



Determination 2020/003

Whether a consented apartment building with a single escape route at 23 Clayton Avenue, Otara, Auckland requires smoke lobbies on the ground floor



Summary

This determination considers the granting of a building consent and whether a proposed three-storey apartment building with a common stairwell requires smoke lobbies in the ground floor apartments in order to comply with the Building Code by means of the Acceptable Solution C/AS2. The ground floor apartments have alternative egress routes and the common stairwell is the single escape route for the occupants of upper floors.

1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 (“the Act”) made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry¹.
- 1.2 The parties to the determination are:
 - the owner of the property Gemscott Ltd, who applied for the determination (“the applicant”)
 - Auckland Council (“the authority”) carrying out its duties as a territorial authority or building consent authority.

¹ The Building Act and Building Code (Schedule 1 of the Building Regulations 1992) are available at www.legislation.govt.nz. Information about the legislation, as well as past determinations, compliance documents and guidance issued by the Ministry is available at www.building.govt.nz.

- 1.3 I have provided Fire and Emergency New Zealand (“FENZ”) with the determination documentation for comment by way of consultation under section 170 of the Act.
- 1.4 This determination arises from the decision of the authority to issue a building consent for the proposed three-storey apartment building with a common stairwell (“the common stairwell”) that serves as the single escape route for the upper floors. A dispute has arisen between the parties as to whether smoke lobbies² are required within the ground floor apartments – these smoke lobbies were not shown on the drawings submitted with the building consent application. In summary:
- the authority is of the view that the design without smoke lobbies within the ground floor apartments, that have doors into the common stairwell which is also the single escape route for the upper levels, is not in accordance with the relevant Acceptable Solution C/AS2³ (“C/AS2”)
 - the applicant is of the view that the smoke lobbies are not required because the ground floor apartments each have an alternative nominated escape route.
- 1.5 The matters to be determined⁴ are:
- Matter 1: whether the building without smoke lobbies to the ground floor apartments, that have doors into the common stairwell which is also the single escape route for the upper levels, will comply with Building Code Clause C4⁵ Movement to a place of safety by way of C/AS2.
 - Matter 2: the authority’s exercise of its powers of decision to grant the building consent.
- 1.6 The application for determination centred on the question of whether smoke lobbies are required within the ground floor apartments and the authority’s exercise of its powers in respect of that particular matter. Therefore, I have not determined whether the stairwell complies by way of C/AS2 as a safe path, nor have I considered any other aspects of the Act or Building Code.
- 1.7 In making my decision, I have considered the submissions from the parties, including the fire report provided as part of the building consent application, and the other evidence in this matter.

² Refer to glossary in this determination for meaning of smoke lobby

³ C/AS2 Acceptable Solution for Buildings other than Risk Group SH, 1st ed. 27 June 2019. Acceptable Solutions and Verification Methods are produced by the Ministry and, if complied with, must be accepted by a building consent authority as establishing compliance with the Building Code (refer section 19 of the Act).

⁴ Under sections 177(1)(a), 177(1)(b) and 177(2)(a) of the Act

⁵ First Schedule Building Regulations 1992

1.8 Glossary

Throughout this determination the following terms are used in accordance with their definitions in Acceptable Solution C/AS2. For ease of reference the definitions are repeated as footnotes in some places.

“Escape height” The height between the floor level in the firecell being considered and the floor level of the required final exit which is the greatest vertical distance above or below that firecell. Where the firecell contains intermediate floors, or upper floors within household units the escape height shall be measured from the floor having the greatest vertical separation from the final exit.

“Escape route”: A continuous unobstructed route from any occupied space in a building to a final exit to enable occupants to reach a safe place, and shall comprise one or more of the following: open paths and safe paths.

Note that doors in an escape route are not considered to be obstructions provided they comply with this Acceptable Solution and D1/AS1^[6].

“Exitway”: All parts of an escape route protected by fire or smoke separations, or by distance when exposed to open air, and terminating at a final exit.

“Final exit”: The point at which an escape route terminates by giving direct access to a safe place

“Fire separation”: Any building element which separates firecells or firecells and safe paths, and provides a specific fire resistance rating.

“Open path”: That part of an escape route (including dead ends) within a firecell where occupants may be exposed to fire or smoke while making their escape.

“Safe path”: That part of an exitway which is protected from the effects of fire by fire separations, external walls, or by distance when exposed to open air.

“Smoke lobby”: That portion of an escape route within a firecell that precedes a safe path or an escape route through an adjoining building which is protected from the effects of smoke by smoke separations.

“Stairway”: A series of steps or stairs with or without landings, including all necessary handrails and giving access between two different levels.

⁶ Acceptable Solution D1/AS1 For New Zealand Building Code Clause D1 Access Routes

2. The building work

- 2.1 The proposed apartment complex is a three level building consisting of two blocks attached by a common stairwell between them that serves as the single escape route for the occupants of the upper level apartments. The risk group⁷ for the purposes of the Acceptable Solution C/AS2 is SM (Sleeping, non-institutional). Each level of the building contains three individual apartments (nine in total).
- 2.2 Each floor has a gross floor area of approximately 296m² or less and is fire-separated from the other floors. The apartments are all separate firecells, and the walls between the stairwell and the apartments on all levels are fire separations.
- 2.3 The escape height⁸ is less than 10m and the building has a total occupant load of 36 people (4 people per apartment). The fire report specifies a Type 2 manual fire alarm system⁹ to be installed ‘throughout the building’ in accordance with NZS 4512¹⁰, with domestic smoke alarms within each individual apartment.

