**Status of Compliance Documents**

Compliance Documents are prepared by the Department of Building and Housing in accordance with section 22 of the Building Act 2004. A Compliance Document is for use in establishing compliance with the New Zealand Building Code.

A person who complies with a Compliance Document will be treated as having complied with the provisions of the Building Code to which the Compliance Document relates. However, a Compliance Document is only one method of complying with the Building Code. There may be alternative ways to comply.

Users should make themselves familiar with the preface to the New Zealand Building Code Handbook, which describes the status of Compliance Documents and explains alternative methods of achieving compliance.

Defined words (italicised in the text) and classified uses are explained in Clauses A1 and A2 of the Building Code and in the Definitions at the start of this Compliance Document.

---

**F7: Document History**

<table>
<thead>
<tr>
<th>Date</th>
<th>Alterations</th>
</tr>
</thead>
<tbody>
<tr>
<td>First published</td>
<td>July 1992</td>
</tr>
<tr>
<td>Second edition</td>
<td>December 1993, p. v, Contents, p. vi, References, p. vii, Definitions, p. 3 to 8, Complete rewrite</td>
</tr>
<tr>
<td>Amendment 2</td>
<td>19 August 1994, pp. i and ii, Document History, p. 4, 1.2.5, 1.3.3, 1.3.4, 1.4.3, p. 5, 1.4.4, 1.4.5, 1.5.4, p. 7 and 8, Index</td>
</tr>
<tr>
<td>Amendment 3</td>
<td>1 December 1995, p. ii, Document History, p. vi, References, p. 3, 1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.2.2, 1.2.3, p. 4, 1.4.2, p. 5, 1.5.1, p. 6, 2.2.5 added</td>
</tr>
<tr>
<td>Reprinted incorporating Amendments 1, 2 and 3</td>
<td>April 1998</td>
</tr>
<tr>
<td>Amendment 4</td>
<td>24 April 2003, p. 3, Code Clause, p. 5, Contents, p. 7, References, p. 13, 1.2.1 Type 1, pp. 17 and 18, 3.1-3.4, p. 20, Index</td>
</tr>
<tr>
<td>Reprinted incorporating Amendment 4</td>
<td>April 2004</td>
</tr>
<tr>
<td>Amendment 5</td>
<td>Effective 1 October 2006, pp. 1-2, Document History and Status, pp. 7-8, References, pp. 9-10, Definitions, pp. 13-14, F7/AS1</td>
</tr>
<tr>
<td>Amendment 6</td>
<td>Effective 1 November 2008, p. 2, Document History, p. 5, Contents, p. 7, References, p. 9, Definitions, p. 13, 1.2.1, p. 14, 1.2.5, 1.2.6, 1.2.8, 1.3.1, p. 15, 1.3.5, 1.3.6, p. 16, 2.1, 2.1.2, p. 17, 2.2.4, pp. 19-20, Index</td>
</tr>
<tr>
<td>Amendment 7</td>
<td>Effective 10 October 2011, pp. 1-2, Document History and Status, p. 3, Code Clause, p. 7, References, p. 17, F7/AS1 3.2.2</td>
</tr>
</tbody>
</table>

Note: Page numbers relate to the document at the time of Amendment and may not match page numbers in current document.
New Zealand Building Code
Clause F7 Warning Systems

The mandatory provisions for building work are contained in the New Zealand Building Code (NZBC), which comprises the First Schedule to the Building Regulations 1992. The relevant NZBC Clause for Warning Systems is F7.

