterations are simply recladding and structural strengthening in terms of the practice note, and that accordingly assessment against section 112 is not required. Sections 6 and 8 of the practice note refer to recladding as a result of weathertightness and seismic upgrade of an earthquake prone building. The proposed work is neither a reclad as a result of a weathertightness failure nor limited to strengthening as set out in the practice note.
- 6.1.6 The applicant also asks ‘if the [authority] is correct in requiring the building to fully comply with the Building Code; if the [authority] is correct in requiring this; and what is “as nearly as is reasonably practicable” in this case?’
- 6.1.7 Regardless of the fact the alterations are to an existing building, all of the new building work must comply with the Building Code. This means, for example, that all new sections of wall above the existing boundary walls will need to be fire rated to achieve the appropriate property rating. However, section 112(1)(b) means the existing portion of the same wall does not require upgrading (regardless of whether or not it complies with the current Building Code or the Building Code effective at the time of construction).
- 6.1.8 Section 112(1)(a) requires the building as a whole after the alterations to comply ‘as nearly as is reasonably practicable’ with the provisions for means of escape and access for persons with disabilities where this is a requirement of section 118.

6.2 Compliance of the building as a whole after the alterations ‘as nearly as is reasonably practicable’ with respect to means of escape

- 6.2.1 The application of the ‘as nearly as is reasonably practicable’ test has been considered extensively in past determinations. These determinations have established an approach for deciding if a building complies as nearly as is reasonably practicable with the Building Code that follows the approach taken by the High Court¹⁷. The approach involves the balancing of sacrifices and difficulties of upgrading against the advantages of upgrading.
- 6.2.2 Applying this approach, the life safety benefits of additional upgrading to comply with the Building Code, such as installing a Type 4 system in accordance with C/AS2, must be weighted against the sacrifices involved in installing such a system.
- 6.2.3 In order to assess whether an existing building after proposed alterations will comply with the Building Code as nearly as is reasonably practicable, it is usually necessary to identify what upgrading would be necessary for complete compliance. The guide outlines a methodology for carrying out such an assessment.

¹⁶ Requesting information about means of escape from fire for existing buildings. A guide for Building Consent Authorities and Territorial Authorities. *Ministry of Business, Innovation & Employment*. December 2013. This document is issued as guidance under section 175 of the Act.

¹⁷ *Auckland City Council v New Zealand Fire Service* [1996] 1 NZLR 330.

6.2.4 Use of the guide

- 6.2.5 One purpose of the guide is to ensure the level of assessment requested by the authority is not more onerous than is needed to determine code compliance relating to means of escape from fire. The guide provides a list of building work which it would be reasonable for the authority to assume as minor, moderate or significant building work. Typical minor and significant work is listed, and moderate building work is defined as work not covered by the definitions of either minor or significant building work. The guide provides a ‘building score sheet’, used to assist in establishing further information that may be required. (The building score sheet and list of minor, moderate and significant work is attached as appendix B).
- 6.2.6 The guide recommends that a “gap assessment” be requested if a score of 12-19 is achieved or a full assessment if a score of 20+ is achieved, unless the individual circumstances of the building suggest otherwise. A gap assessment should use the appropriate Acceptable Solution from C/AS1 – C/AS7 and highlight where the existing building fully complies with the Acceptable Solution and where there are gaps between the building’s fire systems and features and the requirements of the Acceptable Solution. For each gap, an assessment is then required as to whether “as near as reasonably practicable” is achieved, and options provided to improve compliance in this respect. The assessment should cover the entire building.
- 6.2.7 Using the scoring method provided in the guide the applicant contends the alterations are “minor” building work, achieves a total score of 11¹⁸, and therefore does not require a full gap assessment. Whereas the authority considers the work as “moderate” and merits a score of 14 and accordingly a gap assessment was requested.
- 6.2.8 Based on the information available on the property file I note that if the work was to be considered moderate a score of 16-20 would be reached, and that if the work were only to be considered minor a score of 13-17 would be reached. On this assessment alone and given that both would result in scores over 12, I consider the authority’s request that a gap assessment be undertaken was reasonable.