2.4 The escape route

- 2.4.1 The upper levels (“level one” and “level two”) are accessed by the common stairwell which is the single escape route for these upper level apartments.
- 2.4.2 The stairs are not fire-separated from the landings and enter into a common foyer area (“the common foyer area”) on the ground floor between the ground floor apartments. Occupants then exit the building via a gate at either end of the common foyer area.
- 2.4.3 Units 2 and 3 on the ground floor each have doors opening into this common foyer area.
- 2.4.4 The escape routes nominated in the fire design for the ground floor apartments is via doors that open directly to outdoor spaces, which are referred to as the alternative escape route in the parties’ submissions, however I refer to them as the “nominated escape routes” (see Figure 1).
- 2.4.5 The common stairwell is encompassed by the external walls of the two blocks either side, which are fire separations, and is partially screened at either end (see Figures 3 and 4). The openings in the screen are at both ends of the common stairwell on level one and level two, with the screen forming a 1.1m high barrier to protect people from falling. The screen is made up of a perforated sheet metal.
- 2.4.6 On the south elevation the screen is full height at the ground level and level one, but is open approximately 1.4m (above the screen to the soffit level) on level two. On the north elevation the screen is full height on ground level, and is open approximately 1.4m (above the screen) on levels one and two. Gates made of the same perforated sheet metal are provided on the ground level at each end.

⁷ Risk Groups are established under Table 1.1 of C/AS2 Acceptable Solution for Buildings other than Risk Group SH

⁸ The height between the topmost floor level and the floor level of the final exit.

⁹ Type 2 Manual fire alarm system is defined in Acceptable Solution F7/AS 1 Warning Systems as a single or multiple system compliant with NZS 4512 with an alarm panel to provide defect warning, zone index diagram, and suitable connection to FENZ.

¹⁰ New Zealand Standard NZS 4512:2010 Fire detection and alarm systems in buildings

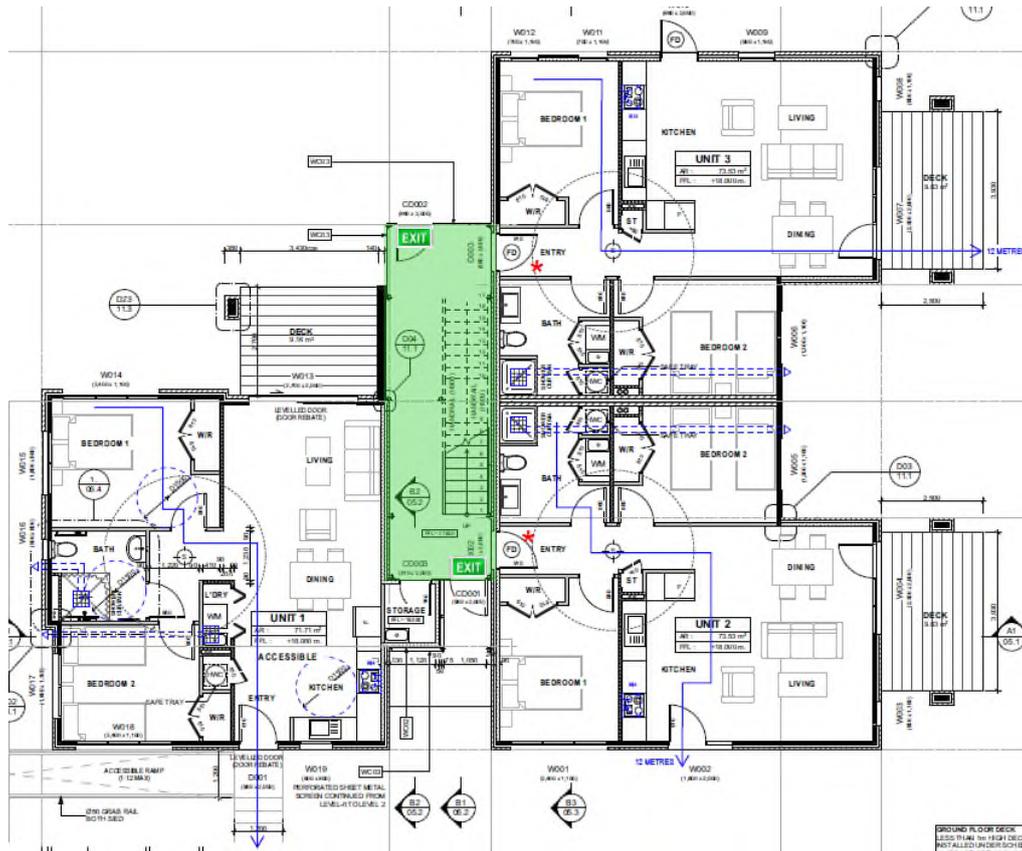


Figure 1: Ground floor plan showing escape routes (not to scale)

Note: doors into the common foyer area highlighted with a red asterisk. The “nominated escape routes” as a solid blue line.

