



Determination 2015/010

Regarding the authority's refusal to grant a modification of Clause C3.4(a) of the Building Code in respect of materials used for internal surface linings at a new school hall at 90-98 Blake Street, Greymouth

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 Licenced Building Practitioner concerned with the relevant building work (“ the LBP”), P Wilkins, acting through an agent (“the applicant”)
 - Grey District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3 I have forwarded the draft determinations to the New Zealand Fire Service (“the NZFS”) by way of consultation under section 170 of the Act.
- 1.4 This determination arises from the decision of the authority to refuse to grant a modification of Clause C3.4(a) of the Building Code (First Schedule, Building Regulations 1992) for the construction of a new school hall.
- 1.5 The matter to be determined² is therefore whether the authority correctly exercised its powers of decision in refusing to grant a modification of Clause C3.4(a) of the Building Code for a building consent.
- 1.6 In making my decision, I have considered the submissions of the parties, the submissions from NZFS, and the other evidence in this matter.
- 1.7 Unless otherwise stated all references to sections relate to sections of the Act and all references to clauses relate to clauses of the Building Code.

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. The building work

- 2.1 The building work consists of a new school hall (“the school hall”), with a total floor area of 210.9m² that contains a kitchen, accessible bathroom, and male and female toilets. The school hall is a single storey building detached from the adjacent school buildings, with solid timber and supplementary fibre-cement weatherboard cladding.
- 2.2 The proposed wall system is manufactured off site and assembled on site and consists of 44mm thick pine exposed timber construction with 90mm battens enabling the installation of insulation and fibre cement weatherboard. The ceilings are comprised of 19mm sarking timber.
- 2.3 The original building consent proposed installing plasterboard over the 40mm timber wall to achieve the required Material Group Number. The application for a modification of Clause C3.4(a) proposes that the internal walls be coated in a proprietary ‘intumescent coating’; a water-based acrylic polymer system that dries to a clear finish.
- 2.4 The applicant has confirmed the modification application is for ceilings and walls. In a building not protected with an automatic fire sprinkler system the Material Group Numbers are identical for both ceilings and walls.

3. Background

- 3.1 On 17 November 2014 the applicant lodged a building consent application (No. 993773) for the construction of the new school hall.
- 3.2 On 18 November 2014 the applicant wrote to the authority to apply for a modification of C3.4(a). The applicant noted the fire report attached to the building consent specified a product that would meet the requirements of the Building Code; however, the applicant considered there was insufficient information on that product regarding durability and safety of the occupants of the school hall and also desired a clear finish. The application, in summary, stated:
- The Building Code requires that materials used as internal surface linings in the school hall achieve a Material Group Number 2S (refer Appendix A2). The Acceptable Solution (C/AS4) specifies two methods for establishing the Material Group Number, both using a 9mm wood substrate. The applicant’s internal wall lining, being 44mm thick pine timber walls and 19mm sarking timber ceiling, are assumed to perform better (that is, will take longer to reach the flashover point in comparison to the 9mm ply substrate – how much longer has not been established).
 - The applicant compared the objectives of the current Clause C with the previous Clause C of the Building Code. The applicant sought advice from the Ministry and was informed the ‘fundamental objectives’ of the fire safety clauses have not been changed. This is supported when comparing the wording of the objectives of both the current and previous C clauses.
 - Specifically the applicant compared the current Building Code clause C3.4(a) and the superseded clause C3 Spread of Fire (refer Appendix A). The applicant noted that C3.3.1 was performance based and used specific criteria for evaluation but was not prescriptive: in C3.4(a) the Material Group Number is ‘a measure of total heat released over a period of time given a time dependent exposure to specified energy’.

- The applicant noted a ‘paradox’ between Clause C3.4(a) and the Acceptable Solutions. Clause C3.4(a) stipulates the test method for determining a lining’s number as IS09705:1993 whereas the Acceptable Solution (C/AS1 to C/AS7 paragraph C4.1.7 and Appendix A of C/VM1) allow for the full-scale test or the bench-scale cone calorimeter tests of IS05660.1.2002 and IS05660.2.2002 respectively.
- The applicant seeks a modification of C3.4(a) ‘so that for the school hall, Material Group 3 will achieve compliance with C3.4(a)’.

3.3 The applicant’s fire engineer provided a fire design report (“the fire report”) with the building consent application. In summary the fire report stated:

- The school hall has a design occupant load of 122 and is required to have two means of escape. The dead end open paths and total open paths meet the requirements of C/AS4.
- The school hall forms a single firecell, therefore internal spread of fire need not be considered.
- A Type 2 manual fire alarm system complying with NZS 4512 and F7/AS1 and supplementary smoke detection is to be provided throughout the school hall.
- The internal surface finishes of all walls and ceilings shall have a group number no greater than 2S.

