



Fire Protection Association New Zealand

Code of Practice

Fire Evacuation Schemes

1. Purpose

The purpose of this Code of Practice is to develop a recognised national standard for implementing and maintaining fire evacuation schemes as required by Section 21(A) of the Fire Service Act 1975 and the Fire Safety and Evacuation of Building Regulations 1992.

2. Scope

The substance of this document is the annexes each relating to a distinct part of implementing and maintaining evacuation schemes. The annexes are:

Annex A	Content and layout of evacuation schemes.
Annex B	Content and layout of evacuation notices.
Annex C	Procedures for reporting on evacuation scheme maintenance.

Signed:

Executive Director
Fire Protection Association NZ
12 December 2003

Content and Layout of Evacuation Schemes

1. General

Fire evacuation schemes are to be written in accordance with the following:

- (a) Schemes must be able to be understood by a person with no technical experience.
- (b) Schemes must be written in a way that explicitly instructs occupants in the actions they must follow.
- (c) The sequence the information is presented may vary, however it must be logical and clear.
- (d) The terminology used to describe the Wardens may vary, however Wardens must be appointed to fulfil the duties of the Building Warden and Floor Wardens.
- (e) At least one Deputy Warden is to be appointed for each position. The role of the Deputy Warden is as a backup to take over the Warden's role in their absence.
- (f) Schemes should, as a standard, use an area or floor search. Only in exceptional circumstances should a head count or roll call be used.
- (g) The procedures for interacting with the fire safety precautions in the building are to be incorporated in the scheme in each relevant section. Appendix 1 to this Annex provides information as to the types of Fire Safety Precautions as described in the Approved Documents to the New Zealand Building Code.

2. Content

Fire evacuation schemes are to include:

- (a) A scheme overview that identifies in general terms how: the evacuation scheme functions; the roles and identification of Wardens; and the fire safety precautions in the building (see Appendix 1 to this Annex).
- (b) A statement notifying that all occupants are required to comply with the evacuation scheme.
- (c) A statement notifying that a scheme may not be changed without Fire Service approval.
- (d) A statement notifying that the Building Owner or their representative is responsible for maintaining the evacuation scheme.
- (e) Instructions that all occupants are to be aware of, to include:
 - i) Actions on discovering a fire.
 - ii) How to make a "111" call.
 - iii) Actions on hearing the alarm or being directed to evacuate.
 - iv) Procedures for people who require assistance to evacuate.
 - v) Procedures for emergencies outside normal operating hours.
- (f) Building Warden's duties during an evacuation.
- (g) Floor Wardens' duties during an evacuation.
- (h) Considerations for the use of and suitability of fire fighting equipment. Appendix 2 to this Annex provides information as to the suitability of extinguishers.
- (i) Management responsibilities, to include:
 - i) Appointment and training of Wardens.
 - ii) Trial evacuations.

- iii) Monitoring of means of escape and monitoring of the accessibility of the components of the fire safety precaution systems that occupants may need to interact with.
 - iv) Instructions for: the safe use of appliances; packing and unpacking of goods; the control of open flame; and the storage of goods and materials.
- (j) Any special conditions required.

Types of Fire Safety Precautions

From the Acceptable Solutions to the New Zealand Building Code

Type 1 Domestic Smoke Alarm System

A stand-alone domestic/residential type automatic smoke detection system with limited coverage that activates automatically in the presence of smoke and is for use only within single household units. This system **may** be battery powered and has detectors and alerting devices. The system is restricted to a single firecell and does not have a connection to the Fire Service or an indicating unit.

Type 2 Manual fire alarm system

An alarm system, which is activated only by someone operating a manual call point. It is a single or multiple zone system with an alarm panel providing a zone index diagram and defect warning and suitable for connection to the Fire Service.

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

A detection and fire alarm system, which activates automatically when a pre-determined temperature is exceeded in the space, and can be activated manually at any time.

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

A detection and fire alarm system, which activates automatically in the presence of smoke, and can be activated manually at any time.

Type 5 Automatic fire alarm system with modified smoke detection and manual call points

A variation of the Type 4 and Type 7 alarm systems permitting 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.

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 in SA. The local alarm system shall not be extended to other areas such as exitways or common spaces which shall retain a Type 4 smoke detection system, and
- (b) Shall be permitted only where a fire detection and alarm system activated by heat detectors (part of the main alarm system) is also installed in sleeping firecells that do not already have a sprinkler system.

Type 6 Automatic fire sprinkler system with manual call points

An automatic fire detection, alarm and control system which, when a specified temperature is exceeded in the space, activates the sprinkler head in the affected area and includes alerting devices throughout the building. The system permits alerting devices to be activated manually.

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

An automatic fire alarm system having the same characteristics as a Type 6 alarm plus an automatic smoke detection system. The fire alarm signal resulting from smoke detection is not required to be directly transmitted to the Fire Service.