<table>
<thead>
<tr>
<th>Provisions</th>
<th>Limits on application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE</strong></td>
<td>Performance F7.3 does not apply to Outbuildings, backcountry huts or Ancillary buildings.</td>
</tr>
<tr>
<td>F7.1 The objective of this provision is to safeguard people from injury or illness due to lack of awareness of an emergency.</td>
<td></td>
</tr>
<tr>
<td><strong>FUNCTIONAL REQUIREMENT</strong></td>
<td></td>
</tr>
<tr>
<td>F7.2 Buildings shall be provided with appropriate means of warning people to escape to a <em>safe place</em> in an emergency.</td>
<td></td>
</tr>
<tr>
<td><strong>PERFORMANCE</strong></td>
<td></td>
</tr>
<tr>
<td>F7.3.1 A means of warning must alert people to the emergency in <em>adequate</em> time for them to reach a <em>safe place</em>.</td>
<td></td>
</tr>
<tr>
<td>F7.3.2 Appropriate means of detection and warning for fire must be provided within each <em>household unit</em>.</td>
<td></td>
</tr>
<tr>
<td>F7.3.3 Appropriate means of warning for fire and other emergencies must be provided in <em>buildings</em> as necessary to satisfy the other performance requirements of this code.</td>
<td></td>
</tr>
</tbody>
</table>
# Contents

## References

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

## Definitions

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

## Verification Method F7/VM1

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

## Acceptable Solution F7/AS1

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
</tr>
</tbody>
</table>

### 1.1 Installation and maintenance of fire alarm systems

- Manual fire alarm systems: 13
- Automatic fire alarm systems: 13
- Smoke detectors: 13

### 1.2 Description of alarm systems

- Type 1 – Domestic smoke alarm system: 13
- Type 2 – Manual fire alarm system: 13
- Type 3 – Automatic fire alarm system activated by heat detectors and manual call points: 13
- Type 4 – Automatic fire alarm system activated by smoke detectors and manual call points: 13
- Type 5 – Automatic fire alarm system with modified smoke detection and manual call points: 14
- Type 6 – Automatic fire sprinkler system with manual call points: 14
- Type 7 – Automatic fire sprinkler system with smoke detectors and manual call points: 14

### 1.3 Location of heat and smoke detectors

- Hold-open devices: 15
- Exitway pressurisation: 15
- Smoke extract systems: 15

### 1.4 Placement of detectors

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

### 1.5 Interface with ancillary control systems

- HVAC systems: 16

### 2.1 Requirements of fire alarm systems

- Type and method of activation: 16

### 2.2 Alerting the Fire Service

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

### 3.1 Domestic smoke alarms

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

### 3.2 Type 1 Domestic smoke alarm system

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

### 3.3 Location of smoke alarms

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

### 3.4 Maintenance

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
</tr>
</tbody>
</table>
For the purposes of New Zealand Building Code (NZBC) compliance, the Standards and documents referenced in this Compliance Document (primary reference documents) must be the editions, along with their specific amendments, listed below. Where these primary reference documents refer to other Standards or documents (secondary reference documents), which in turn may also refer to other Standards or documents, and so on (lower-order reference documents), then the version in effect at the date of publication of this Compliance Document must be used.

### Standards New Zealand

<table>
<thead>
<tr>
<th>Amendment</th>
<th>Reference</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NZS 4512: 2010</td>
<td>1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.2.2, 1.2.3, 1.2.4, 1.2.6, 1.2.7, 1.3.2, 1.5.1, 2.1.2 b)</td>
</tr>
<tr>
<td></td>
<td>NZS 4515: 2009</td>
<td>1.2.8</td>
</tr>
<tr>
<td></td>
<td>NZS 4541: 2007</td>
<td>1.2.8</td>
</tr>
</tbody>
</table>

### British Standards Institution

<table>
<thead>
<tr>
<th>Amendment</th>
<th>Reference</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BS 5446:-</td>
<td>3.2.2</td>
</tr>
<tr>
<td></td>
<td>Part 1: 1990</td>
<td>6863, 7648, 9628</td>
</tr>
</tbody>
</table>

### Standards Australia

<table>
<thead>
<tr>
<th>Amendment</th>
<th>Reference</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AS/NZS 1668:-</td>
<td>1.5.3</td>
</tr>
<tr>
<td></td>
<td>Part 1: 1998</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>AS 1670:-</td>
<td>3.3.2</td>
</tr>
<tr>
<td></td>
<td>Part 6: 1997</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td></td>
<td>AS 3786: 1993</td>
<td>1, 2, 3, 4</td>
</tr>
</tbody>
</table>
Definitions

This is an abbreviated list of definitions for words or terms particularly relevant to this Compliance Document. The definitions for any other italicised words may be found in the New Zealand Building Code Handbook. See Compliance Document C/AS1 for the full list of fire safety definitions.