3.4 On 19 November 2014 the authority wrote to the applicant acknowledging receipt of the building consent application, including the application for a modification of Clause C3.4(a). The authority declined the application. The authority did not provide reasons for the decision in this letter; however, reasons for declining the application are noted at paragraph 4.3 in a written submission to this determination.

3.5 The Ministry received an application for determination on 1 December 2014.

4. The submissions

4.1 The applicant provided a written submission, dated 28 November 2014 with the determination application. In summary, the applicant submitted:

- The matter to be determined is the refusal of the authority to grant a modification of the Building Code under section 67(1). The modification is in respect of Clause C3.4(a), that the materials used in the internal surface linings achieve a Material Group Number of 3 (without the modification the group number 2S is required).
- There are no products available in New Zealand that when applied to wooden substrates will achieve a Material Group rating of 2S or lower.
- There is a product available with an intumescent coating that claims a material group of 1S when applied to a timber substrate. The applicant does not wish to rely on this as the testing laboratory is not third party accredited to carry out the specific tests related to establishing the Material Group and the supplier has not satisfied the applicant that the product complies with B2.3.1(c) and F2.3.1. The coating can look cloudy when applied in humid conditions and can be susceptible to physical damage.
- The applicant quoted sections 17 and 19 of the Act and noted clause C3.4(a) prescribes the performance requirement for a specific use and part of a building

and this is given by a Material Group Number. The Building Code specifies how the Material Group Number is to be established (ISO9705).

- As the performance clause is prescriptive in nature, there is no provision for demonstrating compliance via an alternative solution. C/VM2 provides an alternative means of establishing the Material Group Number, but appears to be *ultra vires* to section 17.
- The applicant submitted that the fundamental objectives and performance criteria of the new C-Clauses and the former C-Clauses of the Building Code were not altered by the amendments and the ‘policy imperative’ was unchanged. The applicant stated this was ‘advised by the Ministry.’ The applicant argues the internal surface lining would have complied with the Building Code prior to the amendments.

4.2 The applicant provided the following documentation with the application:

- Correspondence between the parties.
- Submission in relation to the application for determination.
- An impact evaluation analysis for the school hall (refer paragraph 5.1).
- The building consent application.
- The building plans.
- A letter of explanation to the school.

4.3 On 12 December 2014 the authority provided a written submission in response to the determination application. In summary the authority declined to grant a modification under section 67(1) of the Act for Clause C3.4(a) for the following reasons:

- The applicant informed the authority that another territorial authority had received a similar request to the current determination, which had been declined.
- The applicant informed the authority the resolution regarding the internal surface finishes for the school hall would be used as the model for other future commercial developments of a similar nature across New Zealand.
- The fire report the authority received with the building consent application states ‘the internal surface finishes of all walls and ceilings shall have a group number not greater than 2S’; this aligns with Clause 3.4(a) and C/AS4.
- The proposed internal surface finish for the school hall appears to only achieve a Group Number 3 when tested to ISO 5660.1-2002. The authority acknowledges the wall is a solid timber construction of 44mm thick; however there is no proven test data or detailed calculations about how the proposed internal surface finish will perform with the wall system.
- C/AS4 is the stated means of compliance; the authority was ‘unable to ascertain or conclude if any aspects of paragraphs 4.17.6 or 4.17.7 of C/AS4 could be applied in this case’.
- The authority considers the reasonably high design occupant load (122), the age and nature of most occupants (school children), and the consequences of granting a modification to lessen the minimum performance criteria stated in Clause 3.4(a) were too onerous.

4.4 The authority provided the following with its submission:

- Copies of the building consent application including plans.
- A test report dated 13 August 2014 showing results for coated plywood ISO5660.1-2002
- A product data sheet for coated plywood.
- A fire rating table for specific paint systems from the manufacturer of the coated plywood.
- Copies of the relevant clauses from the Building Code and paragraphs from the Acceptable Solutions.

5. The first draft determination and further submission

5.1 A draft determination was issued to the parties on 30 January 2015 for comment. The draft determination concluded the applicant had not provided sufficient justification for the granting of a modification of C3.4(a) and the authority was correct in its refusal. Due to an administrative oversight, the first draft had not taken into account a submission from the applicant provided to the Ministry on 1 December 2014.

