



Determination 2015/007

Regarding the authority's exercise of powers in refusing to issue a modification of clause G6 for an apartment block at 105-109 Apollo Drive, Rosedale, Auckland

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 Bupa Care Services NZ Ltd represented by an agent (“the applicant”)
 - Auckland Council (“the authority”), carrying out its duties as a territorial authority or building consent authority
- 1.3 This determination arises from the applicant’s seeking a modification from the authority under section 67 of the Act of the requirements of clause G6 of the Building Code relating to airborne and impact sound for an apartment building that has special features of being ‘retirement suites’.
- 1.4 The matter to be determined² is therefore whether the authority was correct to refuse to issue a modification of clause G6 for the applicant’s building.
- 1.5 In making my decision, I have considered the submissions of the parties and the other evidence in this matter.
- 1.6 Unless otherwise stated sections refer to sections of the Act and clauses refer to clauses of the Building Code (Schedule 1, Building Regulations 1992).

2. The building work

- 2.1 The building work consists of a new ‘retirement village’ consisting of a number of household units in an apartment style building under three building consents. The building consent has been split into three stages
- Stage one for civil/retaining walls/infrastructure
 - Stage two for piling/structure to the ground floor
 - Stage three for ‘superstructure’

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

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

- 2.2 At the time of writing this determination stages one and two have received building consents [building consent numbers not provided] which are currently under construction. The building consent for stage three was lodged in May 2014 and has not yet been granted.
- 2.3 The household units are to be self-contained with bedrooms, living room, bathrooms, and kitchen and laundry facilities. There will also be a communal dining area and communal living areas for the residents to use.

3. Background

- 3.1 On 11 September 2014 the applicant applied to the authority for a modification of the sound transmission class (“STC”) required by clause G6 of the Building Code (Airborne and Impact Sound) for the applicant’s apartments.
- 3.2 The applicant’s accompanying letter to the modification application sets out the following reasons why the buildings should be called ‘retirement suites’ noting the following should be taken into account, in summary:
- The resource consent application made reference to an aged care facility and has subsequently been granted.
 - The development is regulated by the Retirement Villages Act including having special building requirements for aged occupants who occupy a unit under an occupancy rights agreement.
 - There is an age restriction to allow entry to each unit, the average age is 84 and no more than 2 people occupy each household unit, the majority only containing one person.
 - The household units have accessible showers for residents to receive assistance whilst bathing, where required fire exits are a ramp not steps, wider corridors, in some cases wider doors and level threshold entry to private gardens and balconies.
 - Meals are served in a common dining area (although there are kitchens in the units) and the facility often washes the resident’s laundry (although a washing machine and dryer are provided).
 - The household units have a monitored medical alarm connected to a 24hour call centre and the common areas have nurse call points connected.
 - The development can provide care for a resident if required, and the building is attached to the care home.
- 3.3 The applicant’s modification application included a letter from the applicant’s acoustic engineer dated 8 October 2014 (I note this is different to the letter referred to in the application for modification which was dated 9 September 2014 however I appreciate the letters contained similar information). The acoustic engineer comments on the expected acoustic ratings of a similar building owned by the applicant. In summary:
- It is mandatory in New Zealand for residential developments to comply with Clause G6, requiring noise control provisions are of a standard which prevents undue noise transmission.
 - Clause G6 requires sound transmission class of walls, floors and ceilings between apartments to be a minimum standard of STC 55 when tested in the

laboratory situation. The Building Code makes an allowance of 5 STC points for the same construction when tested in the field situation.

- The acoustic engineer states the Building Code suggests the performance of walls isolating non-habitable spaces from common areas (corridors and fire escape stairs) may be relaxed to a standard below STC 55.
- Impact noise transmission is described as a single rating, or Impact Insulation Class (“IIC”) value. The IIC between floors is a minimum of 55 when in a laboratory situation. The Building Code makes an allowance of 5 IIC for the same construction when tested in the field situation.
- On a review of ‘lab data’ available and testing carried out by the acoustic engineer the proposed block work wall construction has an STC rating of approximately 47-48, which is below the STC of 55 required.
- Lightweight inter-tenancy walls are proposed in some areas of the building which were tested by the acoustic engineer to have an STC rating of 56-58.
- The concrete floor construction that separates the units vertically the STC is tested at 57 in the laboratory. The IIC value is expected at around 25-30 and the acoustic engineer notes the introduction of appropriate impact isolation materials below the vinyl or hard floor surface systems within the units will be required to ensure compliance with clause G6.