Adequate means Adequate to achieve the objectives of the Building Code.

Building has the meaning given to it by sections 8 and 9 of the Building Act 2004.

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.

Fire The state of combustion during which flammable materials burn producing heat, toxic gases, or smoke or flame or any combination of these.

Firecell Any space including a group of contiguous spaces on the same or different levels within a building, which is enclosed by any combination of fire separations, external walls, roofs, and floors.

COMMENT:
Floors, in this context, includes ground floors and those in which the underside is exposed to the external environment (e.g. when cantilevered). Note also that internal floors between firecells are fire separations.

Fire safety precautions (FSPs) The combination of all methods used in a building to warn people of an emergency, provide for safe evacuation, and restrict the spread of fire, and includes both active and passive protection.

COMMENT:
This definition has the same meaning and wording as the definition of “fire safety systems” in the Building Regulations.

Hold-open device A device which holds a smoke control door or fire door open during normal use, but is released by deactivating the device by an automatic fire detection system, allowing the door to close automatically under the action of a self-closing device.

Household unit
a) means a building or group of buildings, or part of a building or group of buildings, that is:
   i) used, or intended to be used, only or mainly for residential purposes; and
   ii) occupied, or intended to be occupied, exclusively as the home or residence of not more than 1 household; but
b) does not include a hostel, boarding house or other specialised accommodation.

HVAC An abbreviation for heating, ventilating and airconditioning.

Occupant load The greatest number of people likely to occupy a particular space within a building. It is determined by:
a) Multiplying the number of people per m² (occupant density) for the activity being undertaken, by the total floor area, or
b) For sleeping areas, counting the number of beds, or
c) For fixed seating areas, counting the number of seats.

Person with a disability means a person who has an impairment or a combination of impairments that limits the extent to which the person can engage in the activities, pursuits, and processes of everyday life, including, without limitation, any of the following:
a) a physical, sensory, neurological, or intellectual impairment
b) a mental illness.

Purpose group The classification of spaces within a building according to the activity for which the spaces are used.
**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.

**Safe place** A place of safety in the vicinity of a building, 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.

**Suite** A firecell providing residential accommodation for the exclusive use of one person or of several people known to one another. It comprises one or more rooms for sleeping and may include spaces used for associated domestic activities such as hygiene and cooking.

**COMMENT:**

1. Bed numbers are limited to 6 in purpose groups SC and SD or 12 in purpose group SA in accordance with C/AS1 Paragraphs 6.6.5 and 6.7.6. Examples may be found in hotels, motels and residential care facilities, such as old people’s homes or in hospices providing temporary family accommodation.

2. It is assumed that the social cohesion of the occupants by virtue of the personal relationship (as family members, friends or associates) would ensure that any individual, becoming aware of fire, would naturally assist others within the firecell to escape. The term suite does not apply to a group of bedrooms where each room is available to different “key-holders”. In some cases a suite may be a single bedroom.
Verification Method F7/VM1

No specific test methods have been adopted for verifying compliance with the Performance of NZBC F7.
Acceptable Solution F7/AS1

1.1 Installation and Maintenance of Fire Alarm Systems

Manual fire alarm systems

1.1.1 Manual fire alarm systems shall be installed and maintained in accordance with NZS 4512 and the specific requirements of this Acceptable Solution.