5.2 In summary the applicant's submission stated:

- The applicant restated that currently there is no product available in New Zealand that when applied to wooden substrates will achieve a Material Group rating of 2S or lower. The applicant further contended the requirements of section 14G of the Act have not been met.
- The applicant discussed the current regulatory framework, concluding the only means to demonstrate compliance with C3.4(a) is through a modification to the Building Code.
- The applicant provided an analysis of criteria used 'when establishing the impact when a higher material group number is achieved'. Specific to the school hall the following features were noted:
 - A fire safety system comprising of a type 2 manual alarm with exit signs and way-finding strips.
 - C/AS4 requires two directions of escape to be provided. 'The wharenui exemptions'³ under paragraph 4.17.8(i) requires exit widths to comply with the requirements of 3.3.2j, that is the escape route widths must be double that required by the Acceptable Solution'. With exit widths of 1620mm and a maximum occupancy of 122, the applicant calculated the exit widths of the school hall to be 26mm/person, which is more than twice the width required by C/AS4.
 - All walls on the western face are also fire-rated through the installation of a fire resistant plasterboard.
 - The substrate of 9mm plywood is specified when carrying out ISO9705 and ISO5660. The proposed wall system is 40mm, and the ceiling 19mm. Both provide a lesser fire hazard than that used in testing.

³ I note here that the word 'exemption' has been used by the applicant and the NZFS in submissions to this determination. I will refer to the marae building 'exemption' as C/AS4 at paragraph 4.17.6 states "exceptions to surface finish requirements"

- The open path for the school hall is 34m. The allowable distance is 50m; however, the wharenui exemption is 25m (refer 3.4.2(e) of C/AS4).
 - The applicant concluded that achieving a Material Group rating of 3 for the ceiling and walls ‘that are not otherwise lined in [a proprietary fire resistant plasterboard] will not reduce the compliance with C1(a). Whilst the building does not meet the wharenui exemptions, the additional mitigation features (for example the thickness of the internal timber lining) will offset the additional distance.
- 5.3 On 3 and 4 February 2015 I requested information from the applicant as to why the building plans showed three egress routes, but only two exit route were referred to in the applicant’s submission.
- 5.4 On 3 February 2015 the applicant replied, noting that a third exit door is available but is not proposed to be used as an egress door as the design currently complies with C/AS4. On 5 February the applicant confirmed the accessible route can become an additional exit route and provided a modified fire drawing. The applicant noted the drawing can be submitted as an amendment to the building consent once the determination process has concluded.
- 5.5 On 17 February 2015 the NZFS responded to the draft determination with no comment.

6. The second draft determination and further submissions

- 6.1 On 18 February 2015 I issued the second draft determination to the parties. The second draft determination found that the authority was correct to refuse to grant a modification due to insufficient justification, and I granted a modification of C3.4(a) of the Building Code subject to the proposed amendment to the building consent for the third exit door.
- 6.2 On 20 February 2015 the authority accepted the second draft determination without comment.
- 6.3 On 23 February 2015 the applicant accepted the decision made in the second determination but had concerns in respect of the accuracy of the document. The applicant provided substantial comments, in summary:
- The determination should provide guidance in terms of methodology to apply for a site specific modification.
 - The determination does not adequately reflect the findings of the two cited previous determinations (2007/110 and 2012/049) and in addition 2006/085 (refer paragraph 7.3.2). The findings of the previous determinations should be ‘more correctly reflected’ and include:
 - There is no process for seeking or granting a waiver or modification.
 - It can only be issued in relation to plans and specifications in respect of a building consent.
 - There are a number of circumstances where it might be reasonable to grant a waiver or modification, for instance where compliance with the building code is impracticable and whilst amenity value might be diminished there is no reduction in life safety (it would appear from [Determination] 2007/110 that of life safety may not be compromised as a result of the waiver of modification).⁴

⁴ Determination 2007/110 Building consent for a house on land subject to coastal hazards at 35 Clifton Road, Haumoana, Hawkes Bay (Department of Building and Housing) 17 September 2007

- The previous determinations have accentuated the need for an authority to act reasonably when deciding to grant a waiver or modification.
- The new framework in the second draft determination does not specify how it has been arrived at given that it is accepted there is no process for granting a waiver or modification.
- The draft determination refers to the framework as a strict test and each decision must ensure that these strict tests are met to the same extent. The framework is not objective and there is unlikely to be consistency between the different authorities. The applicant contended this is misleading and inconsistent with earlier determinations.
- The applicant contended information has been supplied to demonstrate compensating features to reduce time to evacuate; a shortened pathway and increased door width.
- The applicant supplied an ‘indicative [evacuation] time’ calculated using C/VM2 to be 1 minute and 55 seconds.
- In relation to the marae building exception as set out in paragraph 4.17.6(i) of C/AS4, the applicant stated the following in summary:
 - The legal meaning of ‘marae’ is under the *Maori Land Act 1993* but only if it is registered as a reserve under the same act.
 - Other ethnic groups use term marae (e.g. Tahitian) so it is not ‘race based’.
 - The installation of tukutuku panels occurs once the building has been constructed; they are therefore akin to artwork and would not be considered building work.
 - Traditional Maori construction materials mean ‘buildings using materials and methods that otherwise comply with the Building Code.’
 - The exemption therefore relates to ‘buildings used in some form or other by a defined community, that contains artwork and that the building otherwise complies with the building code’. The school hall meets this test (once the third exit is noted).
 - This exemption provides a useful avenue for many buildings typically used by the community.
- The applicant noted the quoted cost of applying the alternative coating is \$28,000 which must be done by approved applicators with onerous safety requirements.
- The reference to ‘special and unique circumstances’ in the framework is unclear.
- The applicant understands each design regarding a modification would be site specific.
- The applicant does not accept the statement in the draft determination that when an appropriate product has been developed and compliance proved a test for modification would not be met. The applicant notes this may not be practicable because of the cost or other considerations.
- The applicant stated C3.4(a) should fall under section 20 of the Act and set under regulation.