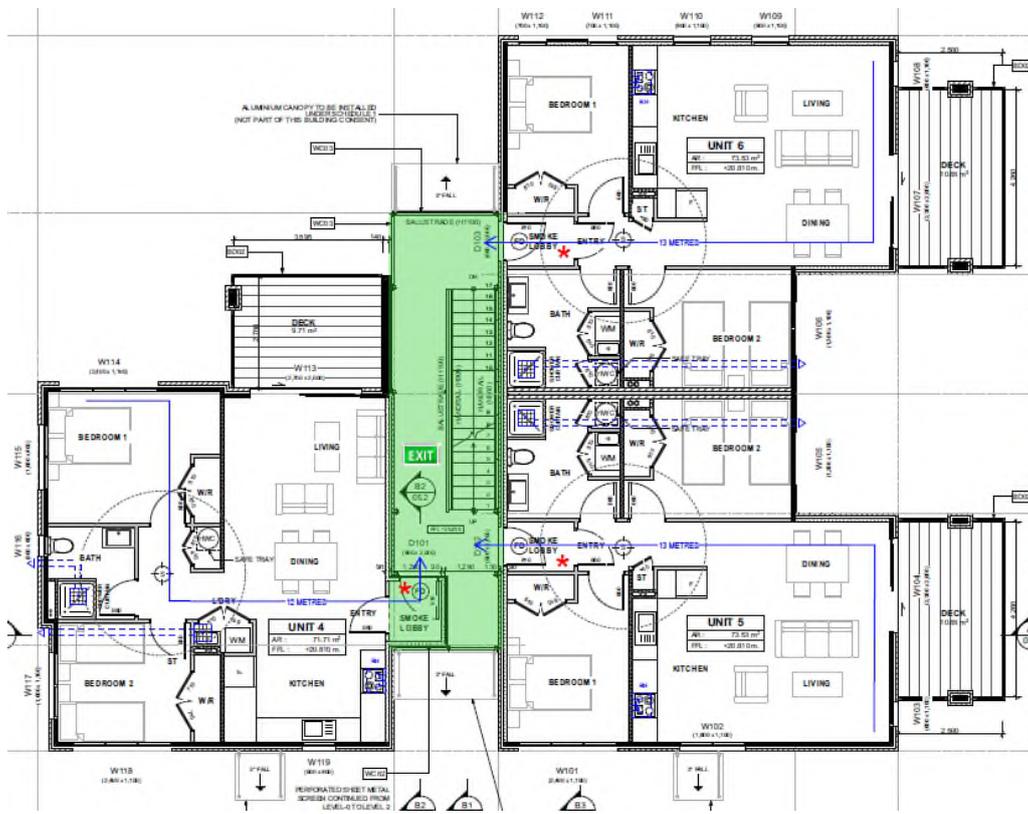


Figure 2: First floor plan showing escape routes and smoke lobbies (not to scale)

Note: smoke lobbies highlighted with a red asterisk.

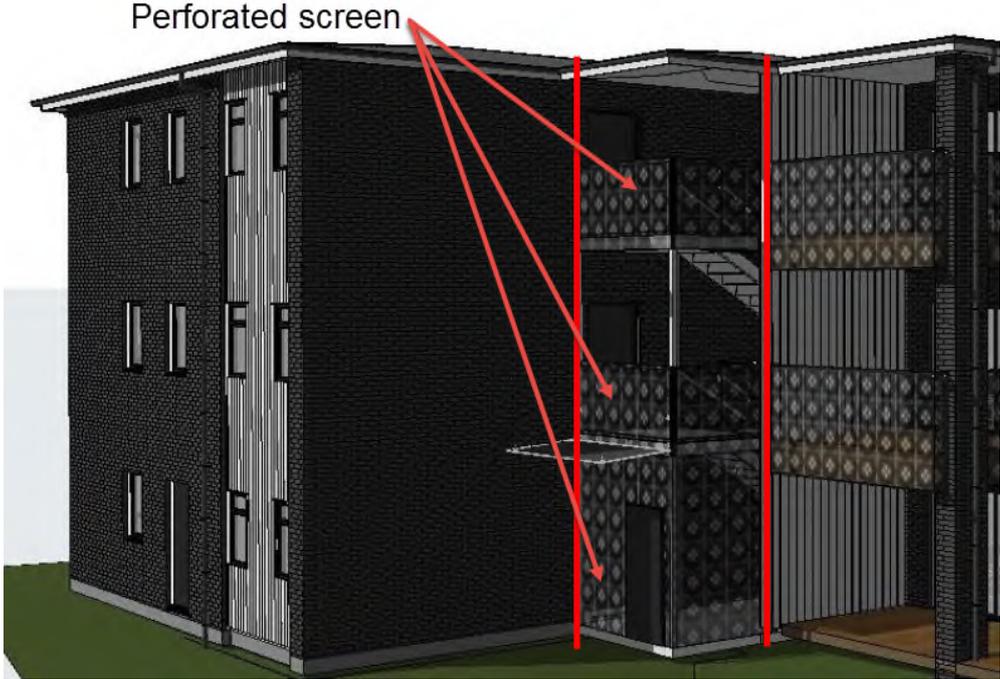


Figure 3: Perspective view showing the common stairwell (between the red lines) facing North West (not to scale).



Figure 4: Perspective view facing South East (not to scale).

3. Background

3.1 The building consent application was lodged with the authority on 25 July 2019.

3.2 A fire design report dated 22 July 2019 (“the fire report”) was provided in support of the building consent. The fire report states that it was based on C/AS2. In a section titled “Single means of escape”, the fire report notes:

In accordance with Paragraph 3.13.1 of C/AS2, a single means of escape is permitted if:

Requirements	Provided
...	...
In buildings with two or more floors the vertical safe path is preceded by a smoke lobby on all floors except the topmost floor.	Complies: Smoke lobbies are provided on each level of the building preceding the vertical safe path stairwell except for the topmost floor.

However, the drawings included in the fire report show smoke lobbies only in the apartments on level one.

3.3 According to the authority’s submission to the determination dated 16 January 2020, a design coordination statement¹¹ dated 15 August 2019 (I have not seen a copy) was provided by the applicant’s designer in support of the application for building consent. This stated that the requirements of the fire report had been incorporated into the architectural drawings, but that:

There (sic) drawings are intended for coordination purposes only and should not be read in place of the fire report ... which contains a full description of the fire design works.

3.4 On 29 August 2019 the authority issued building consent (no. BCO10292643) for the building (I have not seen a copy of the building consent). The building consent drawings (both the architectural and fire report drawings) show and note smoke lobbies to the apartments on level one only.

3.5 On 20 November 2019 a meeting was held between the authority, the applicant, the author of the fire report (“the fire engineer”) and the designer. The purpose of the meeting was for the discussion of “fire safety issues”. The minutes for the meeting noted the following was discussed (in summary):

- The main issue is the lack of smoke lobbies on the ground floor.
- The authority is of the view the current design is not in accordance with the fire report; noting also there were “some omissions/errors” in the fire report that were not picked up during the building consent processing.
- The alternative or nominated escape routes for apartments on the ground floor (see paragraph 2.4.4) and whether this was relevant to the need for smoke lobbies.
- Possible solutions for the applicant to consider:
 - Adding the smoke lobbies at the ground floor.
 - Removing the doors from the ground floor apartments into the common stairwell.