1.1.2 In buildings, with no more than three floors, the “monthly” inspections required by NZS 4512 for manual alarm systems, may be performed at no more than 3 monthly intervals:

a) Where there is no provision for sleeping, and total occupant load does not exceed 100 in a single-floor building or 50 in a two floor building, or

b) Where the building contains SA or SR purpose groups and has:
   i) only a single floor level, or
   ii) two or three floor levels and contains no more than 10 beds or four suites for SA occupants, or four household units for SR occupants.

c) During the off-season, for a building erected especially for seasonal use, provided that the only use of sleeping accommodation is by maintenance staff.

Automatic fire alarm systems

1.1.3 Automatic fire alarm systems shall be installed and maintained in accordance with NZS 4512 and the specific requirements of this Acceptable Solution.

1.1.4 Call points shall be identified in accordance with F8/AS1 or NZS 4512.

1.1.5 The installation, detectors, control panel, sounders and other components shall comply with the requirements of NZS 4512.

Smoke detectors

1.1.6 Smoke detectors are devices that detect the visible or invisible particles of combustion. They shall have a common power supply either at low voltage or by mains voltage, and shall not rely solely on an internal battery for operation.

1.1.7 High sensitivity smoke detection, very early smoke detection systems or similar may be used only where supported by fire engineering calculations.

1.2 Descriptions of Alarm Systems

1.2.1 The types of fire alarms to be provided in buildings shall be determined in accordance with Part 4 of Compliance Document C/AS1. The following text provides specific details on each fire alarm system.

Type 1 – Domestic smoke alarm system

See Paragraph 3.1 – Domestic Smoke Alarms.

Type 2 – Manual fire alarm system

1.2.2 A single or multiple zone system with an alarm panel to provide a zone index diagram and defect warning and suitable for connection to the Fire Service. The fire alarm shall comply with the relevant sections of NZS 4512.

Type 3 – Automatic fire alarm system activated by heat detectors and manual call points

1.2.3 This system comprises a Type 2 system plus heat detectors and shall be installed in accordance with NZS 4512.

Type 4 – Automatic fire alarm system activated by smoke detectors and manual call points

1.2.4 This system comprises a Type 2 system plus smoke detectors and shall be installed in accordance with NZS 4512.
Type 5 – Automatic fire alarm system with modified smoke detection and manual call points

1.2.5 A variation of the Type 4 and Type 7 alarm systems requiring part of the smoke detection component to comprise only a local alarm.

The local alarm system, activated by the presence of smoke, has audible alerting devices to warn only the firecell occupants and the building management, where such management exists. Examples of such management situations are motels, hotels or multi-unit residential accommodation in a retirement village.

The local alarm component of a Type 5 system:

a) Is restricted to single firecells containing sleeping accommodation, being household units in purpose group SR or individual suites in purpose group SA. The local alarm system shall not be extended to other areas such as exitways or common spaces. These shall retain a Type 4 smoke detection system, and

b) Shall have the facility to be silenced (muted) by a ‘hush’ switch located at an accessible level in accordance with D1/AS1. The hush switch shall mute the alarm for a time not exceeding 2 minutes, and

c) Shall be permitted only where an automatic fire detection and alarm system activated by heat detectors (part of the main alarm system) is also installed in sleeping firecells which do not already have an automatic fire sprinkler system.

Where a Type 5 system is installed, mechanical ventilation in accordance with G4/AS1 shall be provided in the kitchen area of the household unit.

1.2.6 In exitways and common spaces the required Type 4 or Type 7 system shall not be modified. The system installation for Type 3 and Type 4 components shall comply with NZS 4512.

1.2.7 The system installation for the local smoke alarm component shall also comply with NZS 4512.

Type 6 – Automatic fire sprinkler system with manual call points

1.2.8 This is a combined automatic fire sprinkler system and Type 2 alarm. Activation of the sprinklers shall automatically activate the audible alerting devices of the alarm system. Sprinkler installation shall comply with either NZS 4515 (which is limited to smaller buildings), or NZS 4541 as modified by Appendix D of Compliance Document C/AS1.