Type 8 Voice communication system

An automatic system with variable tone alerting devices, the facility to deliver voice messages to occupants, and to allow two-way communication between emergency services personnel.

Type 9 Smoke control in air-handling system

Heating, ventilating or air-conditioning systems if installed in buildings, shall control spread of smoke by having either:

- (a) Self contained duct smoke detectors with provision for output signal/alarm generally complying with AS/NZS 1668: Part 1 and interfacing with any Type 3, 4, or 7 system installed, or
- (b) Fire alarm and warning systems Type 3, 4 or 7 as a means of smoke detection, in accordance with NZS 4512 to provide ancillary function output for control of the HVAC system.

Type 10 Natural smoke venting

This is a method of smoke extraction where a firecell is provided with a smoke reservoir, and with outlet vents and fresh air inlets that open automatically when actuated by the smoke detection system. Smoke movement is by natural draught. Type 10 requirements apply only to the common space (such as an atrium) in firecells with intermediate floors.

Type 11 Mechanical smoke extract

Mechanical smoke extract uses fans in place of the natural draught relied upon in Type 10. The firecell shall have smoke reservoirs. Type 11 requirements apply only to the common space in firecells with intermediate floors.

Type 12 Deleted

Type 13 Pressurisation of safe paths

Pressurisation methods and installation shall comply with AS/NZS 1668: Part 1 Section 9. The system shall be automatically activated by smoke detectors, and shall keep the safe paths free of smoke for sufficient time to allow occupants to reach a safe place, and in no case for less than 60 minutes.

Type 14 Fire hose reels

Fire hose reels shall comply with AS/NZS 1221, and the distribution, installation and maintenance with NZS 4503, except that the maximum hose length shall be 36 m. Fire hose reels shall not be installed in vertical safe paths.

Type 15 Fire Service lift control

The Fire Service lift control where required, shall enable the Fire Service to have exclusive use of any lift for fire fighting purposes. Once a Type 15 FSP is required for any level in a building, it shall be applied to all levels.

Type 16 Emergency lighting in exitways

Emergency lighting shall comply with F6/AS1. Such lighting is required where occupants (particularly crowd and sleeping purpose groups) would find it difficult to reach a safe place because of a main power supply failure.

When required by Table 4.1, the minimum provision is for emergency lighting to be installed in all exitways. However emergency lighting will also be required in open paths for other spaces such as public buildings with over 1000 people per firecell and rest homes or hospitals.

Type 17 Emergency electrical power supply

The emergency power supply is necessary to ensure the continued operation during evacuation, of essential equipment such as smoke control systems, emergency lighting and lifts. The requirement applies generally to tall buildings (over 58 m) having sleeping accommodation or crowds.

Type 18 Fire hydrant system

Fire hydrant systems shall comply with NZS 4510 "Fire hydrant systems for buildings". Once a Type 18 FSP is required for any level in a building, it shall be applied to all levels. This FSP refers only to internal hydrant systems where the outlets are normally located in a stair tower.

Type 19 Refuge areas

Refuge areas are required within safe paths in tall buildings (over 58 m) where congestion is likely to occur. They also provide an opportunity for slow moving occupants to rest without restricting the movement of others.

Type 20 Fire systems centre

A facility for Fire Service use in buildings over 58 m, or buildings over 25 m that contain sleeping, which shall:

- (a) Be readily accessed from street level and located in a position to be determined in consultation with the New Zealand Fire Service,
- (b) Be protected from the effects of fire including debris falling from an upper floor, and
- (c) Contain all control panels indicating the status of fire safety systems installed in the building, together with all control switches.

Subscripts to the Fire Safety Precautions detailed above:

- a** Not required where the escape routes serves an occupant load of no more than 50, or 10 beds (Purpose Group SA only).
- c** Not required if the Fire Service hose run distance, from the Fire Service vehicular access to any point on any floor is less than 75 m.
- e** A Type 5 fire alarm system (modified smoke/heat detection with manual call points) is an acceptable upgrade from a Type 4 fire alarm system to be used within firecells containing sleeping accommodation where there is an increased risk of recurrent false alarms.
- f** A direct connection to the Fire Service is not required provided a telephone is installed and accessible at all times to enable "111" calls to be made by any person.

SYSTEMS TO SUPERSEDED STANDARDS

All fire safety systems to superseded standards are deemed acceptable provided that they function as originally intended. Repairs can be legally made to existing systems but extensions to the system are not permitted. For example, a damaged CMS unit can be replaced but an extra CMS cannot be added to a building extension or new building.

This includes emergency lighting to NZS 6742, Type B or C manual alarm systems to previous issues of NZS 4512 or to NZS 4561.

HOLD OPEN DEVICES

These devices are no longer listed as a system under the control of any one IQP.