3.4 On 16 October 2014 the authority declined the applicant’s request for modification of clause G6 as per their letter dated 11 September 2014.

3.5 The applicant included a letter with their application. The letter is titled ‘Response to application for modification to the NZ Building Code Clause G6 for [the applicant’s] retirement village project’ this is the letter from the authority declining the application for modification. In summary the letter states:

- The acoustic engineer’s report is a brief document discussing areas of the building where inter tenancy walls and floor/ceiling construction will and will not comply with the required STC. The report advises some methods of construction shown on the building plan will result in non-compliance with the STC or IIC ratings required.
- The building has a number of residential units that are clearly household units classified under the fire design SM³ risk group. The requirements of clause G6 applies.
- The household units are individual accommodation pensioner flats that are self-contained. The units offer a long term stay. The fact the building is within the retirement village does not change the use of the building.
- Compliance with clause G6 has no relation to the average age of the occupants, accessible facilities or ownership and is related to the use of the building.
- The building will not function as a day to day care home such as an SI⁴ risk group like a hospital.
- The building is not special accommodation under section 7 of the Act, which is not defined and requires an Order in Council to determine.

³ C/AS2 Acceptable Solution Risk Group SM (Sleeping, non-institutional)

⁴ C/AS3 Acceptable Solution Risk Group SI (Buildings where care or detention is provided)

- Therefore the authority does not consider the justification and validation provided by the applicant demonstrates how the proposed building complies with the objectives and functional requirements of clause G6.

3.6 The Ministry received an application for determination on 6 November 2014.

4. The submissions

4.1 The applicant provided the following documentation with their application:

- the application for modification dated 11 September 2014
- the applicant's supporting letter to the application for modification dated 10 September 2014
- the report by the acoustic engineer dated 8 October 2014
- the response from the authority declining the application for modification (undated)
- building plans of the proposed building.

4.2 The authority provided a written submission dated 19 November 2014. In summary the authority stated:

- The authority does not specifically want to make a submission to the current determination as its position is clearly covered in its earlier letter (refer paragraph 3.4).
- However, the authority has been considering the issue of horizontal impact sound transmission for some time, and this determination process could be a convenient opportunity to obtain the Ministry's views as this could impact on the current development.
- The authority acknowledges different views amongst acoustic engineers however considers the functional requirement of clause G6.2 and the performance specification referred to in G6.3.1 and G6.3.2 apply between abutting occupancies, whether those units abut horizontally, vertically, or diagonally.
- Additionally, the authority seeks clarification as to the application of ASTM E 492 as between horizontally abutting occupancies, as the definition of IIC refers to 'impact sound insulating performance of a floor ceiling assembly'. This wording suggests that whilst ASTM E 492 is appropriate for measured values between diagonally and vertically abutting occupancies, it is unsuitable for units which abut horizontally as the ceiling assembly is effectively, or virtually, redundant.

5. The draft determination and further submissions

5.1 On 26 November 2014 the authority provided a report from an acoustic engineer on the interpretation of G6 for Horizontal Impact Noise, in support of the authority's position in paragraph 4.2. In summary:

- 'horizontal impact noise' refers to the sound received in a household from footfall impacts in an adjacent occupancy on the same level.
- Clause G6.1 is the objective clause, thus if the performance provisions of Clause G6 are met, the objective is met.