COMMENT:
NZS 4541 and NZS 4515 require listed quick response sprinklers to be used throughout all firecells containing sleeping accommodation, except that fast response or standard response sprinklers may be used in the roof space.

Type 7 – Automatic fire sprinkler system with smoke detectors and manual call points

1.2.9 This is a combined Type 6 and Type 4 alarm system (including a Type 2 system). Sprinkler installation shall comply with the requirements for a Type 6 alarm.

COMMENT:
Smoke detectors are used to gain an earlier warning to life-threatening situations than may be achieved from the response of sprinklers, particularly where a smouldering fire does not produce enough heat in its early stages to activate a sprinkler head.

1.3 Location of Heat and Smoke Detectors

1.3.1 Table 4.1 of Compliance Document C/AS1 describes the appropriate fire alarm system for the purpose group being considered. Automatic fire alarms which include heat detectors or smoke detectors shall have the appropriate detectors installed throughout the firecells of that purpose group, and the safe paths, unless specifically exempted by Table 4.1 of C/AS1.
1.3.2 Every space shall have at least one detector (heat, smoke or sprinkler). In Type 4 alarm systems, heat detectors shall be used where smoke detectors are not installed. Smoke detectors are not necessary in toilet spaces, provided they are replaced with heat detectors or sprinklers. Detectors must be installed in cupboards or wardrobes where required by NZS 4512, except within household units of purpose group SR.

1.3.3 Smoke detectors shall not be installed in any space where the activity occurring in that space may cause a smoke detector to initiate false alarms, e.g. areas for cooking or certain types of processing, or roof and ceiling spaces with difficult access to clean detectors. See Paragraph 1.3.5 for spaces where substitution of smoke detectors is not permitted.

1.3.4 Alarm systems Types 3 and 6, activated by heat detectors shall have heat detectors or sprinkler heads located throughout the firecells concerned, and safe paths.

1.3.5 Except where Table 4.1 of Compliance Document C/AS1 has a contrary requirement, alarm systems Types 4 and 7, which include smoke detectors, shall have the smoke detectors installed throughout the firecells of the purpose group concerned, and safe paths.

Hold-open devices

1.3.6 Regardless of the type of alarm system, smoke detectors are required for activating the release of hold-open devices. Doors held by hold-open devices shall be released by a signal generated by a smoke detector. For locations where hold-open devices and associated smoke detectors are required, see Compliance Document C/AS1 Paragraph 3.17.9.

Exitway pressurisation

1.3.7 Smoke detectors shall be placed in all areas of an exitway which is to be pressurised (see C/AS1 Paragraphs 6.21.2 and A2.1.1 Type 13).

Smoke extract systems

1.3.8 Smoke detectors shall be placed in all smoke reservoirs to initiate mechanical smoke extraction, and to open vents which are part of a smoke control system (see C/AS1 Paragraph A2.1.1 natural smoke venting Type 10 or mechanical smoke extract Type 11).

1.4 Placement of Detectors

1.4.1 Point type smoke detectors shall be located either by a fire engineering study, or by meeting all the following requirements for horizontal spacing of detectors:

a) not more than:
   - 10.0 m between detectors
   - 7.0 m from any point of the room
   - 5.0 m from any wall
   - 0.5 m from the high point of a sloping ceiling, and
b) No less than 0.2 m from any wall.

1.4.2 Any projection below the ceiling (beams, joists etc.) of more than 0.25 m shall constitute a wall, and ceilings with a slope of less than 5° from the horizontal can be considered as having no high point. Detector placement in stairwells shall follow the requirements for sloping ceilings.

COMMENT:

1. Where cooking and sleeping activities occur in the same space, smoke detectors must be located to minimise the risk of false alarms.

