Dear Customer

Please find attached the January 2017 amendments to C/VM1 Verification Method for Solid Fuel Appliances and C/AS1 Acceptable Solution for Buildings with Sleeping (residential) and Outbuildings (Risk Group SH), published by the Ministry of Business, Innovation and Employment.

To update your printed copy of C/VM1 and C/AS1, please make the following changes:

<table>
<thead>
<tr>
<th>Section</th>
<th>Previous version</th>
<th>January 2017 Amendment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/VM1 Verification Method for Solid Fuel Appliances and C/AS1 Acceptable Solution for Buildings with Sleeping (residential) and Outbuildings (Risk Group SH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title pages</td>
<td>Remove title page and document history/status</td>
<td>Replace with new title page and document history/status</td>
</tr>
<tr>
<td>References</td>
<td>Remove page 7/8</td>
<td>Replace with new page 7/8</td>
</tr>
<tr>
<td>C/AS1 Parts 2 and 3</td>
<td>Remove page 21/22</td>
<td>Replace with new page 21/22</td>
</tr>
<tr>
<td>C/AS1 Part 5</td>
<td>Remove page 25/26</td>
<td>Replace with new page 25/26</td>
</tr>
</tbody>
</table>
C/VM1

Verification Method for Solid Fuel Appliances

C/AS1

Acceptable Solution for Buildings with Sleeping (residential) and Outbuildings (Risk Group SH)

For New Zealand Building Code Clauses C1-C6 Protection from Fire
Using this Verification Method or Acceptable Solution

The Ministry of Business, Innovation and Employment may amend parts of this document at any
time. People using this document should check on a regular basis whether new versions have been
published. The current version can be downloaded from www.dbh.govt.nz/compliance-documents

Users should make themselves familiar with the preface to the New Zealand Building Code
Handbook, which describes the status of Verification Methods and Acceptable Solutions and
explains other ways of achieving compliance.

Defined words (italicised in the text) are explained in the Building Code Clause A2 and in the
Definitions section of this document. Classified uses of buildings are explained in the Building

Enquiries about the content of this document should be directed to:

MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

The Ministry of Business, Innovation and Employment
PO Box 10-729, Wellington.6140
Telephone 0800 242 243
Email: info@building.govt.nz


Acceptable Solutions and Verification Methods are available
from www.building.govt.nz

New Zealand Government

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When can you use C/VM1 and C/AS1

This Acceptable Solution and Verification Method are effective from 1 January 2017. They can be used to show compliance with the Building Code Clauses C1-C6 Protection from Fire. They do not apply to building consent applications submitted before 1 January 2017.

The previous version, Amendment 3, of this Acceptable Solution and Verification Method can be used to show compliance with the Building Code Clauses C1-C6 Protection from Fire until 30 May 2017. It can be used for building consent applications submitted before 31 May 2017.
References

For the purposes of New Zealand Building Code compliance, the New Zealand and other Standards, and other documents referred to in this Verification Method and Acceptable Solution (primary reference documents) shall be the editions, along with their specific amendments, listed below. Where the primary reference documents refer to other Standards or other documents (secondary reference documents), which in turn may also refer to other Standards or other documents, and so on (lower order reference documents), then the applicable version of these secondary and lower order reference documents shall be the version in effect at the date this Verification Method and Acceptable Solution were published.