6.2.9 Means of escape

- 6.2.9.1 Means of escape from fire is defined in section 7 as:
- (a) means continuous unobstructed routes of travel from any part of the floor area of that building to a place of safety; and
 - (b) includes all active and passive protection features required to warn people of fire and to assist in protecting people from the effects of fire in the course of their escape from the fire
- 6.2.9.2 The routes of travel are not in dispute. Notwithstanding this I note that the provision for handrails to the stair from the flat has not yet been considered and will need to be resolved.
- Passive protection*
- 6.2.9.3 The proposed alterations include building work to make the flat a separate fire cell as well as fire rating work to the showroom ceiling to satisfy the requirements of clause C4 of the Building Code. Notwithstanding the difficulty of achieving fire separation as a retrofit, I can accept that the provision of this separation could be achieved as near as is reasonably practicable provided that the fire ratings proposed to the showroom ceiling on the north side of the flat are extended to the workshop to west

¹⁸ Applicant to authority 30 April 2014.

side. The documents provided in support of the building consent application do not currently provide sufficient information to illustrate how the separation will be achieved and provide assurance that this will be adequate.

Active protection

- 6.2.9.4 The issue the authority is immediately concerned with is the life safety risk to the occupant(s) of the flat, and specifically the proposal to install an alarm system which differs from the Type 4 alarm indicated as required in the fire safety report.
- 6.2.9.5 A Type 4 system is described in the Acceptable Solution F7/AS1 as ‘an automatic fire alarm activated by smoke detectors and manual call points.’ It comprises of ‘a Type 2 system plus smoke detectors’ complying with NZS 4512. The system requires smoke detectors and sounders to be provided throughout the building. An alarm in one area sounds the alarm throughout the building and is required to achieve 75dB at the bedhead¹⁹.
- 6.2.9.6 A Type 2 system is ‘a single or multiple zone system with an alarm panel to provide defect warning, zone index diagram, and suitable for connection to the Fire Service. The system shall comply with NZS 4512.’
- 6.2.9.7 While NZS 4512 allows for smoke detectors to be replaced by heat detectors for up to a maximum of 30% of the area of a firecell to reduce unwanted alarm activations, the Acceptable Solution C/AS2 paragraph 2.2.11 allows heat detectors to be used in lieu of smoke detectors where smoke detection is unsuitable, without limiting the area. In this case the NZFS recommend that heat detectors be used as a practical alternative within the workshop, to reduce the likelihood of false alarm activations.
- 6.2.9.8 The primary reference documents for establishing compliance with the Building Code are listed in C/AS2. These documents include NZS 4512, which is also listed as the relevant standard for installation for Types 2, 3, 4 and 5 fire safety systems in Table 2.1 of the Acceptable Solution.
- 6.2.9.9 NZS 4512 defines the requirements for multi-zone and single zoned fire alarm systems, and when each is permitted. For all intents and purposes the requirements are the same for each – the main difference is the number of zones. Neither specifically requires connection to the Fire Service. It is for an owner to nominate the systems declared functional requirements ‘taking into account all regulatory, contractual, insurance, or other obligations.’
- 6.2.9.10 NZS 4512 also states that zones are provided to ‘assist in locating a fire or other cause of alarm’. While single zone systems are permitted in specific circumstances paragraph 401.2.4 of NZS 4512 requires that ‘Every household unit shall be a separate zone...’
- 6.2.9.11 The types, location and spacing of detectors are also defined in this standard. The expectation is that detectors will be specifically selected for different applications based on recommendations intended to provide for reliable protection; and be located to reduce the risk that a fire will not be detected or detection delayed.
- 6.2.9.12 While I strongly suggest that the alarm system comply fully with NZS 4512, I have no authority to direct that this occur. I also note that zoning in this situation is unlikely to contribute to the effectiveness of the warning system as it relates to means of escape. What is essential is that the detectors are selected for the

¹⁹ New Zealand Standard NZS4512 406.3

environmental conditions, and adequate numbers of detectors and alerting devices be provided and located to provide an effective means of giving warning of fire.

6.2.9.13 The applicant has proposed that a total of three detectors be provided: two in the workshop and one in the office. To comply with NZS 4512 detectors must be provided in all areas of the building and in far greater numbers. For example if point-type smoke detectors are to be used, then in the larger workshop spaces the detectors would need to be located at not more than 10m intervals, not more than 5m from any wall, or 500mm from the apex, and no point in the room would be more than 7m from the nearest detector. Alternatively if heat detectors are used in the workshop, as recommended by NZFS, then the detectors would need to be more closely spaced. For point-type heat detectors the detectors would need to be at not more than 6m intervals, or 3m from any wall and be provided at the rate of not less than one detector for each 30m². In all other areas I would expect there to be at least one detector in each room or enclosed space.

6.2.9.14 Without supporting evidence to the contrary, I consider the performance achieved by compliance with NZS 4512 in all other matters is essential to demonstrate that the system will provide an effective means of giving warning of fire, and ensure that the occupants are given this warning in adequate time for them to reach a safe place.

