



# Fire Protection Association of New Zealand

## Code of Practice for FPANZ Fire Evacuation Consultants

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## Foreword

*Preparation through education is less costly than learning through tragedy.*

**Max Mayfield**, Director, National Hurricane Center USA

The Fire Protection Association New Zealand Incorporated (FPANZ) and the New Zealand Fire Service (NZFS) have developed this Code of Practice to provide guidance to FPANZ members on best practice in providing evacuation consultancy services. This Code of Practice will be the first of a suite of codes covering various aspects of fire protection in New Zealand.

New Zealand's fire protection standards and building compliance regime, requiring regular maintenance, inspection and testing of systems, and evacuation planning and training, are amongst the best in the world, providing a solid platform for a fire-safe environment. The effectiveness of this framework is evidenced by the very low number of fatal fires in non-residential buildings in New Zealand over the last decade. However, while this is an admirable record, we cannot rest on our laurels.

Successful evacuation of buildings without loss of life is central to fire protection and the purpose of the Building Act. Perhaps surprisingly therefore, given this focus on life safety, other than standards for evacuation lighting, there are currently no New Zealand Standards governing evacuation planning and schemes. Similarly, there is no occupational licensing requirement for evacuation consultants, meaning virtually anybody can set themselves up as a consultant and develop and submit schemes to NZFS for approval.

While no system is perfect (particularly where there is an element of human intervention), any loss of life as a result of fire is avoidable. Failure to follow appropriate procedures and practice on the part of a FPANZ Evacuation Consultant would significantly increase the risk of injury or loss of life in a fire event. This would undoubtedly lead to civil or criminal charges against the consultant and building owner, as well as undermining public confidence in the fire protection industry and their safety.

As FPANZ Fire Evacuation Consultants, we need to move beyond merely knowing and complying with the relevant legislation and regulations (such as the Fire Safety and Evacuation of Buildings Regulations 2006), to setting the benchmark in terms of best practice and professionalism. We need to continually strive to improve systems and performance through benchmarking practices, ongoing training, and monitoring. Standards, codes of practice and practice guidelines are vital to the fire protection industry and to this process.

This Code is a first step in establishing and quantifying what best practice is in terms of evacuation of buildings in the event of fire, and what is expected of FPANZ Fire Evacuation Consultants. It sits alongside the FPANZ Certified Evacuation Consultants Scheme and the FPANZ Code of Ethical Conduct as the fire protection industry's response to the need to augment professionalism in the industry through improved systems and performance.

## What does this Code of Practice cover?

This Code focuses on fire evacuation. It does not cover management processes that are part of a building evacuation in the event of other emergencies.

For the purposes of this Code of Practice (Code) and clarity, the following general definitions are being used. For definitions specific to fire evacuation refer to the Glossary in Appendix 2

**procedure** (*noun*) an **established or official** way of doing something; a series of actions conducted in a certain order or manner.

**Synonyms:** modus operandi, system, formula, protocol, approach.

**process** (*noun*) a series of actions or steps taken in order to achieve a particular end.  
(*verb*) deal with (someone or something) using an official procedure.

**Synonyms:** course of action, method, means, practice.

**scheme** (*noun*) a large-scale systematic plan or arrangement for attaining some particular object or putting a particular idea into effect.  
(*verb*) make plans.

**Synonyms:** system, plan, design, arrangement, outline.

Part A covers why a Code is necessary, and why following it is an important part of your job as a FPANZ Fire Evacuation Consultant (FPANZ Evacuation Consultant). It explains your role and responsibilities. It also mentions legislation you must know and the skills you need to have to be able to do your job well.

Part B covers what a Fire Evacuation Scheme is and what principal legislation underpins what you do and must do as a FPANZ Evacuation Consultant.

Part C covers the processes you should follow as a FPANZ Evacuation Consultant in developing and implementing a Fire Evacuation Scheme. These processes are closely aligned to the Fire Evacuation Scheme Process flowchart at the start of Part B. The competencies required vary for building level types 1 to 4. These building level types are outlined in the first section of Part B. Part B also identifies other factors (most linked to steps in the flowchart) that you should consider in your job as a FPANZ Evacuation Consultant.