### Standards New Zealand

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Where quoted</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZS/BS 476:-- Part 21: 1987</td>
<td>Fire tests on building materials and structures</td>
<td>AS1 C5.1.1</td>
</tr>
<tr>
<td></td>
<td>Methods for determination of the fire resistance of loadbearing elements of construction</td>
<td>AS1 C5.1.1</td>
</tr>
<tr>
<td>NZS/BS 476:-- Part 22: 1987</td>
<td>Methods for determination of the fire resistance of non-loadbearing elements of construction</td>
<td>AS1 C5.1.1</td>
</tr>
<tr>
<td>AS/NZS 1668:-- Part 1: 1998</td>
<td>Methods for determination of the fire resistance of non-loadbearing elements of construction</td>
<td>AS1 C5.1.1</td>
</tr>
<tr>
<td></td>
<td>The use of ventilation and air conditioning in buildings</td>
<td>VM1 1.1.1</td>
</tr>
<tr>
<td></td>
<td>Fire and smoke control in multi-compartment buildings</td>
<td>AS1 A2.1.1</td>
</tr>
<tr>
<td>AS/NZS 2918: 2001</td>
<td>Domestic solid fuel burning appliances</td>
<td>AS1 7.1.1, 7.1.2, 7.3.3, 7.5.5, 7.5.10 Comment, Figure 7.2</td>
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<tr>
<td></td>
<td>installation</td>
<td></td>
</tr>
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<td>NZS 4510: 2008</td>
<td>Fire hydrant systems for buildings</td>
<td>AS1 A2.1.1</td>
</tr>
<tr>
<td>NZS 4512: 2010</td>
<td>Fire detection and alarm systems in buildings</td>
<td>AS1 Table 2.1, Table 3.2, A2.1.1, C6.1.6</td>
</tr>
<tr>
<td>NZS 4514: 2009</td>
<td>Interconnected Smoke Alarms for houses</td>
<td>AS1 Table 3.2</td>
</tr>
<tr>
<td>NZS 4515: 2009</td>
<td>Fire sprinkler systems for life safety in occupancies of less than 2000 m²</td>
<td>AS1 6.1.1, Table 2.1, Table 3.2, Table 5.1, B3.1.1</td>
</tr>
<tr>
<td>NZS 4517: 2010</td>
<td>Fire sprinkler systems for houses</td>
<td>AS1 Table 3.2</td>
</tr>
<tr>
<td>NZS 4520: 2010</td>
<td>Fire resistant doorsets</td>
<td>AS1 C6.1.1</td>
</tr>
<tr>
<td>NZS 4541: 2013</td>
<td>Automatic fire sprinkler systems</td>
<td>Definitions, B2.1.1</td>
</tr>
<tr>
<td>AS/NZS 5601:-- Part 1: 2010</td>
<td>Gas installation</td>
<td>AS1 7.2.1, 7.2.2</td>
</tr>
<tr>
<td></td>
<td>General installations</td>
<td></td>
</tr>
<tr>
<td>AS/NZS 60598: 2001</td>
<td>Luminaires</td>
<td>AS1 7.4.1</td>
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<tr>
<td></td>
<td>Part 2.2 Particular requirements – Recessed luminaires</td>
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<td></td>
<td>Amend: AA</td>
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</table>
Standards Australia

AS 1366:- Rigid cellular plastics sheets for thermal insulation
Part 1: 1992 Rigid cellular polyurethane (RC/PUR)
Amend: 1
Part 2: 1992 Rigid cellular polyisocyanurate (RC/PIR)
Amend: 1
AS 1530:- Methods for fire tests on building materials, components and structures
Part 1: 1994 Combustibility test for materials
AS1 C4.1.1
Part 2: 1993 Test for flammability of materials
Part 4: 2005 Fire-resistance tests of elements of building construction
AS 1691: 1985 Domestic oil-fired appliances – installation
AS 4072:- Components for the protection of openings in fire-resistant separating elements
Part 1: 2005 Service penetrations and control joints
Amend: 1

European Standards

International Standards Organisation

ISO 5660:- Reaction-to-fire tests – Heat release, smoke production and mass loss rate
Part 1: 2002 Heat release rate (cone calorimeter method)
Part 2: 2002 Smoke production rate (dynamic measurement)
ISO 9239:- Reaction to fire tests for flooring
ISO 9705: 1993 Fire tests – Full scale room test for surface products

New Zealand Legislation

Hazardous Substances and New Organisms Act 1996

Where quoted

AS1 4.3
AS1 4.3
AS1 4.3
AS1 4.3
AS1 4.3
Definitions,
AS1 C3.1
AS1 C5.1.1
AS1 7.3.1, 7.3.2
AS1 C5.1.2
AS1 C4.1.2, C7.1.1,
C7.1.2
Definitions, AS1 C4.1.2
AS1 C2.1
AS1 C4.1.2
AS1 1.1.5

Errata 1 Feb 2013
Errata 1 Feb 2013
Errata 1 Feb 2013
Errata 1 Feb 2013
### Table 2.1 Fire safety systems specified in this Acceptable Solution

<table>
<thead>
<tr>
<th>Type of system</th>
<th>System description</th>
<th>Relevant Standards for installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Domestic smoke alarm</td>
<td>Acceptable Solution F7/AS1</td>
</tr>
<tr>
<td>4</td>
<td>Smoke detection and alarm system with manual call points</td>
<td>NZS 4512</td>
</tr>
<tr>
<td>5</td>
<td>Enhanced smoke detection and alarm system with manual call points</td>
<td>NZS 4512</td>
</tr>
<tr>
<td>6</td>
<td>Automatic fire sprinkler system</td>
<td>NZS 4515</td>
</tr>
<tr>
<td>7</td>
<td>Automatic fire sprinkler system with smoke detection and alarm system</td>
<td>NZS 4515, NZS 4512</td>
</tr>
</tbody>
</table>

### 2.3 Fire resistance ratings

**FRR values**

2.3.1 Unless explicitly stated otherwise in this Acceptable Solution, the fire resistance ratings (FRRs) that shall apply for this risk group are as follows:

- **Life rating** = 30 minutes.
- **Property rating** = 30 minutes.