- Under Clause G6.2 the functional requirement determines which walls and floors have the performance requirement applied, being whether a wall or floor is a ‘building element(s) which (is) common between occupancies’. The inter-tenancy floor between two vertically stacked apartments is a common element, however the acoustic engineer considers the continuous floor between two adjacent apartments is not common as there is no part of that floor that is shared by each apartment.
- The definition of IIC under Clause A2 and ASTM E492⁵ both reference ‘floor-ceiling’ assemblies that restrict the performance requirement of G6.3.2 to vertical or vertically diagonal assemblies of floors and ceilings when tested in a laboratory. Therefore the Building Code requires the applicable floor/ceiling assemblies to achieve at least IIC 55 under laboratory conditions.
- There are no laboratories worldwide that would complete horizontal IIC testing.
- In conclusion, while the objective of Clause G6 could be construed to mean the Code aims to control any noise in any direction, it does so through the functional requirement and associated performance requirements.
- The Verification Method G6/VM1 requires a Field Impact Insulation Class (FIIC) result of 50 in the vertical or more when used to verify laboratory performance of IIC55 under G6.3.2. There is no specific reference to directionality of testing in the procedures under ISO 140:7.⁶
- The acoustic engineer contends that G6/VM1 is not a substitute for compliance with the laboratory performance targets on Clause G6.1-6.3. Although ISO 140:7 is broader in scope, the performance requirements of Clause G6 are limited to the vertical.
- The acoustic engineer concludes it is appropriate to require testing vertically/diagonally in accordance with G6/VM1. Results of at least FIIC 50 between apartments are an appropriate means to demonstrate a building complies with G6, testing in the horizontal would not be in accordance with G6.
- The acoustic engineer notes there is a reasonable degree of protection from other methods used to meet the objectives wherever apartments occur below, for example carpet or a resilient layer under hard tiles/timber.
- The acoustic engineer detailed practical implications of horizontal application if it were a legal minimum.

5.2 A draft determination was issued to the parties on 27 November 2014. The draft determination found the authority was correct to refuse to issue a modification of clause G6. In the interests of avoiding delay to the applicant, the additional matters raised by the authority relating to G6 (refer paragraph 4.2) were reserved.

5.3 On 2 December 2014 the authority accepted the draft determination without comment.

5.4 On 4 and 10 December 2014 the applicant responded to the draft determination. The applicant initially did not accept the draft determination and sought further clarification around ‘specialised accommodation’

⁵ American Society for Testing and Materials ‘Test method for laboratory measurement of impact sound transmission through floor – ceiling assemblies using the tapping machine (1990).

⁶ International Standards Organisation ‘Field measurements of impact sound insulation of floors’ from G6/VM1 paragraph 2.0.1

5.5 On 13 January 2015 the Ministry provided further clarification around ‘specialised accommodation’ refer paragraph 6.3.4.

5.6 On 15 January 2015 the applicants responded stating the draft determination was now accepted.

6. Discussion

6.1 The matter to be determined is whether the authority was correct to refuse to issue a modification of clause G6 for the applicant’s building.

6.2 The functional requirement of G6.2 states that building elements which are common between occupancies shall be constructed to prevent undue noise transmission from other occupancies or common spaces to the habitable spaces of household units.

6.3 The household units

6.3.1 The applicant’s argument for modification of clause G6 is due to the specialised nature of the building as a retirement care village.

6.3.2 Clause G6 applies to household units, defined under section 7 of the Act as:

household unit means any building or group of buildings, or part of any building or group of buildings, used or intended to be used solely or principally for residential purposes and occupied or intended to be occupied exclusively as the home or residence of not more than one household; but does not include a hostel or boarding-house or other specialised accommodation

6.3.3 The building does not fall within the definition of specialised accommodation as it has not been declared by the Governor General to be so:

specialised accommodation means a building that is declared by the Governor-General, by Order in Council, to be specialised accommodation for the purposes of this Act

6.3.4 In relation to specialised accommodation, Clause G6 refers to a household unit (which includes reference to specialised accommodation) as part of the ‘limits of application’. Under the Building Act 1991 (“the former Act”) the ordinary and natural meaning of specialised accommodation was used. However, the current Act now provides a procedural definition of specialised accommodation under the interpretation section 7 (refer paragraph 6.3.3). As the building is not a hostel or boarding house, and there has been no Order in Council issued in respect of specialised accommodation⁷, the building cannot be considered specialised accommodation under the current Act.

6.3.5 I conclude the building constitutes a series of house hold units as intended to be the home residence of one or two persons. The units are self-contained, with kitchen, bathroom, lounge and laundry facilities for the occupant/s. Therefore I consider the performance requirements of G6 do apply to the building. The performance requirements under G6.3.1 are an STC of walls, floors and ceilings being a minimum of 55 and an IIC of floors to a minimum of 55.