- 6.4 On 5 March the NZFS provided a written submission through legal advisers. In summary, the second draft determination was not accepted for the following reasons:
- In general the NZFS is concerned about the extent and nature of the modification.
 - A wharenuī is a different type of building, with different types of users. The draft determination does not comment on the validity of such a comparison and ‘significant caution’ needs to be taken before relying on a comparison with a different type of building.
 - Regarding the third exit door, the draft determination suggests the applicant may seek to amend the consent once the determination process has concluded. This creates uncertainty as to whether the third exit door can be relied on. The draft determination granted the modification subject to an amended building consent. The NZFS submit the only basis for the third exit door to be relied on as a justification for the modification is if it clearly forms part of the proposal put before the Ministry for determination.
 - The determination states the applicant has failed to demonstrate compliance with the purposes and principles of the Act and further analysis is required. This is contradictory to the decision of the determination.
 - The objective and functional requirements of the Building Code clauses is lacking in assessment in the draft determination and no conclusion is reached.
 - It is suggested the applicant did not provide sufficient justification for evacuation within the performance time criteria. There is nothing that expressly states that the applicant has not provided a sufficient assessment to address those issues in order for the modification to be granted.
 - There is internal inconsistency in the conclusion reached in the draft determination. The reasoning for the conclusion is not properly and fully outlined and does not address the particular deficiencies highlighted above.
- 6.5 On 12 March 2015 the NZFS provided a further written submission through legal advisers in response to the applicant’s submission regarding the wharenuī exception. In summary:
- In comparison to a wharenuī, the users of the school hall will mostly be children. The difference in awareness and experience of the users has not been taken into account by the applicant.
 - Construction and design of wharenuī are traditional or have roots in traditional practices that would not meet the required standards set out in the Building Code. The importance of traditional practices is recognised in the exemption.
 - The exemption has a cultural basis that the school hall does not exhibit in materials or construction. The NZFS submit caution should be exercised before relying on such a comparison without any direct links between the two building types and likely occupants.
 - The NZFS submit that to widen the wharenuī exemption in the manner proposed by the applicant would have significant precedent implications and insufficient justification to expand the application of the extension has been provided.
- 6.6 I have taken account of the further submissions from the applicant and the NZFS and amended the determination where appropriate.

7. Discussion

7.1 General

7.1.1 The C Clauses of the Building Code relating to protection from fire were amended by the Building (Building Code: Fire Safety and Signs) Amendment Regulations 2012, taking effect on 10 April 2012. Among the changes was the inclusion of Clause 3.4(a) which states:

Materials used as internal surface linings in the following areas of buildings must meet the performance criteria specified below

[Refer Appendix A2 for Material Group Number table.]

7.1.2 The Material Group Number table works by classifying interior surface finishes from Group 1 (best) to Group 4 (worst) based on their measured time to flashover in the ISO 9705 fire test. BRANZ⁵ have provided the following summary:

- Group 1 materials include non-combustible materials or materials with limited combustibility such as plasterboard and similar materials (low hazard).
- Group 2 materials typically include many fire-retardant treated timbers and similar materials.
- Group 3 materials typically include ordinary timber products and similar materials.
- Group 4 materials typically include exposed polyurethane foams and similar materials. These are hazardous when installed as room linings and are not permitted in occupied spaces.

7.1.3 The school hall is designed to the Acceptable Solution C/AS4 with a risk group of CA as a “public access and educational facility”. The performance criteria for internal surface finishes assesses the contribution that surface finishes make to rapid spread of fire that may hinder the occupants’ means of escape. The performance criterion for Clause 3.4(a) for the school hall requires a Material Group rating of 2S (the school hall is not protected by an automatic sprinkler system) also specified in paragraph 4.17.1 of C/AS4 Table 4.1 (refer Appendix A3).

7.1.4 The Material Group Numbers contained in Clause 3.4(a) specify the performance determined under conditions described in ISO 9705:1993, being a full scale room test for surface products. Under paragraph 4.17.1 of C/AS4 it is noted the method for assigning the Group Number to a material and for establishing the smoke production rate is specified in Verification Method C/VM2 at Appendix A. Paragraph A1.1 of C/VM2 states materials shall be assigned a Material Group Number when tested to *either* ISO 9705 fire tests, *or* ISO 5660 Part 1 (heat release rate) *or* Part 2 (smoke production rate).