6.2.10 Benefits and Sacrifices

6.2.10.1 In assessing the benefits and sacrifices, I have considered only those that relate to the requirements of section 112 in terms of compliance of the building as a whole after the alterations as nearly as is reasonably practicable with respect to means of escape. I have not considered the wider benefits which otherwise improve the building but that are not relevant to the requirements of section 112.

6.2.10.2 The benefits, if the alterations proceed, are the improvements to life safety and accessibility. These include:

- More effective means of giving warning of fire to most areas within the building.
- Increased fire separation between the workshop and sleeping area.
- Improved visibility within the escape route.
- Reduced probability of injury within the escape route.

6.2.10.3 The sacrifices outlined in the applicant's submission are limited to the cost of the Type 4 system, which the applicant states are 'around 15-20% of the proposed build cost', and the impact the applicant states this has on the financial viability of the alterations being carried out.

6.2.10.4 Notwithstanding the benefits noted above, there is no physical constraint that would prevent a Type 4 system being installed. I do not accept that the cost of the fire alarm system as proposed by the applicant, with the addition of the detectors and any alerting devices required to comply with NZS 4512, would be significantly different than a Type 4 system.

6.2.11 Conclusion

6.2.11.1 I agree with the following assessment included in the fire safety report:

- Use of C/AS2 Acceptable Solution for Buildings with sleeping (non institutional) (Risk Group SM) to establish the requirements for the flat.
- Use of C/AS5 Acceptable Solution for Buildings used for Business, Commercial and Low Level Storage (Risk Group WB) to establish the requirements for the workshop, showroom and office.
- The establishment of the flat as a separate fire cell.
- The provision for:
 - a Type 4 alarm system throughout the building
 - a life rating of 60 minutes to the underside of the floor to the flat and the supporting walls
 - a 60 minute fire rating to the showroom ceiling where it extends beyond the external wall to the flat
 - emergency lighting to the stairs and where egress routes exceed 20m
 - exit signage.

6.2.11.2 In assessing the proposed alterations I conclude that:

- The new building work will not fully comply with the Building Code as required by section 17 of the Act as follows:
 - The fire ratings required to the new sections of wall above the existing walls.
 - The fire rating to the north and west boundary walls to prevent horizontal spread of flame.
- There is insufficient and/or unclear information in the consent documentation to establish that the new building work will comply fully as required by section 17 of the Act as follows:
 - The fire ratings required to the new primary elements to provide structural stability to walls required to fire rated.
 - The extent to which the existing timber framed wall on the western boundary requires modification (either by replacement, or by other means) to provide for stability to enable the fire rating of the new wall above to be achieved.
- The building as a whole after the alterations will not comply, as nearly as reasonably practicable, with the provisions of the Building Code that relate to means of escape for fire as follows:
 - The prevention of the spread of fire, in particular vertical fire spread between the workshop and the flat, to protect the occupant in the flat (C3.1)
 - The single zone fire alarm system alternative proposed provides significantly lower level of functionality than the Type 4 system specified in the Acceptable Solution. It will not provide an effective means of giving warning of fire, or ensure that the occupants are given this warning in adequate time for them to reach a safe place (F7.3.1)
 - The lack of a handrail to the stair (C4.2)
 - Surface finishes in respect of compliance with clause C3.4.

6.2.11.3 I note that the following matters will also need to be considered further by the applicant and the authority:

- The relationship to the boundaries of the new work on the north and west boundary walls.
- Any requirements of clause F3 – Hazardous Substances and Processes arising from the dust extract system.
- Natural light and ventilation to the flat (G7 and G4 in respect of section 112(1)(b)).
- Any requirements under section 118 or section 112(1)(a)(ii) for access and facilities for persons with disabilities.
- Compliance of cladding (E2).

7. The decision

7.1 In accordance with section 188 of the Building Act 2004, I hereby determine that

- the proposed building work does not comply with Clauses C1 to C6, and F7 of the Building Code to the extent required by the Act
- the authority correctly exercised its powers of decision when it refused to grant the building consent, and I confirm that decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 3 June 2015.

John Gardiner
Manager Determinations and Assurance

Appendix A The legislation

A.1 The relevant clauses of the Act

7 Interpretation

alter, in relation to a building, includes to rebuild, re-erect, repair, enlarge, and extend the building

16 Building code: purpose

The building code prescribes functional requirements for buildings and the performance criteria with which buildings must comply in their intended use.

17 All building work must comply with building code

All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.

112 Alterations to existing buildings

(1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—

(a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—

(i) means of escape from fire; and

(ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118); and

(b) the building will,—

(i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or

(ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.