6.3.6 It has been established by the acoustic engineer that the proposed building does not comply with Clause G6 in respect of proposed block work walls and floors.

⁷ Determination 2006/092 Is a compliance schedule required for a new IHC residential home, *Department of Building and Housing* 19 September 2006.

6.4 The modification

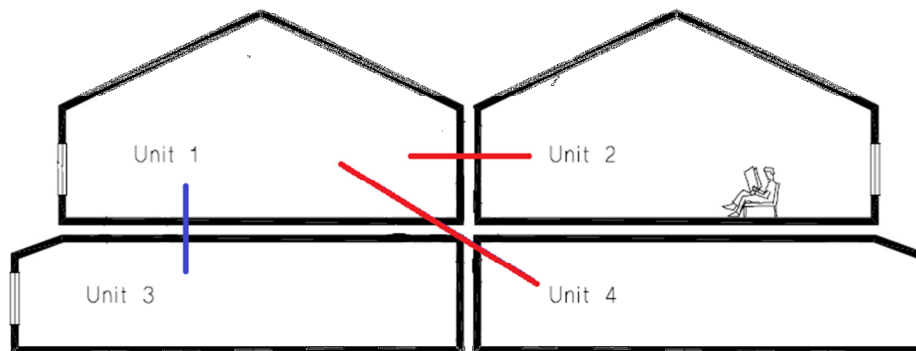
- 6.4.1 An authority can grant a waiver or modification of the Building Code under section 67 of the Act. This section recognises that no Building Code can cover all possible situations and accordingly introduces the flexibility necessary to deal with unusual cases. As a matter of general law an authority must act reasonably in granting a waiver under section 67 in that any waiver or modification should impair the Building Code obligation as little as possible. There must be substantive justification for the proposed modification.
- 6.4.2 Determination 2010/139⁸ stated when an authority is exercising its powers under the Act, it must apply the principles of the Act as listed in section 4. In this case section 4(2)(a)(i) regarding ‘the importance household units play in the lives of the people who use them’ and ‘the importance of the Building Code as it relates to household units’ and ‘the need to ensure that household units comply with the Building Code’ place a strong emphasis on the importance of a household unit. As discussed in paragraph 6.3.5 the applicant’s building consists of household units for the purposes of a retirement style village.
- 6.4.3 A modification of a performance requirement of the Building Code is usually done so that the functional requirement and objectives of the clause are still met.⁹ The functional requirements of G6 must still be met to reduce noise transmission between units. The matters raised by the applicant about the age of the occupants, the nature of the license to occupy and the accessibility of the units do not support a modification of allowing an increased level of noise between the units. The occupants are entitled to the same noise levels as any other occupant in an apartment style building, whether they are aged 20 or 90.
- 6.4.4 In my view the activities carried out by the occupants of the building are of little difference to any other household unit. The occupants may wish to invite friends over, play music, listen to the television (perhaps even at a high level than normal due to deterioration in hearing). The purposes of the Act make it clear that in particular to household units the lives of the people who use them must be taken into account. In my view the noise levels between units should meet the requirements of the Building Code and the applicant has not provided any substantive justification to warrant the granting of a modification.
- 6.4.5 Additionally I consider there are design modifications that the applicant can undertake to ensure compliance with G6. I appreciate these modifications maybe at some cost to the applicant however in consideration of all the circumstances of this case I do not consider it reasonable to issue a modification of G6.
- 6.5 In conclusion, I consider the authority was correct to refuse to issue a modification of Clause G6 for the applicant’s proposed building.

⁸ Determination 2010/139 The refusal to grant a waiver of Building Code Clause F4 for a deck barrier at a house (*Department of Building and Housing*) 23 December 2010

⁹ Ministry of Business, Innovation and Employment ‘Notification of Waiver or Modification of the Building Code – Under section 68 of the Building Act’ guidance 6 August 2012.

7. Comment on the interpretation of Clause G6 for horizontal impact noise

- 7.1 Although outside of the matter to be determined, I accept the proposal from the authority to provide clarification on the issue of whether horizontal impact noise control targets form part of Clause G6.3.2 compliance. I have reviewed the submission from the authority's acoustic engineer. The authority is of the opinion that G6.3.1 and G6.3.2 apply between units 1 and 2, 1 and 3 and 1 and 4 (refer figure 1). Additionally the authority asked for comment around the application of the ASTM laboratory test methods¹⁰ which are vertical tests and not suitable for units which abut horizontally.