7.1.5 The applicant notes an apparent conflict between Clause 3.4(a) of the Building Code and the established means of compliance being the Acceptable Solution and Verification Method in this circumstance. It remains that under section 17 of the Act all building work must comply with the Building Code. It also remains under section 19 of the Act an authority must accept compliance with an Acceptable Solution or Verification Method as establishing compliance with the Building Code. However I note Clause 3.4(a) does not specify a product needs to be tested to ISO 9705:1993 but that performance is determined under conditions described in this test.

⁵ Branz.co.nz, (2015). *New requirements for interior surface finishes (July 2011)*. [online] Available at: http://www.branz.co.nz/cms_display.php?sn=144&st=1&pg=9622 [Accessed 26 Mar. 2015].

7.1.6 It is accepted by the parties that the proposed internal surface finishes for the walls and ceilings achieves a Material Group Number of 3 (not 2S) when tested on 9mm thick plywood to ISO 5660.1-2002. The applicant has applied for a modification of Clause 3.4(a) such that a Material Group Number 3 is permitted for the school hall.

7.2 Is the school hall a marae building?

7.2.1 The applicant has submitted (refer paragraph 6.3) that the surface finish requirements under Clause C3.4(a) do not apply to the school hall under the marae building⁶ exception under paragraph 4.17.6(i) of C/AS4 (refer Appendix A) and therefore a modification would not be needed. I do not accept this argument. The school hall is not registered under the *Maori Land Act 1993* as a marae, the school hall does not meet the definition of a wharenuī nor has any credible evidence been provided regarding any traditional Maori construction materials or designs to be used. Although I acknowledge other ethnic groups may use the term ‘marae’, in this context a ‘marae building’ is clearly intended to be aligned with traditional Maori construction materials and design. To suggest that a school hall with no connection to a marae and no traditional construction falls within the marae building exception is unsubstantiated, and the exception should not, and was never intended to, be expanded by extending it to a new type of building.

7.3 Modifications or waivers: the general framework

7.3.1 A waiver or modification is granted as part of the building consent process. Under section 67 of the Act an authority has the power to grant a modification (or waiver) of the Building Code; however the grant of such a modification must be reasonable taking account of the circumstances of the particular case.

7.3.2 Previous determinations have established that a waiver or modification may be granted only when it is ‘explicitly or implied necessary for the granting of a building consent in respect of the building work concerned’⁷ and that ‘compelling reasons must exist that support the view that a waiver is appropriate’.⁸ Determination 2006/085⁹ clearly states that a territorial authority may grant such a waiver or modification under section 67 only when it is reasonable to do so in the circumstances.

7.3.3 The following factors should be taken into account when an authority considers a modification (“the framework”) applied to the specific circumstances of an individual case. I note there are a number of factors within the framework an authority should balance when considering whether it is reasonable to grant a modification, no single factor should be isolated. This framework can be used as a methodology for deciding whether it is ‘reasonable’ to grant a modification:

- The extent and possible consequence of the non-compliance with the specific performance clause.

⁶ The applicant has used the term ‘wharenuī exemption’ in their submission. I note whilst ‘wharenuī’ is referred to in C/AS4 its only use is in a commentary to define ‘group sleeping areas’. The exception under paragraph 4.17.6 uses the phrase ‘marae buildings’ which are not defined under C/AS4. However, I accept that a ‘wharenuī’ being a Maori communal meeting house for assembly and sleeping, comes within the scope of the term ‘marae building’ for the purposes of 4.17.6.

⁷ Determination 2007/110 Building consent for a house on land subject to coastal hazards at 35 Clifton Road, Haumoana, Hawkes Bay (*Department of Building and Housing*) 17 September 2007

⁸ Determination 2012/049 Regarding the refusal to issue a code compliance certificate for a 16-year-old house with monolithic cladding at 33 Bishopsworth Street, Hillsborough, Christchurch (*Ministry of Business, Innovation and Employment*) 12 July 2012

⁹ Determination 2006/085 Refusal of a code compliance certificate for a building with a plywood cladding system at a house (*Department of Building and Housing*) 4 October 2006

- The availability of other reasonably practicable solutions that would result in the building work fully complying with the Building Code and associated costs.
- Any special and unique circumstances of the building work subject to the waiver of modification.
- The extent to which the modification will still be consistent with the purposes and principles of the Act.
- The modification complying with the relevant objective and functional requirement of the specific clause of the Building Code.

7.3.4 In granting a waiver or modification factors such as location, use of a building and design features make the modification specific to the building and not appropriate to be applied to other buildings with a different set of features.