2. Note that a Type 5 system, being a modified Type 4 or 7 system, requires heat detectors or sprinklers throughout the firecell.
**1.5 Interface with Ancillary Control Systems**

1.5.1 The primary use of the Type 4 and 7 systems is to provide early warning within the building and to send signals to the Fire Service when required. These systems may also generate alarm signals which shall be transferred to a separate control panel to activate ancillary fire safety precautions in the building, in accordance with NZS 4512 Clause 203.

1.5.2 The ancillary systems for activating fire safety precautions shall be identified on the design plans, and may include controls for hold-open devices and one or more of the following:

- Type 9 Smoke control in air-handling system
- Type 10 Natural smoke venting
- Type 11 Mechanical smoke extract
- Type 13 Pressurisation of safe paths
- Type 15 Fire Service lift control
- Type 16 Emergency lighting in exitways

**HVAC systems**

1.5.3 Smoke detectors which are part of a Type 4 or 7 system shall not be used directly to detect smoke in a HVAC system. Where smoke detectors are included in a HVAC system, they shall be part of the controls of that system and be installed as required in AS/NZS 1668: Part 1 (see C/AS1 Paragraph A2.1.1 Type 9).

2.1 Requirements of Fire Alarm Systems

**Type and method of activation**

2.1.1 Every fire alarm system shall be activated by a method appropriate to the occupant load and purpose groups contained in the building. Compliance with Table 4.1 of Compliance Document C/AS1 satisfies this requirement.

2.1.2 Fire alarm systems used for fire safety precautions 2 to 7 in Table 4.1 of Compliance Document C/AS1, shall satisfy all the following requirements:

- a) Have a means of communicating with the Fire Service as set out in Paragraph 2.2.
- b) Have the building, excluding the sprinkler system, zoned as required by NZS 4512.
- c) Have alerting devices which may give either audible or visual warning signals, except as allowed for in e) below for purpose groups SC and SD.
- d) Where a system serves purpose group SA, have alerting devices installed in every accommodation unit provided for the use of persons with a disability.
- e) Where a system serves purpose groups SC and SD, alerting devices may be installed so that only staff are informed of the alarm.

**COMMENT:**

This requirement is intended to apply to patient care areas or prison cells where occupants cannot escape without staff assistance; and where audible sounders will cause confusion and unnecessary panic.

- f) Where persons with a disability are employed, alerting devices shall have both audible and visual warning signals.

2.2 Alerting the Fire Service

2.2.1 Where an alarm system is required by Table 4.1 of Compliance Document C/AS1, there shall be available a means of communication with the Fire Service.

2.2.2 The three means of communication are:

- a) A direct connection (approved by the Fire Service) between the alarm system and the Fire Service, or
b) A “111” telephone call to the Fire Service from a continuously attended telephone with outside line access serving all buildings connected to the alarm system, and having the main fire alarm panel or mimic panel visible to the switchboard operator. A warning device shall be provided to alert the operator of a fire alarm in any building on the site (see Paragraph 2.2.3 for purpose groups SC or SD), or

c) Where Paragraph 2.2.4 applies a telephone (or telephone system) is installed within the building and readily accessible at all times to enable “111” calls to be made to the Fire Service.

2.2.3 Direct connection to the Fire Service is the only acceptable means of communication for purpose groups SC and SD.

2.2.4 Telephone communication using the “111” call system (given in Paragraph 2.2.2 c)) may be used only where specifically permitted by “special application” ‘f’ in Table 4.1 of Compliance Document C/AS1.

2.2.5 Where direct connection to the Fire Service is either unavailable or impractical, alternative methods of summoning assistance shall be detailed in the plans and specifications.

COMMENT:
This makes allowance for remote situations where telephone line communication is impractical.

3.1 Domestic Smoke Alarms

3.1.1 Smoke alarms shall be installed in every household unit of purpose groups SH and SR where an automatic smoke detection and alarm system is not required by Table 4.1.