SCHEMATIC SECTION THROUGH FOUR UNITS

Amended from Figure 1 in G6/AS1 (not to scale)

- 7.2 The performance requirement of G6.3.2 refers to the IIC of 'floors' which indicates G6.3.2 would only apply to floor-ceiling assemblies not horizontal floors. I note that at Figure 3 of the Acceptable Solution G6/AS1 only refers to floor-ceiling assemblies.
- 7.3 Additionally, the interpretation section A2 provides the following definitions for IIC. The IIC specifically refers to floor-ceiling assemblies:

impact insulation class (IIC) a single number rating derived from measured values of normalised sound pressure impact levels in accordance with Method ASTM E492, Annex A1. Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine. It provides an estimate of the impact sound insulating performance of a floor-ceiling assembly

- 7.4 The testing of ASTM E 492 is therefore restricted to floor-ceiling arrangements. Additionally I acknowledge the comments from the authority's acoustic engineer that there is currently no known acoustic laboratories world-wide where any horizontal impact testing has been carried out on concrete structures.
- 7.5 In relation to the diagonal application, I do not consider there is a building element that is common between the occupancies of Unit 1 and Unit 4 of Figure 1. I do not consider the units are abutting.

¹⁰ Field Test Results from Verification Method G6/VM1

7.6 Therefore, I am of the opinion that G6.3.2 applies to vertical assemblies only (refer blue line of Figure 1) and does not apply to horizontal assemblies (refer red lines Figure 1).

8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby confirm the authority's decision to refuse to grant a modification of Clause G6.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 2 March 2015.

John Gardiner
Manager Determinations and Assurance

Appendix A

A1 The relevant sections of the Act

67 Territorial authority may grant building consent subject to waivers or modifications of building code

- (1) A building consent authority that is a territorial authority may grant an application for a building consent subject to a waiver or modification of the building code.
- (2) A waiver or modification of the building code under subsection (1) may be subject to any conditions that the territorial authority considers appropriate.
- (3) The territorial authority cannot grant an application for a building consent subject to a waiver or modification of the building code relating to access and facilities for people with disabilities.

4 Principles to be applied in performing functions or duties, or exercising powers, under this Act

(2) In achieving the purpose of this Act, a person to whom this section applies must take into account the following principles that are relevant to the performance of functions or duties imposed, or the exercise of powers conferred, on that person by this Act:

- (a) when dealing with any matter relating to 1 or more household units,—
- (i) the role that household units play in the lives of the people who use them, and the importance of—
 - (A) the building code as it relates to household units; and
 - (B) the need to ensure that household units comply with the building code:
 - (ii) the need to ensure that maintenance requirements of household units are reasonable:
 - (iii) the desirability of ensuring that owners of household units are aware of the maintenance requirements of their household units:
- ...
- (f) the importance of standards of building design and construction in achieving compliance with the building code:
- ...

A2 The relevant clauses of the Building Code

Clause A2 – Interpretation

impact insulation class (IIC) a single number rating derived from measured values of normalised sound pressure impact levels in accordance with Method ASTM E492, Annex A1. Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine. It provides an estimate of the impact sound insulating performance of a floor-ceiling assembly

sound transmission class (STC) a single number rating derived from measured values of transmission loss in accordance with classification ASTM E413, Determination of Sound Transmission Class. It provides an estimate of the performance of a partition in certain common sound insulation situations

Clause G6—Airborne and impact sound

Objective

G6.1 The objective of this provision is to safeguard people from illness or loss of *amenity* as a result of undue noise being transmitted between abutting occupancies.

Functional requirement

G6.2 *Building elements* which are common between occupancies, shall be constructed to prevent undue noise transmission from other occupancies or common spaces, to the *habitable spaces of household units*.

Performance

G6.3.1 The *Sound Transmission Class* of walls, floors and ceilings, shall be no less than 55.

G6.3.2 The *Impact Insulation Class* of floors shall be no less than 55.