¹¹ A design coordination statement advises that the fire safety design requirements have been coordinated with and accurately transferred to the drawings, specifications and documents prepared by other disciplines. The extent to which an authority relies on a design coordination statement is at the authority’s discretion. (Refer IPENZ Practice Note 22: Guidelines for documenting fire safety design v1 September 2011, also published by the then Department of Building and Housing as guidance under section 175 of the Act)

- Undertaking calculations of the smoke ventilation of the common stairwell which is a single escape route, and proposing an alternative solution based on achieving a specific smoke extraction rate to demonstrate compliance with the Building Code.
 - Proposing another alternative solution to demonstrate compliance with the Building Code.
- Once a way forward was decided, an amendment to the building consent should be lodged
- 3.6 I note the applicant wrote to the authority on 27 November 2019 advising that advice would be sought from the Ministry.
- 3.7 On 20 November 2019, the fire engineer wrote to the Ministry requesting clarification on the interpretation of paragraph 3.13 of C/AS2. The Ministry provided advice which was later retracted.
- 3.8 At the request of the applicant, the fire engineer also sought advice from an independent fire safety consultant (“the consultant”). On 25 November 2019 the fire engineer asked the consultant if the design would comply with paragraph 3.13 of C/AS2 and also asked:
- Would the ground floor apartments require a smoke lobby if the occupants exit directly to the outside i.e. without passing into the stairwell?
- 3.9 The consultant responded to the fire engineer on the same day stating the design complies with the Acceptable Solution, and provided the following comments (in summary):
- ...the building would comply as shown, with no smoke lobby at the ground floor. As there is no need for (and it is not nominated as) the exit into the ground floor level of the stair there is no need for a smoke lobby, as the fire door would not be open and therefore no smoke could enter the stairs.
- The ground floor may use an alternative egress route and therefore does not share the single means of egress.
- 3.10 The parties exchanged correspondence between 27 November 2019 and 3 December 2019 discussing the retraction of the advice received from the Ministry.
- 3.11 The matter remained unresolved and the Ministry received an application for a determination on 6 December 2019.
- 3.12 On 19 December 2019 the Ministry wrote to the parties confirming the matter to be determined and requested:
- comment regarding the apparent contradiction in the fire report regarding the smoke lobbies to the ground floor apartments
 - the basis for the assumption that occupants of the ground floor apartments will use the nominated exits in the event of a fire emergency and will not use the doors to the common foyer area
 - a plan confirming the location of the ‘safe place’ for each of the apartments
 - the authority to confirm why it considers the design does not comply by means of the Acceptable Solution C/AS2, in particular with reference paragraph 3.13.1 of C/AS2, as stated in its meeting minutes dated 20 November 2019.

- 3.13 Various correspondence was exchanged between the Ministry, FENZ and the parties in relation to the matters to be determined, FENZ involvement and the determination process.
- 3.14 In an email dated 29 January 2020 the Ministry noted the requirements relating to a safe path will differ if the escape route is an external escape route (provided for in paragraph 3.11 of C/AS2), and observed there was no clear statement in the information provided with the application for determination with regard to the design intent of the common stairwell. The Ministry asked the applicant to confirm whether paragraph 3.11 of C/AS2 was relied on; i.e. whether the common stairwell was considered to be an external escape route for the purpose of designing in accordance with C/AS2.

4. The submissions

4.1 The applicant's submission

- 4.1.1 The applicant sent copies of the following with the application:
- a covering letter
 - the fire report
 - the architectural drawings
 - correspondence with the authority.
- 4.1.2 In its covering letter the applicant submitted (in summary):
- In the applicant's view, the authority's view that smoke lobbies are required within the ground floor apartments exceeds the minimum requirements of the Building Code.
 - The approved building consent drawings and fire report did not include smoke lobbies within the ground floor apartments.
 - The ground floor apartments have an independent means of escape.
 - The fire engineer and the consultant both take the view that the design (without smoke lobbies in the ground floor apartments) complies with the Acceptable Solution.
- 4.1.3 In response to the correspondence with the Ministry (see paragraph 3.12) dated 9 January 2020 the applicant stated the following (in summary):
- The proposal was not presented to the authority as an alternative solution as the design complies with the Acceptable Solution.
 - The fire report drawings do not show smoke lobbies on the ground floor as the occupants escaping from the ground floor apartments exit directly to the outside without passing into the common foyer area. The ground floor apartments are not limited to a single escape route therefore the design is in compliance with paragraph 3.13.1 of C/AS2.
 - Although not required by C/AS2, a solution was put forward to the authority in regards to the ground floor apartments, for "EXIT" signs in compliance with Acceptable Solution for Clause F8 Signs (F8/AS1) to be provided over the final exit door from the living/dining room decks (referred to as the alternative escape route) and a "no exit" sign over the door leading into the common foyer area from

the ground floor apartments; however this solution was not accepted by the authority.

- 4.1.4 In further correspondence with the Ministry dated 29 January 2020 (see paragraph 3.14) the applicant confirmed the common stairwell was not considered to be an external escape route (as per paragraph 3.11 of C/AS2).
- 4.1.5 On 21 February 2020, the applicant made a further submission in response to a submission provided by FENZ. With regard to the matter for determination, the applicant noted that paragraph 3.9.3 of C/AS2, which concerns smoke lobbies for risk groups SM and CA¹², does not require smoke lobbies on the upper floors where the occupancy is less than 150 and suggested that “it could be that the upper floors don’t need smoke lobbies”. The applicant takes the view that C/AS2 ‘deals with building on a firecell by firecell basis, linking some requirements [e.g. alarm systems] based on risk across the building’.
- 4.1.6 Although the applicant agrees that protection of a safe path for occupants of the upper levels is necessary, in the applicant’s view this is addressed through the ground floor doors that open into the common foyer area being fire doors and the occupants of the ground floor having an alternative nominated exit.