7.4 Modification of C3.4(a) for the interior surface linings of the school hall

The extent and possible consequence of non-compliance with the specific performance clause

- 7.4.1 The Material Group Numbers are based on a time to flashover for fire under conditions specified in ISO9705. Material Group Number 3 has two minutes to flashover, whereas Group Number 2S (for crowd and sleeping activities) has at least 10 minutes. There is a significant difference between the two Group Numbers in relation to flashover time. In my view the applicant did not provide sufficient justification to the authority to demonstrate the school hall could be evacuated within performance conditions of Material Group Number 3 in order to show the wall linings will not contribute to growth of a fire and inhibit the escape of the occupants.
- 7.4.2 The performance Clause C3.4(a) covers a broad spectrum of buildings with crowd and sleeping uses. This means that it covers people who are unfamiliar with the building and its escape routes or, due to being asleep, are slow to respond to an alarm. The phrases ‘crowd activity’ and ‘sleeping activity’ are not defined under the Act. However, the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005 under Schedule two describes uses of all or parts of building and describes categories and examples for crowd and sleeping activities.
- 7.4.3 It is acknowledged that smaller premises such as this school hall may have shorter travel distances, a lower occupancy load and awake and familiar occupants. In the current situation I accept the school hall is on the ‘lower end’ of the crowd and sleeping criteria as a low risk building. It is common, as with a departure from an Acceptable Solution,¹⁰ to show other compensating features to ensure compliance with the functional requirement of the relevant clause of the Building Code and justifying a modification.
- 7.4.4 I consider the following features of the school hall provide justification for the modification:
- A small occupant load of 122.
 - A short evacuation time: the applicant has provided further calculation using the methodology in section 3 of C/VM2 of an evacuation time of 1 minute 55 seconds.

¹⁰ Determination 2005/169 Single means of escape from a high-rise apartment building (*Department of Building and Housing*) 22 December 2005

- Shortened pathways which contribute to the short evacuation time.
- Increased door width.
- The allocation of a third exit door to assist the occupants to move to a place of safety in the event of a fire. C/AS4 requires one exit to be discounted, the proposed third exit door is therefore necessary to meet the required exit width.

The drawing supplied by the applicant to be used for an amended building consent shows the third exit door to be consistent with the width as the two proposed exit doors, being 1620mm.

- The users of the building will be awake and as school halls are not generally used for sleeping.

7.4.5 In relation to the marae building exception used by the applicant as an analogous example to assist in providing a justification of a modification for the school hall: I agree with the NZFS that considerable care should be taken when carrying out this type of comparison. The applicant's initial argument was that if the school hall was a marae building (I have already established it is not – refer paragraph 7.2.1) it would fall within the exception. The surface finish requirements under C/AS4 do not apply to a marae building. The school hall would comply with the marae building exception as it has three exit ways (refer paragraph 5.4), compliant exit widths (refer paragraph 3.3.2(j) of C/AS4) and a maximum travel distance of 25m (refer paragraph 3.4.2(e) of C/AS4).

7.4.6 Although the principle behind the marae building exception relates to cultural and traditional significance, the objectives of Clause 3 in maintaining life safety and evacuation in the event of a fire must still apply to marae buildings even though the surface finish requirements do not apply. I consider it appropriate in providing evidence to justify a modification benchmark the proposed design against buildings with features that are known to comply.

The availability of other reasonably practicable solutions that would result in the building work fully complying with the Building Code and associated costs

7.4.7 I accept the submission from the applicant that the alternative product that would comply with Clause 3.4(a) is not considered suitable by the applicant due to insufficient technical information provided with respect of the product coating compliance with Clauses F2.3.1 and B2.3.1(c). The applicant has submitted there is an additional cost and onerous safety requirements during application of the alternative product. I consider this could contribute to an assessment of reasonableness to grant a waiver, however the costs do not appear to be extraordinary.¹¹

7.4.8 The lack of appropriate alternative solutions supports the applicant's justification for a modification in this case; however, I consider that work should continue by providers of these types of solutions to produce products and systems that allow full compliance with Clause 3.4(a) and other relevant code clauses as a modification in other situations may not be granted. Once an appropriate product has been developed and its compliance proved, a modification may be less likely to be granted.

¹¹ *Morresey v Palmerston North City Council* (District Court, Palmerston North, Judge Callaghan, 11 August 2008) at [89]

Any special and unique circumstances of the building work subject to the waiver of modification.