Hold open devices must always be controlled by smoke detectors. The smoke detectors may be installed exclusively for the purpose of controlling the hold open device or may be part of another smoke detection system installed in the building.

Hold open devices may also be controlled by the activation of any other fire safety precautions, but must be in addition to the primary smoke detectors that are fitted.

Hold open devices may be wired to smoke detectors that are independent of the fire alarm system or to smoke detectors that are integral with the hold open device. These devices may operate independently of any other hold open device and not all hold open devices will release even if the entire alarm system, with all ancillary systems, is activated as the fire panel may be programmed to individually release each device.

Suitability of Fire Fighting Equipment

1. CLASSES OF FIRE

Fire is divided into six classes for the purpose of effective fire fighting. Some extinguishers are more suitable than others for putting out the different classes of fires. The table below is a guide to identify the classes of fire and the most suitable extinguisher. Material Safety Data Sheets may provide additional information.

Preferred Extinguishants For Given Risks

Risk		Preferred extinguishant (not in order of preference)
Class or capability	Perceived	
A	Clothing fire-a fire in the clothes being worn by a person	Water Fire Blanket
A	Small carbonaceous solids fire	Water Foam ABE powder Wet chemical Vaporising liquid Carbon dioxide (limited)
A	Large carbonaceous solids fire	Water Foam ABE powder
B	Petroleum-based liquid	BE and ABE powder Foam Vaporising liquid (limited) Carbon dioxide (limited)
B	Polar solvents	BE and ABE powder Alcohol-resistant foam Vaporising liquid (limited) Carbon dioxide (limited)
C	Gas Fires	BE and ABE powder
D	Metal Fires	Special powder
E	Fire involving energised electrical equipment	ABE and BE powder Carbon dioxide Vaporising liquid
F	Cooking oils and fats fires	Wet chemical BE powder Fire blanket Foam (limited)

Content and Layout of Evacuation Notices

1. General

Evacuation notices are to be written in accordance with the following:

- (a) Evacuation notices may vary in layout and colour scheme providing that they contain the information required by this Annex in a clearly presented and logical manner.
- (b) The notices need to be of a suitable size for the environment in which they are installed.
- (c) Evacuation notices must be printed or typed and must be clearly legible.
- (d) Evacuation notices may include a drawing to increase clarity.
- (e) Evacuation notices must be reasonably durable and if during their life they become illegible then they are to be replaced.
- (f) Evacuation notices must be installed in locations where they are available to all occupants of the building.

2. Content

The following content must be included in an evacuation notice:

- (a) Actions on discovering a fire, including calling the Fire Service.
- (b) Actions on hearing the alarm or being instructed to evacuate.
- (c) The exit procedure for the building. This should identify how to exit the building and may be as simple as "follow the directional exit signage until clear of the building".
- (d) The location of the assembly areas/safe places.
- (e) Any cautionary advice (such as do not use lifts) as appropriate.
- (f) The locations of fire fighting equipment may be included.

Procedures For Reporting On Evacuation Scheme Maintenance

1. Notification

The Fire Service is to be given reasonable notice of trials. This should be 14 days in advance and in writing. The Fire Service Communications Centre is to be advised prior to a trial occurring.

2. Report to Fire Service

Following a trial evacuation a report is to be forwarded to the Fire Service using the form attached as Appendix 1 to this Annex, or similar.

When completing the form any problems that were identified during the trial evacuation and any building issues that were identified are to be included in the comments section of the form.

3. Report to Owner or Owners Representative

If any building issues were identified a report is to be sent by the Consultant to the building owner or their representative outlining these issues.

4. Report to Wardens

After a trial evacuation feedback is to be provided for Wardens.

TRIAL EVACUATION REPORT

Building name: _____

Building address: _____

Name and company of person supervising trial: _____

Contact details of person supervising trial: _____

Date of trial evacuation: _____

Time of trial evacuation: _____

Time taken to evacuate: _____

	Yes	No
Did Occupants use the correct assembly area?	<input type="checkbox"/>	<input type="checkbox"/>
Did Wardens report promptly and accurately?	<input type="checkbox"/>	<input type="checkbox"/>
Could Wardens hear the alarm clearly in all areas?	<input type="checkbox"/>	<input type="checkbox"/>
Did Wardens wear identification in accordance with the scheme?	<input type="checkbox"/>	<input type="checkbox"/>
Was a 111 call made or role-played?	<input type="checkbox"/>	<input type="checkbox"/>
Would the Building Warden be able to accurately report the building's status on the arrival of the Fire Service?	<input type="checkbox"/>	<input type="checkbox"/>
Did the scheme operate as designed?	<input type="checkbox"/>	<input type="checkbox"/>
Does the building have a current BWOF?	<input type="checkbox"/>	<input type="checkbox"/>
Were there any building issues identified during the evacuation?	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Signed: _____