4.2 The authority’s submission

- 4.2.1 The authority made a submission on 16 January 2020, in which it noted that it is not requiring the applicant to retrofit smoke lobbies or make changes to the building consent, but that physical changes to the building were one possible solution to address the issue that is in dispute (see paragraph 3.5).
- 4.2.2 The authority submitted that the design does not comply with paragraph 3.13.1 of C/AS2 for the following reasons (in summary):
- Irrespective of whether an alternative escape route is provided for the ground floor apartments, C/AS2 paragraph 3.13.1 is standalone and specific to buildings that only have a single escape route.
 - Smoke lobbies are required by C/AS2 to protect people on upper levels from smoke venting from a lower level fire.
 - The applicant is interpreting C/AS2 paragraph 3.13.1(e) to mean:

In buildings with two or more floors, the vertical safe path is preceded by a smoke lobby on all floors except the topmost floor **or any floor with an alternative means of escape** (wording additional to that in 3.13.1(e) emphasised by the authority).
 - The authority has applied paragraph 3.13.1(e) as it is written “without incorporating words or meaning beyond what is a clear and definitive prescriptive requirement of C/AS2”.
 - A fundamental principle of an escape route is that the degree of protection increases in the direction of escape. The lack of smoke lobbies on the ground floor apartments represents a decrease in the degree of protection for occupants on upper floors in the direction of travel.
 - Building Code Clause C4.5 requires:

Means of escape to a place of safety in buildings must be designed and constructed with regard to the likelihood and consequence of failure of any fire safety systems.

¹² Risk Groups SM Sleeping (non-institutional) and CA Public access and educational facilities.

And the authority considers C/AS2 paragraph 3.13.1(e), as written, meets performance Clause C4.5, because paragraph 3.13.1(e) gives regard to the consequence of failure of fire doors that enter into the safe path which is a single escape route (the common stairwell in this case) that could impact the life safety of occupants of the upper level apartments who are beyond the firecell of fire origin.

(I note protection of the single escape route, where the ground floor apartments open into the common foyer area, is relevant with regard to the occupants' ability to reach a safe place and their exposure to the effects of fire and/or being unreasonably delayed or impeded from moving to a place of safety.)

- 4.2.3 Regarding the alternative escape routes provided in the ground floor apartments the authority submitted the following (in summary):
- A kitchen/lounge fire is the most probable room of fire origin in residential buildings in New Zealand¹³. The designated escape routes exit by the kitchen/lounge: a fire in the kitchen/lounge of one of the ground floor apartments could prevent egress via the designated escape routes. In that scenario it is probable that the only available escape route is through the fire door into the common foyer area which is the single escape route for the upper floors.
 - The use of escape routes is subject to behavioural aspects. Normal entry and egress to the ground floor apartments is via the fire door to the common foyer area of the common stairwell. In an emergency people will tend to follow their most familiar access and egress route unless there are compelling reasons to deviate¹⁴.
- 4.2.4 The authority also noted concerns regarding whether the common stairwell is an external escape route for the purposes of C/AS2. I acknowledge the authority's concerns, however the applicant has confirmed the stairwell was not designed as an external escape route as defined in C/AS2 and so I do not discuss the points raised by the authority in this determination.
- 4.2.5 The authority noted C/AS2 is an "integrated set of prescriptive requirements" and failure to comply with a particular clause may have consequences for other aspects of compliance with the Building Code; and if smoke lobbies are not provided, then the design does not comply with the prescriptive requirements of C/AS2 and cannot be considered to comply with the fire safety clauses of the Building Code by this design method.
- 4.2.6 The authority noted there are numerous potential solutions, and that the same design might be demonstrated as compliant by other design methodologies including Verification Method C/VM2¹⁵ or specific fire engineering design.
- 4.2.7 With regard to the decision to grant the building consent, the authority submitted the following (in summary):
- The coordination statement provided by the designer dated 15 August 2019 identifies that the requirements of the fire report have been incorporated in the architectural drawings.
 - In relation to the provision of smoke lobbies, the authority considers the fire report and coordination statement is sufficient for the authority to be satisfied on reasonable grounds that the building work would comply. Further, the fire report is

¹³ Robbins and Wade, 'Residential New Zealand Fire Statistics: Part 1 Initial Analysis', BRANZ Study Report 222 (2010)

¹⁴ Spearpoint (Ed.), Fire Engineering Design Guide. 3rd Ed. 2008

¹⁵ Verification Method: Framework for Fire Safety Design for New Zealand Building Code Clauses C1-C6 Protection from Fire

the full description of the fire design works and takes precedence if there are discrepancies between the report and the architectural drawings.

- Deficiencies and inconsistencies with aspects of this design only became apparent through internal review and audit. Once it became apparent that the design was not compliant with C/AS2, the authority sought to have the design either completed in accordance with the fire report, or otherwise amended to ensure compliance.

4.3 FENZ

4.3.1 On 29 January 2020 FENZ was provided with a copy of the application and supporting documents.

4.3.2 FENZ provided a submission on 20 February 2020 setting out its general views on the matter (in summary):

- Levels one and two have a single escape route, and under C/AS2 the apartments on these levels can be served by a single escape route only if the requirements of paragraph 13.3.1 (a) to (e) are satisfied.
- The ground floor is included in the requirement in paragraph 3.13.1(e) for “all floors” (other than top floor) to have smoke lobbies preceding the vertical safe path, and 13.3.1(e) does not allow for an approach where each floor is assessed independently.
- The purpose of that criteria is to protect the vertical safe path that is the single escape route for the upper level apartments. Smoke lobbies help to mitigate the entry of products of combustion into vertical escape paths as occupants leave smoke-logged spaces or when firefighting personnel enter them. Smoke lobbies also help to slow the migration of fire towards the safe path.
- Without smoke lobbies the tenability of the single vertical safe path may be compromised.
- Each smoke lobby consequently contributes to the safety of all building occupants, not just the occupants of the particular space it is part of.