(2) Despite subsection (1), a territorial authority may, by written notice to the owner of a building, allow the alteration of an existing building, or part of an existing building, without the building complying with provisions of the building code specified by the territorial authority if the territorial authority is satisfied that,—

(a) if the building were required to comply with the relevant provisions of the building code, the alteration would not take place; and

(b) the alteration will result in improvements to attributes of the building that relate to—

(i) means of escape from fire; or

(ii) access and facilities for persons with disabilities; and

(c) the improvements referred to in paragraph (b) outweigh any detriment that is likely to arise as a result of the building not complying with the relevant provisions of the building code.

A.2 The relevant clauses of the Building Code relating to movement to safety and warnings:

C4.1 *Buildings* must be provided with:

- (a) effective means of giving warning of *fire*, and
- (b) visibility in *escape routes* complying with clause F6.

C4.2 *Buildings* must be provided with means of escape to ensure that there is low probability of occupants of those *buildings* being reasonably delayed or impeded from moving to a *place of safety* and that those occupants will not suffer injury or illness as a result.

F7.3.1 A means of warning must alert people to the emergency in *adequate* time for them to reach a *safe place*.

F7.3.2 Appropriate means of detection and warning for fire must be provided in each *household unit*.

Appendix B

The guide

Requesting information about means of escape from fire for existing buildings, A guide for Building Consent Authorities and Territorial Authorities (*Ministry of Business, Innovation and Employment*) December 2013

APPENDIX 1
GUIDANCE

Appendix 1: Building score sheet

Complete this score sheet to get a total score for the existing building (refer to Consider the key factors for further information).

You can then use Table 1: Recommended information requirements – means of escape from fire to help you decide how much information you might typically request as part of the building consent process.

BUILDING SCORE SHEET			
	Key factors	Points	Score
Likelihood of existing building complying	Building age		
	Approved from 1 June 2001 onwards	0	
	Approved between 1 January 1993 and 31 May 2001	1	
	Approved on or before 31 December 1992	3	
	Information held on the building by the BCA or TA (Score one of these only and choose the most comprehensive assessment)		
	For buildings approved from 1 June 2001: no consents made	0	
	Full building assessment on file dated 1 June 2001 or later	2	
	Full building assessment on file dated on or before 31 May 2001	4	
	One or more partial building assessments on file	6	
	No assessment on file for building additions or alterations	8	
Unable to determine history of building	8		
Extent of proposed work	Extent of the proposed building work		
	Minor	0	
	Moderate	3	
	Significant	6	
Potential consequences of not complying	Building importance level		
	Level 1	0	
	Level 2	4	
	Level 3	8	
	Level 4 and Level 5	12	
	Additional points for building level 1, 2 or 3 with sleeping facilities	4	
TOTAL SCORE TO USE WITH TABLE 1			

DATE: DECEMBER 2013. VERSION: 1

SECTION: APPENDIX

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B.2 Relevant paragraphs from the Guide (pages 7 & 8)

4. Our recommended approach

4.1 Consider the key factors

...

Extent of the proposed building work

Taking the extent of the proposed building work into consideration is about being pragmatic. It is helpful to think of the building work as minor, moderate or significant, in the context of affecting the means of escape from fire.

We consider that it is reasonable for BCAs and TAs to assume that:

- **Minor building work** typically:
 - affects no more than 20% of the footprint of any single building floor where work is occurring on only one floor, or no more than 10% of the footprint of a single building floor where work is occurring on multiple floors, or
 - involves an extension of no more than 20% of the original floor area, and
 - includes any repair of an existing building that has been damaged for some reason, and
 - includes a structural upgrade (eg of an earthquake-prone building), and
 - does not affect the building's entry or egress routes or any shared cooking areas.

Examples of minor building work using this definition could be:

- the refit of all bathrooms or meeting rooms in a multi-storey office; as long as the area being refitted is no more than 10% of the footprint of any single floor
- structural repairs to an earthquake damaged building
- a tenancy fit-out in a shopping mall that does not affect the escape routes.

This definition would not include the refit of kitchens that are shared cooking facilities (as distinct from kitchens in individual apartments).

- **Moderate building work** is work not covered by the definitions of either minor or significant building work. It may include additions to a building – either additional wings or storeys – as long as this work does not meet any of the criteria for 'significant building work'.
- **Significant building work** typically:
 - affects a full floor or more of a multiple level building and/or affects stairs or vertical escape paths
 - may include the amalgamation of two or more buildings
 - includes any work resulting from a building subdivision, change of use of a building, or area affected by the building work as defined by the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005.