Part D is a set of appendices. The appendices cover the acronyms and abbreviations, and a glossary of terms we use in the industry, and specifically those you need to know as a FPANZ Evacuation Consultant. The appendices also note relevant sections in legislation and the relevant regulations. Other areas of focus are industry standards and codes, other guidelines, and other material you might want to refer to in your role as a FPANZ Evacuation Consultant. These include:

- a note about the International Fire Engineering Guidelines and the New Zealand Construction Industry Council Design Documentation Guidelines
- details about classes of fire and use of hand operated fire-fighting equipment
- details about hazardous, infectious, and radioactive substances
- types of fire safety precautions
- an example of a fire sign
- an example of a trial evacuation report.

As with the factors set out in Part C of this Code, the guidelines and references in these appendices are not an exhaustive list. You may think of other references you need to consult in your role. We also include helpful references and links to useful websites.

## Part A: Background to this Code of Practice

In Part A we start by explaining the aims of this Code. We then focus on three key areas: (1) why a Code matters to you in your role as a FPANZ Evacuation Consultant; (2) your roles and responsibilities as a FPANZ Evacuation Consultant; and (3) the training you should do to get the skills needed to become a competent and professional FPANZ Evacuation Consultant.

### What are the aims of this Code of Practice?

This Code has two interrelated aims:

1. It describes your role as a FPANZ Evacuation Consultant, and the responsibilities you have in that role. You will know what steps to take and when, and who you should communicate with. Details of your role and responsibilities are set in context, so this Code also explains why what you do is important to the fire protection industry. The Code explains how the job you do fits into the wider fire protection industry.
2. It explains why such a code is vital to the fire protection industry. We need to achieve and maintain a high standard of professionalism. One pillar to help us achieve this goal is ongoing training. It is important that you develop and improve your skills so that our industry can become more robust. The other pillar is legislative knowledge and compliance. As FPANZ Evacuation Consultants, we need to move beyond merely knowing the relevant legislation and regulations (such as the Fire Safety and Evacuation of Buildings Regulations 2006) and achieving legislative compliance, to setting benchmark standards of performance now and into the future.

### Why does the fire protection industry need a Code of Practice?

This Code describes the standard of work practices and competence we expect from FPANZ members who provide building evacuation services in case of fire. Having a Code helps our members and their clients to understand exactly what to expect of a FPANZ Evacuation Consultant.

### Why is this Code of Practice relevant to you?

For you the FPANZ Evacuation Consultant, the Code gives best practice guidelines that will support your decision-making, helping you to offer a professional service to your clients. By carrying out your role according to the Code, you will be following recognised best practice.

For your client, they can be confident that you are aware of your responsibilities to them and complying with legislation. They can be comfortable that you: are aware of and following best industry practice; are meeting legislative and regulatory requirements; are committed to providing them with a professional responsive service; and, will be held accountable.

### Why do we need FPANZ Fire Evacuation Consultants?

FPANZ Evacuation Consultants perform a vital role in the fire protection industry. They help to reduce the risk to building occupants from fire. In particular, they provide fire evacuation services for their employer or for a client. These services involve creating and instituting a management process to ensure

people can evacuate safely from a building if there is a fire. Also, unlike many building owners, all FPANZ Evacuation Consultants are familiar with the relevant fire-related legislation and regulations.

FPANZ Evacuation Consultants develop evacuation processes to help building owners and occupants answer these types of question:

- What do I do if I discover or am told there is a fire in the building?
- Who are the building's fire wardens and what are their duties?
- How do I evacuate people to a safe place?
- How do I safely operate fire-fighting equipment in the building?
- How do I maintain a Fire Evacuation Scheme?

A FPANZ Evacuation Consultant may help a building owner develop, implement, and maintain a Fire Evacuation Scheme as part of the management process. This scheme sets out what people should do in a fire evacuation, and how they should do it.

## What is your role as a FPANZ Fire Evacuation Consultant?

In legislation, the building owner is responsible for evacuation matters. The building owner can authorise someone else to look after such matters on their behalf. Such a person could be the building manager, occupier, or a FPANZ Evacuation Consultant.

In the role of agent of the building owner, a FPANZ Evacuation Consultant develops and implements a building Fire Evacuation Scheme.

## What are your responsibilities as a FPANZ Fire Evacuation Consultant?

As a FPANZ Evacuation Consultant you have a duty of care to both the building owner and the building occupants. You will need to:

- assess the building
- develop the Fire Evacuation Scheme
- write the Fire Evacuation Manual
- apply for NZFS approval
- put the scheme into operation
- train the building occupants (particularly those with a specific role to play, such as fire wardens)
- maintain the scheme.