4.3.3 FENZ also offered comment on the nominated escape route via ground floor sliding doors to external decks in respect of assumptions about human behaviour and the unknown treatment of the perimeter of each deck or associated yard area.

4.3.4 FENZ noted the approved plans do not show smoke lobbies for the ground floor apartments, and the statement in the fire report that the design was in accordance with paragraph 3.13.1 of C/AS2 and “smoke lobbies are provided on each level of the building preceding the vertical safe path...”. FENZ also observed the fire report included a statement with regard to the responsibilities of various disciplines involved in the design to include the fire safety requirements “as detailed in the fire report into their specifications and drawings”.

4.4 The draft determination and submissions in response

4.4.1 On 25 February 2020 I sent a copy of the draft of this determination to the parties and FENZ for their comment. The draft concluded that the building without smoke lobbies to the ground floor units 2 and 3 does not comply with Clause C4 by way of C/AS2, and accordingly the authority was incorrect to grant the building consent as the design was not in accordance with the stated means of compliance.

- 4.4.2 FENZ responded on 26 February 2020, and agreed with the conclusions reached in the draft.
- 4.4.3 The applicant responded on 26 February 2020, accepting the findings in the draft but noting that in the applicant's view it was not the common understanding of C/AS2 with regard to the ground floor units having more than one means of egress. The applicant considered the authority's decision to grant the building consent should have been reversed, but accepted the determination outcome.
- 4.4.4 The authority responded on 10 March 2020 accepting the draft determination without comment.

5. Matter 1: The smoke lobbies

5.1 First I will consider whether the building without smoke lobbies to the ground floor apartments, that have doors into the common stairwell which is also the single escape route for the upper levels, will comply with Building Code Clause C4 Movement to a place of safety by way of C/AS2. As noted in paragraph 1.6, this determination does not consider whether the stairwell complies as a safe path; my considerations are limited to the dispute that has arisen regarding smoke lobbies to the ground floor apartments.

5.2 The legislation

- 5.2.1 With regard to the question of whether the building requires smoke lobbies in the ground floor apartments, the relevant clause of the Building Code is C4 – Movement to a place of safety.
- 5.2.2 The functional requirement of the Clause C4 is provided in Clause C4.2:
- Buildings must be provided with means of escape to ensure that there is a low probability of occupants of those buildings being unreasonably delayed or impeded from moving to a place of safety and that those occupants will not suffer injury or illness as a result.
- 5.2.3 Clause C4.3 provides the following performance requirement:
- The evacuation time must allow occupants of a building to move to a place of safety in the event of a fire so that occupants are not exposed to any of the following:
- (a) a fractional effective dose of carbon monoxide greater than 0.3:
 - (b) a fractional effective dose of thermal effects greater than 0.3:
 - (c) conditions where, due to smoke obscuration, visibility is less than 10 m except in rooms of less than 100 m² where visibility may fall to 5 m.
- 5.2.4 One way of establishing compliance with Clause C4.3 is to design the building in accordance with the relevant Acceptable Solution¹⁶, which in this instance is C/AS2.
- 5.2.5 Acceptable Solutions provide prescriptive design solutions for buildings within a defined scope. Some Acceptable Solutions are written conservatively to cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.

¹⁶ Section 19(1)(b) of the Act provides a building consent authority must accept compliance with an Acceptable Solution or Verification Method as having complied with the provisions of the Building Code to which that Acceptable Solution or Verification Method relates.

5.3 Acceptable Solution C/AS2

- 5.3.1 As noted in paragraph 3.2, the elected compliance pathway for demonstrating compliance with the Building Code clauses concerning protection from fire was stated in the fire report as being C/AS2.
- 5.3.2 C/AS2 is a substantial document and not every paragraph is applicable to every building within its scope. The document is split into separate parts that collectively address the performance requirements of the C Clauses of the Building Code, which concern protection from fire. Within those parts, requirements are prescribed based on the building's features, for example, the building's 'risk group', occupant loads, dimensions and configuration.
- 5.3.3 Part 1 of C/AS2 describes the type of buildings within the scope of the Acceptable Solution in terms of their risk group; in this case the building is in risk group SM. Paragraph 1.1.2 describes buildings outside the scope, being those with complex features (with examples listed), and states:
- Buildings that have features for which solutions are not provided within this Acceptable Solution are also deemed to be complex.*
- 5.3.4 Paragraph 1.1.3 of C/AS2 says:
- If the Acceptable Solution cannot be followed in full, use Verification Method C/VM2 or an alternative solution to demonstrate compliance.
- 5.3.5 Failure to design in accordance with a particular paragraph of the Acceptable Solution means that the building or building work cannot be considered compliant with the applicable Building Code clauses by way of the Acceptable Solution.
- 5.3.6 However, Acceptable Solutions do not intend to cover every possible design. Should a design not meet the prescriptive criteria of an Acceptable Solution it does not follow that compliance with the Building Code has not been met – the same design might be able to demonstrate compliance with the Building Code by other means. It is important to note that the Act requires compliance with the Building Code¹⁷, but there are several means to demonstrate that compliance, not only by way of an Acceptable Solution.

5.4 Are smoke lobbies required by C/AS2 in this case?

- 5.4.1 I now consider the paragraphs of C/AS2 that are applicable to the question of whether the ground floor apartments are required to have smoke lobbies in order to comply with the Building Code by way of Acceptable Solution C/AS2. References to paragraphs here are to paragraphs of C/AS2 unless otherwise stated.
- 5.4.2 Part 3 of C/AS2 concerns means of escape from buildings. Paragraph 3.1 of C/AS2 discusses the general principles with regard to means of escape from fire, and states that all buildings shall have means of escape from fire which include escape routes^[18] that shall provide protection to any occupant escaping to a safe place^[19] from a fire within a building. In addition, the escape route must not pass from a higher to lower level of protection in the direction of escape (paragraph 3.1.2).
- 5.4.3 In this case there is a single escape route for the occupants of the upper levels, which is the common stairwell, and it must provide protection to those occupants escaping

¹⁷ Section 17 of the Act provides all building work must comply with the Building Code to the extent required by the Act.