- 7.4.9 I am not aware of any special or unique circumstances of the building work subject to the modification in this case. I consider such circumstances could include (but not be limited to) factors such as location, users and use of a building.
- 7.4.10 The authority and NZFS has noted the users of the school hall will mostly be children. The NZFS stated consideration of the user's awareness and experience is important to any fire safety assessment. In this case I do not consider the users of a building to be a special circumstance. I do not consider children have a reduced awareness of a fire that would impede their ability to evacuate. The children are primary school aged (in comparison to an early childhood centre) and will be well trained by the school as to how to evacuate in the event of a fire. The teachers will be of assistance in organising the children to evacuate in a timely and organised manner.
- 7.4.11 I reiterate that waivers and modifications are considered on an individual basis; however, the discussion in this determination can provide some guidance or methodology when an authority is considering similar applications for a modification or waiver.

The purposes and principles of the Act

- 7.4.12 The extent to which the modification will still be consistent with the purposes and principles of the Act needs to be evaluated. If a primary purpose of the Act, for example life safety, will potentially be reduced as a result of a modification, a modification should only be granted if this reduction is minimal. I also note a modification relating to life safety will require more justification than a modification relating to amenity values.
- 7.4.13 In this case I consider a modification of Clause C3.4(a) relates to one of the primary purposes of the Act under section 3, to ensure that people who use buildings can do so safely and without endangering their health, and by being able to escape from the building if it is on fire.
- 7.4.14 In considering section 4 of the Act and the principles to be applied in performing functions or duties or exercising powers under the Act, the following principles would apply:
- Section 4(2)(b), which requires 'the need to ensure that any harmful effect on human health resulting from the use of particular building methods or products of a particular building design, or from building work, is prevented or minimised'
 - Section 4(2)(f), which requires consideration of 'the importance of standards of building design and construction in achieving compliance with the building code'.
 - Section 4(2)(i) the need to provide protection to limit the extent and effects of the spread of fire
- 7.4.15 I consider the applicant did not provide the authority sufficient justification regarding the effect of a modification of Clause C3.4 (a) on the purposes and principles of the Act when applying for the building consent.
- 7.4.16 However, I consider the applicant's further submissions received during this determination have provided sufficient information that any possible reduction in a people's life safety in the school hall or their chances of escaping in the event of a

fire are minor and largely compensated for by the addition of a third exit, the shorter escape pathways, the reduced escape time and a small occupant load. I consider a modification of Clause 3.4(a) for the school hall remains consistent with the relevant purposes and principles of the Act.

The objective and functional requirements of the specific clause of the Building Code

- 7.4.17 As with the purposes and principles of the Act, the extent to which the modification results in a reduced level of compliance to the specific objectives of the particular Building Code clause needs to be analysed.
- 7.4.18 Looking specifically at the functional requirement of Clause C3.4(a):
- C3.1 Buildings must be designed and constructed so that there is a low probability of injury or illness to persons not in close proximity to a fire source
- 7.4.19 The objective of Clause C3 is derived from Clause C1(a) to safeguard people from an unacceptable risk of injury or illness caused by fire. The relevant objective and functional requirements echo the purposes and principles of the Act: that is to prevent injury or harmful effects of a fire and allow the occupants time to exit a building to a place of safety.
- 7.4.20 I consider the applicant has provided sufficient justification that a modification of C3.4 (a) complies with the objective and functional requirement of Clause C3. I am satisfied that the school hall has a low probability of injury to persons not in close proximity to a fire source. I consider the evacuation time remains short and the occupants will be able to move to a place of safety quickly in the event of a fire. The probability of a modification to Material Group 3 adversely affecting the occupants' ability to escape is low. In addition a small occupant load and the use of three exit ways will reduce the evacuation time to escape. I do not consider the modification will reduce compliance with the objectives of clause C3.
- 7.4.21 However, I recommend that a smoke detection system, particularly given the presence of a kitchen facility in the school hall, should be considered by the applicant as an additional measure in complying with the functional requirement in Clause C3.1.

8. Conclusion

- 8.1 In my view, in order that the authority could have considered granting the building consent with a modification of Clause C3.4(a) the applicant would have needed to provide further justification, based on the framework in paragraph 7.3.3 of this determination, that established that such a modification of Clause C3.4(a) would not endanger the ability of the occupants to escape the school hall in the event of a fire.
- 8.2 However in conclusion, and having evaluated the further information and analysis that has been provided by the applicant for this determination, I am satisfied sufficient justification for a modification of C3.4(a) has been established.

9. The decision

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby grant a modification of Clause 3.4(a) of the Building Code that Material Group 3 is permitted for the internal surface linings of the school hall subject to the following condition being imposed under section 188(3)(b) of the Act: that the proposed amendment to the building consent for the third exit door as outlined in paragraph 5.4 of this determination be included.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 31 March 2015.

John Gardiner
Manager Determinations and Assurance

Appendix A

A1 The relevant sections of the Act

3 Purposes

This Act has the following purposes:

(a) to provide for the regulation of building work, the establishment of a licensing regime for building practitioners, and the setting of performance standards for buildings to ensure that—

(i) people who use buildings can do so safely and without endangering their health; and

...