**Comment:**
Throughout this Acceptable Solution, minimum FRRs are specified for particular situations. It is therefore essential to check for specific requirements.
Part 3: Means of escape

3.1 THIS PARAGRAPH DELIBERATELY LEFT BLANK

3.2 Number of escape routes

Risk group SH may be served by a single escape route provided the permitted dead end open path distance specified in Paragraph 3.4 is not exceeded.

3.3 Height and width of escape routes

There are no restrictions (other than those required by other Building Code Clauses) on the height and width of escape routes for risk group SH.

3.4 Length of escape routes

An escape route in outbuildings may be any length, but the lengths of dead ends and total open paths in other buildings to which this Acceptable Solution applies shall not exceed the distances given in Table 3.2.

<table>
<thead>
<tr>
<th>Table 3.2 Travel distances on escape routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 system only</td>
</tr>
<tr>
<td>Dead end open path</td>
</tr>
<tr>
<td>Total open path</td>
</tr>
</tbody>
</table>

For definition of system types, see Table 2.1.
If systems are installed in order to extend permissible travel distance in accordance with this table and are not a requirement of Paragraph 2.2.1 then Fire Service connection is not required.

Amend 2 Dec 2013
Amends 2 & 4
Amend 3 Jul 2014
Part 5: Control of external fire spread

CONTENTS

5.1 Fire resistance ratings
5.2 Roof projections
5.3 Exterior surface finishes
5.4 Carports and similar construction

5.1 Fire resistance ratings

5.1.1 Where the building is protected with a sprinkler system, external walls do not need an FRR.

Where the building is not protected with a sprinkler system, external walls shall have an FRR of no less than 30/30/30 in the following circumstances:

a) Outbuildings, single household units and attached side by side multi-unit dwellings where part of the external wall is less than 1.0 m and less than 90° from the relevant boundary. See Figure 5.1. The wall shall be fire rated to protect from both directions, and

b) Multi-unit dwellings located one above the other where the external wall is less than 5.0 m from the relevant boundary. If there are windows more than 1.0 m from the relevant boundary in a household unit wall requiring a FRR, the windows do not need to be fire rated.

5.2 Roof projections

5.2.1 Where the external wall is required to have an FRR, the eaves projection shall either have an FRR of 30/30/30 or the wall shall be extended to the underside of the roof.

5.2.2 Where roof eaves extend from an otherwise unrated external wall to within 650 mm of the relevant boundary, the total eaves construction and the external wall from which they project shall have an FRR of no less than 30/30/30.

5.3 Protection from a lower roof in multi-unit dwellings

5.3.1 Fire spread from a roof close to and lower than an external wall of an attached sleeping unit or attached building on other property shall be prevented by providing an FRR of 30/30/30 to either:

a) The part of the roof within 5.0 m horizontally of the wall, or

b) Any part of the wall within 9.0 m vertically of the roof.

5.3.2 Fire rating of the roof is not required if the household unit is protected with a sprinkler system complying with NZS 4515.
5.4 **Exterior surface finishes**

*External wall cladding systems shall be tested to the standard test described in Appendix C C7.1 and the peak rate of heat release and the total heat released shall not exceed the limits given in Table 5.1.*

These requirements do not apply if *surface finishes* are no more than 1 mm in thickness and applied directly to a *non-combustible* substrate.

Table 5.1 **Requirements for external wall claddings**

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
<th>Column C</th>
<th>Column D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to relevant boundary (angle between wall and boundary is less than 90°)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1.0 m</td>
<td>Distance greater than or equal to 1.0 m and building height less than or equal to 10 m</td>
<td>Distance greater than or equal to 1.0 m and building height greater than 10 m</td>
<td>Unsprinklered</td>
</tr>
</tbody>
</table>

| Peak heat release rate (kW/m²) | 100 | No requirement | 150 | No requirement |
| Total heat released (MJ/m²) | 25 | No requirement | 50 | No requirement |

*Note: Table 5.1 applies to separate buildings. It does not apply to household units within the same building whether they are side by side or one above the other.*

5.5 **Carports and similar construction**

A carport is permitted to have walls and roof with 100% *unprotected area* provided that all the following conditions are met:

a) At least two sides are completely open to the environment, and

b) The carport and adjacent building are under the same ownership, and

c) For a roof plan area of no more than 40 m², no part of the roof is closer than 0.3 m to a relevant boundary.