¹⁸ An 'escape route' is a continuous unobstructed route from any occupied space in a building to a final exit to enable occupants to reach a safe place, and shall comprise one or more of the following: open paths and safe paths.

¹⁹ A 'safe place' is a place, outside of and in the vicinity of a single building unit, from which people may safely disperse after escaping the effects of a fire. It may be a place such as a street, open space, public space or an adjacent building unit.

to enable them to reach a safe place. The occupants of each ground floor apartment are able to escape directly to outside space through any of two external doors (one of which in each unit is the ‘nominated’ exit). In addition, two of the ground floor apartments also have a door that opens into the common foyer area, from where they can exit to the outside via the gates at either end of the foyer. The question for this determination is whether smoke lobbies are required in these two ground floor apartments preceding the fire doors that open into the common stairwell.

5.4.4 Paragraph 3.2 of C/AS2 discusses the number of escape routes that spaces within a building must have:

3.2.1 Except where Paragraph 3.13 allows the use of single escape routes, every occupied space in a building shall be served by two or more escape routes

5.4.5 I note paragraph 3.9 is also relevant to this discussion as it covers requirements relating to exitways^[20], which may include smoke lobbies^[21]. With reference to whether a smoke lobby is required preceding a vertical safe path, paragraph 3.9.2 refers to various paragraphs within the document, including paragraphs 3.9.3 and 3.13.1

5.4.6 Paragraph 3.9.3 of C/AS2 sets out the requirements for smoke lobbies in respect of exitways from upper and intermediate floors, and states:

3.9.3 For risk groups SM and CA, entrances to vertical safe paths shall be preceded by smoke lobbies (refer to Paragraph 3.9.2 for the required area of the smoke lobby) except where:

- a) The safe path from an upper floor or intermediate floor serves only that floor, or
- b) The firecell is sprinklered, or
- c) The occupant load of the firecell is less than 150, or
- d) The vertical safe path is preceded by a horizontal safe path.

5.4.7 Paragraph 3.13.1 concerns buildings with a single escape route:

3.13.1 Single escape routes shall only be permitted if:

...

- e) In *buildings* with two or more floors, the vertical *safe path*^[22] is preceded by a *smoke lobby* on all floors except the topmost floor

5.4.8 The applicant considers paragraph 3.9.3(c) applies as the occupancy criterion is met, and for this reason the building without smoke lobbies on any of the floors would comply by way of C/AS2. The applicant is of the view that framework for compliance by way of C/AS2 is on a ‘firecell by firecell basis’.

5.4.9 In my opinion this is not how the Acceptable Solution is to be interpreted; rather the document deals with both the building as a whole as well as spaces within the building.

5.4.10 Paragraph 3.9.3 sets out the general requirements for exitways from upper and intermediate floors, whereas paragraph 3.13.1 sets out specific requirements for buildings with single escape routes. In my view paragraph 3.13.1 is the relevant provision and in effect modifies the general requirements in paragraph 3.9.3.

²⁰ An ‘exitway’ is all parts of an escape route protected by fire or smoke separations, or by distance when exposed to open air, and terminating at a final exit.

²¹ A ‘smoke lobby’ is that portion of an escape route within a firecell that precedes a safe path or an escape route through an adjoining building which is protected from the effects of smoke by smoke separations.

²² A ‘safe path’ is that part of an exitway (which includes all parts of an escape route that terminate at a final exit) which is protected from the effects of fire by either fire separations, external walls, or by distance when exposed to open air.

- 5.4.11 Considering the criteria in paragraph 3.13.1(e), in this case:
- the building has been designed with a single escape route serving the occupants of the upper floors
 - the building has more than two floors
 - the stairwell is intended to function as a vertical safe path
 - the stairwell is not preceded by a smoke lobby on all floors (noting smoke lobbies are not required for the topmost floor).
- 5.4.12 It is clear to me that the building without smoke lobbies to the ground floor does not meet the criteria in paragraph 3.13.1(e).
- 5.4.13 In correspondence with the authority, the fire engineer and consultant are of the view that because the ground floor occupants are not limited to using the stairwell as an escape route (i.e. the stairwell does not function as a single escape route for the occupants of the ground floor apartments), that paragraph 3.13.1(e) does not apply to the ground floor and smoke lobbies are not required for the ground floor apartments. In other words, paragraph 3.13.1(e) of C/AS2 does not apply to the ground floor apartments because in the event of a fire in one of the ground floor apartments, the occupants of that apartment will exit through their nominated escape route directly to the exterior without passing into the common foyer area.
- 5.4.14 I am of the view this is an incorrect interpretation of the requirements in paragraph 3.13.1(e). The criteria in that paragraph are clear and apply to all floors, with the only exception being the topmost floor. There are no other exceptions permitted in C/AS2 that modify the requirements of single escape routes or that suggest a smoke lobby is not required to precede a vertical safe path where that floor, or in this case firecells, have an alternative escape route. Smoke lobbies provide redundancy for the single means of escape through such means as: requiring a secondary leakage path before smoke enters the stairwell, providing an additional intermediate volume for smoke filling, and providing a second door not subject to extreme heat from the fire.
- 5.4.15 For single escape routes, C/AS2 requires smoke lobbies on all floors (other than the topmost) to prevent the effects of fire (smoke) from entering the stairwell, which is the only safe path meant to protect those occupants of the upper levels of the building to enable them to reach a safe place in the event of a fire. This is an important feature where the occupants of the upper levels have only a single escape route.