(iii) people who use a building can escape from the building if it is on fire; and

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:

...

(b) the need to ensure that any harmful effect on human health resulting from the use of particular building methods or products or of a particular building design, or from building work, is prevented or minimised:

(f) the importance of standards of building design and construction in achieving compliance with the building code:

...

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.

19 How compliance with building code is established

(1) A building consent authority must accept any or all of the following as establishing compliance with the building code:

(a) compliance with regulations referred to in section 20:

(b) compliance with an acceptable solution:

(ba) compliance with a verification method:

...

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.

A2 The relevant clauses of the Building Code

Clause C3—Fire affecting areas beyond the fire source

Provisions

Functional requirement

C3.1 Buildings must be designed and constructed so that there is a low probability of injury or illness to persons not in close proximity to a fire source.

C3.2 Buildings with a building height greater than 10 m where upper floors contain sleeping uses or other property must be designed and constructed so that there is a low probability of external vertical fire spread to upper floors in the building. (*Limit on application* C3.2 does not apply to importance level 1 buildings.)

C3.3 Buildings must be designed and constructed so that there is a low probability of fire spread to other property vertically or horizontally across a relevant boundary.

Performance

C3.4(a) materials used as internal surface linings in the following areas of buildings must meet the performance criteria specified below: (*Limit on application* Clause C3.4 does not apply to detached dwellings, within household units, in multi-unit dwellings, or outbuildings and ancillary buildings ...

Area of building	Performance determined under conditions described in ISO 9705: 1993	
	Buildings not protected with an automatic fire sprinkler system	Buildings protected with an automatic fire sprinkler system
Wall/ceiling materials in sleeping areas where care or detention is provided	Material Group Number 1-S	Material Group Number 1 or 2
Wall/ceiling materials in exitways	Material Group Number 1-S	Material Group Number 1 or 2
Wall/ceiling materials in all occupied spaces in importance level 4 buildings	Material Group Number 1-S	Material Group Number 1 or 2
Internal surfaces of ducts for HVAC systems	Material Group Number 1-S	Material Group Number 1 or 2
Ceiling materials in crowd and sleeping uses except household units and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1 or 2
Wall materials in crowd and sleeping uses except household units and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1, 2, or 3
Wall/ceiling materials in occupied spaces in all other locations in buildings, including household units	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3
External surfaces of ducts for HVAC systems	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3
Acoustic treatment and pipe insulation within airhandling plenums in sleeping uses	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3

A3 The relevant clauses from C/AS4

Surface finish requirements for walls, ceilings, ducts and insulation

4.17.1 *Surface finish* requirements shall be as specified in Table 4.1.

Table 4.1 Surface finishes						
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
	<i>Exitways</i> All <i>occupied spaces</i> in importance level 4 <i>buildings</i>	Crowd spaces: wall linings	Crowd spaces: ceiling linings	All other <i>occupied spaces</i> : wall and ceiling linings	Ducts for <i>HVAC</i> systems – internal surfaces	Ducts for <i>HVAC</i> systems – external surfaces Acoustic treatment and pipe insulation within air handling plenum
Maximum permitted <i>Group Number</i>						
Unsprinklered	1S	2S	2S ¹	3	1S	3
Sprinklered	2	3	2	3	2	3
Note 1: Refer to exceptions in Paragraph 4.17.6.						

Exceptions to surface finish requirements

4.17.6 *Surface finish* requirements do not apply to:

- i) *Marae buildings* using traditional Maori *construction* materials (eg, tukutuku and toetoe panels),

Comment:

Note that if this exception is applied, exit widths and *travel distances* for *marae buildings* as in i) must comply with the requirements of Paragraphs 3.3.2 j) and 3.4.2 e) respectively.

A4 The superseded clause of the Building Code

Clause C3–SPREAD OF FIRE

Objective

C3.1 The objective of this provision is to:

- Safeguard people from injury or illness when evacuating a building during fire.
- Provide protection to fire service personnel during firefighting operations.
- Protect adjacent household units, other residential units, and other property from the effects of fire.
- Safeguard the environment from adverse effects of fire.

Functional Requirement

C3.2 Buildings shall be provided with safeguards against fire spread so that:

- Occupants have time to escape to a safe place without being overcome by the effects of fire,
- Firefighters may undertake rescue operations and protect property,
- Adjacent household units, other residential units, and other property are protected from damage, and
- Significant quantities of hazardous substances are not released into the environment during fire.

Performance

C3.3.1 Interior surface finishes on walls, floors, ceilings and suspended building elements, shall resist the spread of fire and limit the generation of toxic gases, smoke and heat, to a degree appropriate to:

- (a) The travel distance,
- (b) The number of occupants,
- (c) The fire hazard, and
- (d) The active fire safety systems installed in the building.