3.1.2 Appendix A and the other paragraphs of F7/AS1 do not apply to the installation of domestic smoke alarms specified under Paragraph 3.1 of F7/AS1. Paragraph 3.1 stands alone and only details the requirements for domestic smoke alarms within household units (where an automatic smoke detection and alarm system is not required by Table 4.1).

3.2 Type 1 Domestic Smoke Alarm System

3.2.1 This system is based around one or more domestic/residential type smoke alarms with integral alerting devices. Coverage shall be limited to selected parts of a single firecell, subject to the conditions below:

3.2.2 Smoke alarms shall be listed or approved by a recognised national authority as complying with at least one of: AS 3786 and BS 5446: Part 1.

3.2.3 The smoke alarms may be battery powered and are not required to be interconnected. In addition, they shall provide a hush facility having a minimum duration of 60 seconds.

COMMENT:
A hush facility is a button on the smoke alarm which silences the alarm for a limited time after activation. This allows the cause of a nuisance alarm to be cleared without removing the battery to silence the smoke alarm.

3.2.4 Smoke alarms shall have an alarm test facility readily accessible by the building occupants. This facility may be located on the smoke alarms.

3.3 Location of smoke alarms

3.3.1 Smoke alarms shall be located on the escape routes on all levels within the household unit. On levels containing the sleeping spaces, the smoke alarms shall be located either:

a) In every sleeping space, or

b) Within 3.0 m of every sleeping space door. In this case, the smoke alarms must be audible to sleeping occupants on the other side of the closed doors.
Smoke alarms also need to be located so that an alarm is given before the escape route from any bedroom becomes blocked by smoke. This includes those parts of escape routes on other floors. Although not required by the Acceptable Solution, the interconnection of individual smoke alarms should be considered if audibility is a problem.

Smoke alarms need to be heard by sleeping occupants. In this Acceptable Solution, audibility is assumed if the sound pressure level is 60 dB(A) within the sleeping area with all doors closed.

3.3.2 Smoke alarms shall be installed on or near the ceiling in accordance with AS 1670.6 and the manufacturer’s instructions.

COMMENT:
AS 1670.6 gives instructions for the physical location of smoke alarms. Smoke alarms need to be situated on (or near) the ceiling for optimum detection of smoke in a fire situation.

Observance of the manufacturer’s instructions is important to ensure smoke alarms are physically mounted correctly. Such information is usually device-specific.

3.4 Maintenance

3.4.1 Recommended maintenance procedures are:

a) In-situ annual cleaning with a vacuum cleaner (no disassembly of smoke alarm).

b) Monthly testing by use of the smoke alarm’s “test” facility.

COMMENT:
These smoke alarms are exempt from the usual ongoing compliance schedule regime. A test facility is necessary to allow basic maintenance by the building owner/occupier.

The above are maintenance procedures that do not require any special technical knowledge, or disassembly of any part of the system.

The other maintenance recommendation is for the smoke alarms to be annually cleaned in-situ using a vacuum cleaner, with no disassembly of the smoke alarm. The purpose of this is to remove dirt and dust from both the outside of the smoke alarm (blocks smoke entry) and the smoke-sensing chamber inside (makes it either less sensitive, or over-sensitive).

It must be recognised that any smoke alarm installed will have a limited service life (approximately 10-15 years maximum) provided it is well maintained and cared for. Gradual deep-seated soiling and degradation of components will eventually necessitate replacement of the smoke alarm units. Lack of maintenance will shorten this lifetime.
Alerting devices

- Audible ........................................ 1.1.5, 1.2.8, 2.1.2, 2.2.2 b)
- Visual ........................................... 2.1.2 c) f)

Alerting the Fire Service ................. 1.2.2, 1.2.7, 2.1.2 a), 2.2

Buildings ............................................. 1.2.1, 1.2.7, 1.2.8, 1.5.1, 2.1.1,
                                              2.1.2 b), 2.2.2 b) c)