These requirements are discussed in detail in Part C of this Code. **For a step-by-step process, see the flowchart at the start of Part C.**

Ideally, a FPANZ Evacuation Consultant should be involved in the early stages of a building's design to help the owner and designer develop a fire safety strategy that is fit for purpose.

## Why are training and continuing professional development important?

While legislation underpins the processes you put in place as a FPANZ Evacuation Consultant, and you need to be thoroughly familiar with it, training underpins how you do your job.

The fire protection industry needs highly transportable and transferable skills that are recognised throughout the industry. We must ensure that any training that consultants receive is consistent with nationally-accepted standards and is of a high quality.

Your employer or client is making decisions relying on your ability as a FPANZ Fire Evacuation Consultant. They need to be confident that you have the knowledge and skill level to do your job. So any training you do must match your role and responsibilities as a FPANZ Evacuation Consultant and be tailored to what you actually do on the job.

To enable your employer or client to evaluate your ability as a FPANZ Fire Evacuation Consultant we have developed and introduced the FPANZ Certified Evacuation Consultants Scheme. This scheme is designed to demonstrate your level of competence. The certification process includes regular and ongoing verification and recertification.

Of course, industry practices change often: new legislation, new policies, and new practices evolve. As a FPANZ Evacuation Consultant, you are also required to continue your professional development, undertaking ongoing training to keep your knowledge and skills current.

## What training and skills should you acquire?

The training required of a FPANZ Evacuation Consultant is practically based.

At a base level, you should be trained in fire prevention, safety, and evacuation Procedures, and know how to deal with fire emergencies.

You need to have the knowledge to be able to advise the building owner on:

- how to put in place and maintain policies and processes that minimise risk of fire
- common causes of fire
- safe work practices to minimise the risk of fire to people and property
- ways to suppress a fire
- the appropriate hand-operated fire-fighting equipment
- building fire safety systems (refer to Appendix 8)
- Legislative and regulatory requirements.

You need to be able to apply what you have learned — to put your training in context. You may find yourself working with a building owner to plan, conduct, and follow up on a trial evacuation. And for events like this, you will need to take a wider view, such as ensuring the building owner is aware of any non-evacuation concerns that might arise during the trial evacuation. You need to know how to manage and administer evacuation schemes. For example, you need to know what forms to use and for what purpose.

Legislation may change and you also need to know, understand, and tell your clients about it. Similarly, industry practice may evolve and you need to keep your skills current.



## Part B: Fire Evacuation and the Law

### What is an Evacuation Procedure?

Part 1 of the Fire Safety and Evacuation of Buildings Regulations applies to most non-residential buildings and requires owners to have an evacuation Procedure and maintain the means of escape from fire. This includes addressing the following aspects:

- Maintain the means of escape and keep egress routes free of obstacles etc.
- Exclude the storage of flammable liquids in the means of escape
- Inform all building occupants of what to do in a fire emergency
- Where necessary train staff to assist occupants to evacuate
- Maintain the correct use of electrical and gas appliances
- Control the use of open flames
- Control the unpacking and packing of goods
- Control the storage of certain materials inside and outside the building
- Maintain any building fire-fighting equipment

### What is a Fire Evacuation Scheme?

The Fire Safety and Evacuation of Buildings Regulations 2006 require certain buildings – those listed in S21 (A) 1 of the Fire Service Act 1975 - to have a fire "Evacuation Scheme". They describe the various requirements a building owner must comply with to keep building occupants safe from fire. A FPANZ Evacuation Consultant needs to inform their client of the legal responsibilities they incur under these Regulations.

A Fire Evacuation Scheme is developed to move people promptly, safely, and efficiently from a place of danger to a place of safety. This includes:

- evacuation management, what needs to be done in the event of a fire evacuation, and how it is to be done
- the method for managing the evacuation process including training, signs and notices, fire fighting equipment, means of warning, and evacuation process maintenance.

A Fire Evacuation Scheme may not require NZFS approval. However, the building owner may submit a voluntary scheme for approval by the NZFS.

Where a building requires a Fire Evacuation Scheme, the building owner must apply to the NZFS for scheme approval. This they may do directly or through you acting as their agent.