Conclusion

- 5.4.16 As there are no other paragraphs in C/AS2 that allow for an exception to paragraph 3.13.1(e), smoke lobbies are required within ground floor apartments preceding doors that lead into a vertical safe path (the common stairwell in this case) in order to comply by way of C/AS2.
- 5.4.17 The building as designed without smoke lobbies in units 2 and 3 on the ground floor is not in accordance with C/AS2 and therefore cannot be accepted as complying with Clause C4 by way of C/AS2. As set out in paragraph 1.1.3 of C/AS2, because the Acceptable Solution is not followed in full, either use of the Verification Method C/VM2 or an alternative solution will be needed to demonstrate compliance for this design.
- 5.4.18 I note for completeness that there are additional requirements set out in paragraph 3.13.4 for single escape routes in risk group SM. There are also requirements

relating to the function of the stairwell as a safe path that are relevant, such as the openings (paragraph 5.4), escape routes from sleeping area firecells entering into a horizontal safe path (paragraph 3.9.6), and termination of horizontal safe paths (paragraph 3.9.8). As noted in paragraph 1.6, this determination has not considered the compliance of the stairwell as a safe path.

5.5 Nominated exits

- 5.5.1 Although outside those matters which I am required to consider in order to establish whether the building without smoke lobbies on the ground floor complies by way of C/AS2, I offer the following comments on ‘nominated exits’ to assist the parties should they consider the design proposal as an alternative solution.
- 5.5.2 As noted above and shown in Figure 1, occupants of the ground floor apartments have two external doors by which they may escape in the event of a fire, and two of the apartments (unit 2 and unit 3) also have doors that lead into the stairwell. As noted in paragraph 4.1.4, the applicant confirmed that the stairwell was not designed as an external escape route.
- 5.5.3 The applicant contends that the doors between the apartments and the ground floor common foyer area will not be opened in the event of a fire because there are nominated exits for those occupants. For this reason the applicant is of the view the effects of any fire that outbreaks in these ground floor apartments will not enter the stairwell safe path, and therefore smoke lobbies are not required on the ground floor to protect the safe path and the occupants of the upper levels from the effects of the fire using the safe path.
- 5.5.4 I note there does not appear to be anything preventing occupants of the two ground floor apartments with doors to the stairwell from exiting via the stairwell safe path in the event of a fire. In this matter I agree with the authority – the use of escape routes is subject to behavioural aspects, and there are a number of factors that may influence which egress route occupants will use in an emergency.
- 5.5.5 Regardless of whether a particular escape route has been ‘nominated’, there is nothing that prevents an occupant from exiting the building via a route they are familiar with, or via an exit they perceive as being a safer route in the event of fire, for example.
- 5.5.6 In the event of a fire in either of these two ground floor apartments, occupants of those apartments may choose to escape via the ground floor common foyer area. An open door in that situation could increase the potential for the effects of the fire, including smoke, to enter the stairwell safe path and this presents a life safety risk to those occupants of the upper levels whose single escape route is via the stairwell.

6. Matter 2: The granting of the consent

- 6.1 I now consider the authority’s exercise of its powers of decision to grant the building consent. Section 49 of the Act provides:

49 Grant of building consent

- (1) A building consent authority must grant a building consent if it is satisfied on reasonable grounds that the provisions of the building code would be met if the building work were properly completed in accordance with the plans and specifications that accompanied the application.

- 6.2 The building consent application cited C/AS2 as the means of compliance. I have concluded the building without smoke lobbies within the ground floor apartments that have doors into the common stairwell (units 2 and 3) does not comply by way of C/AS2, and it follows therefore that the building consent was granted in error.
- 6.3 The documentation provided in support of the building consent application included the fire report with accompanying drawings, architectural drawings, and a design coordination statement. There was conflicting information in the documentation with regard to whether smoke lobbies were to be provided to the ground floor apartments, with the fire report stating that smoke lobbies were to be on all floors (except the uppermost) but accompanying drawings and architectural drawings only including smoke lobbies on level one.
- 6.4 It appears the inconsistencies in this case may have resulted from the fire engineer's interpretation of paragraph 3.13.1(e) in relation to the function of the stairwell as a single escape route for the upper levels but not as a single escape route for the ground floor apartments (as discussed in paragraph 5.4.13).
- 6.5 I note here that appropriate coordination between the different disciplines involved in a project is critical to ensuring compliance with the Building Code. Inconsistencies in the supporting documentation for a building consent may require further information be provided to the authority.
- 6.6 Because I have reached the view that the building consent was granted in error, in accordance with section 188 of the Act I must now consider whether the authority's decision to grant the building consent should be confirmed or reversed.
- 6.7 In Determination 2009/015²³, I took the view that while the Chief Executive has the power to reverse the decision to issue a building consent where the issuing of consent is a decision that has been relied upon, there would need to be compelling reasons to reverse that decision. The effect of reversing a decision to grant a building consent is that the a certificate of acceptance would be the means of regularising building work that has already been carried out under that building consent, and a new building consent application made for any further building work.
- 6.8 In this instance I am of the view that it would not be appropriate for me to reverse the authority's decision to grant the building consent at this time. In coming to this conclusion I have taken into account that the building consent has been relied on, and also that it is possible that either the building work complies with the Building Code (which would need to be established by some means other than C/AS2), or if it does not comply the consent can still be amended in respect of building work required to bring the building into compliance with the Building Code.

7. The decision

- 7.1 In accordance with section 188 of the Building Act 2004, I hereby determine:
- the building without smoke lobbies to ground floor units 2 and 3 does not comply with Clause C4 of the Building Code by means of the Acceptable Solution C/AS2
 - accordingly the authority was incorrect in its decision to grant the building consent as the design was not in accordance with the stated means of compliance, however I confirm that decision for the reasons set out in paragraph 6.8 of this determination.

²³ Determination 2009/015 The code-compliance of a 15 year old house (10 March 2009)

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 15 April 2020.

Katie Gordon
Manager Determinations