- Seasonal use buildings .................. 1.1.2 c)
- Single-floor buildings ................. 1.1.2 a) b)
- Three-floor buildings .................. 1.1.2 b)
- Two-floor buildings .................... 1.1.2 a) b)

Call points ............................................ 1.1.4

Control panel ...................................... 1.1.5, 1.2.2, 2.2.2 b)

Doors

- Hold-open devices ......................... 1.3.6, 1.5.2

Exitways ............................................. 1.2.5, 1.2.6, 1.3.5 c), 1.5.2

- Pressurisation .................................. 1.3.7

Fire alarm systems ......................... see Fire safety precautions

Fire engineering design .................. 1.1.7, 1.4.1

Fire safety precautions

- Emergency lighting in exitways ........ 1.5.2
- Fire alarm systems
  - Activation of system .................... 2.1.1
  - Automatic .................................. 1.1.3, 1.2.3 to 1.2.7
  - Heat detectors .......................... 1.2.3, 1.2.5, 1.3.1,
                                           1.3.2, 1.3.4, 1.3.5
  - High sensitivity smoke detection .... 1.1.7
  - Installation and maintenance ........ 1.1.3, 1.1.5, 1.2.6,
                                           1.2.7, 1.3, 1.4, 1.5.3
  - Manual .................................... 1.1.1, 1.1.2, 1.2.2
- Means of communication with the
  Fire Service ............................... see Alerting the Fire Service
- Modified smoke detection ............. 1.2.5 to 1.2.7
- Requirements ................................ 2.1
- Smoke detectors ......................... 1.1.6, 1.2.4, 1.2.9, 1.3, 1.4.1, 1.5.3
- Substitution of smoke detectors by
  Heat detectors ............................. 1.3.5
Fire Safety Precautions (continued)

Fire Service lift control .................................. 1.5.2
fire sprinkler systems
  automatic ............................................. 1.2.5, 1.2.8, 1.3.2, 1.3.4
  with smoke detectors ................................. 1.2.9
hold-open devices ..................................... 1.3.6, 1.5.2
mechanical smoke extract .............................. 1.3.8, 1.5.2
natural smoke venting ................................. 1.3.8, 1.5.2
pressurisation of exitways ............................ 1.3.7, 1.5.2
smoke control in air handling system .............. 1.5.2, 1.5.3

Fire Service .............................................. 1.2.2, 1.2.7, 2.1.2 a), 2.2

Firecells ................................................ 1.2.5, 1.2.7, 1.3.1, 1.3.4, 1.3.5

Floors ..................................................... 1.1.2

Heat detectors ......................................... see Fire safety precautions

Household units ........................................ 1.1.2 b), 1.2.5, 1.3.2

HVAC systems .......................................... 1.5.3

Interface with ancillary control systems ........... 1.5

Location of heat and smoke detectors ............... 1.3

Occupants
  occupant load .......................................... 1.1.2 a), 2.1.1

People with disabilities ................................ 2.1.2 d) f)

Placement of detectors ................................ 1.4

Purpose groups
  CL ...................................................... 1.3.5 b)
  CM ...................................................... 1.3.5 b)
  CS ...................................................... 1.3.5 b)
  SA ...................................................... 1.1.2 b), 1.2.5, 1.3.5 a) b), 2.1.2 d)
  SC ...................................................... 1.3.5 a) b), 2.1.2 e), 2.2.3
  SD ...................................................... 1.3.5 a) b), 2.1.2 e), 2.2.3
  SR ...................................................... 1.1.2 b), 1.2.5, 1.3.5 a) b)

Safe paths ................................................. 1.3.1, 1.3.4

Smoke alarms ........................................... 3.1.1, 3.1.2
  alarm system. ......................................... 3.2.1, 3.2.2, 3.2.3, 3.2.4
  location ............................................... 3.3.1, 3.3.2
  maintenance ......................................... 3.4.1

Smoke detectors ...................................... see Fire safety precautions