Where you are acting on the building owner's behalf and submitting the application, you become the authorised applicant and thus become the liaison between the building owner and the NZFS. If a Fire Evacuation Scheme is not required the owner must still implement an evacuation Procedure (as described above).

The details of a Fire Evacuation Scheme are typically captured in a Fire Evacuation Manual (refer Appendix 9—Samples).

## What legislation underpins what you do as a FPANZ Fire Evacuation Consultant?

Three main pieces of legislation relevant to your job as a FPANZ Evacuation Consultant are: the Building Act 2004 and subsequent Amendments; the Fire Service Act 1975; and the Fire Safety and Evacuation of Buildings Regulations 2006.

In general terms, the Fire Service Act 1975 (FSA) and the Fire Safety and Evacuation of Buildings Regulations 2006 (FSEB Regulations) focus on how to manage the process of keeping building occupants safe from fire, while the Building Act focuses on the building's safety, including fire safety systems. You need to know and understand this legislation to do your job effectively and professionally.

Under fire safety legislation, a building owner is responsible for managing the fire safety precautions in their building, including fire evacuation. Most buildings need an evacuation Procedure and those buildings described in section 21(A)1 of the FSA require a Fire Evacuation Scheme to be put in place by the owner and approved by the NZFS. Penalties for a building owner who breaches legislation can be considerable. You need to make the owner aware of what might happen if they fail to put in place and maintain effective fire evacuation measures. In addition, building occupants must comply with those fire safety precautions and follow any evacuation Procedures the building owner has put in place.

So you can see why you need to know and understand the relevant legislation. It underpins what information you give the building owner. You also need to be able to discuss legislation so that other stakeholders (such as architects, fire engineers, services engineers, utility providers, insurers, financial institutions, project managers, facilities and building managers, and the NZFS) can understand you. It is vital that everyone involved reads from the same legislative page.

### **Building Act 2004**

Current building legislation is covered in the Building Act 2004 and Amendments, and includes the Building (Building Code: Fire Safety and Signs) Amendment Regulations 2012 (BAR). Recent amendments have introduced some new definitions (such as for 'means of escape from fire'), acceptable solutions, and verification method. This amended legislation supersedes the existing legislation completely on 9 April 2013.

The Building Act requires the building owner to submit complete plans and specifications that demonstrate compliance with the Act. Depending on the type of building, this documentation should include a description of all active and passive fire safety features of the building.

Section 35 sets out the details included in the Project Information Memorandum. Under subsection (e), the Territorial Authority must state that they believe the building is likely to need a Fire Evacuation Scheme under s21A of the FSA. Current wording states that the scheme is for evacuation from the scene of a fire; it does not reflect responses to some other disaster. The building owner may request a copy of the Project Information Memorandum.

The Building Act defines the 'means of escape' from fire. 'Means of escape' includes all active and passive fire safety features and the paths of travel to escape from a building. Active and passive fire safety systems will be selected as part of the design process. As these systems must continue to work effectively for the life of the building, the designer must show how these 'specified systems' will be inspected and maintained. The records must show the designer has noted these. Identification of these 'specified systems' is required at building consent stage so that the information is included in a 'compliance schedule'. This schedule includes all specific life safety systems in the building that must be

routinely maintained. Sections 100–107 of the Building Act cover compliance schedules, so you should know and understand the requirements for and typical content of these schedules.

On the anniversary of the issue of the code compliance certificate or a certificate of acceptance, the building owner must provide a statement to the Territorial Authority that they have reported, tested and maintained specified systems listed on the compliance schedule. The maintenance of most specified systems is carried out by an Independently Qualified Person (IQP).

A number of fire safety systems are not active systems and so may be overlooked by the IQP regime. All specified systems are required to be inspected, tested, and reported upon. Non-active systems include doors, signs, final exits, and fire and smoke separations. As an example, doors (automatic doors, access controlled doors, interfaced fire/smoke doors) must not be locked, barred or blocked, and must be inspected regularly to ensure they will work in an emergency. Signs required to be lit must be inspected monthly; signs not required to be lit must be inspected yearly. Final exits may need to be inspected daily (in large public buildings) or monthly (for other buildings). Depending on level of use, fire separations and smoke separations may need to be inspected daily through to yearly.

As part of your brief, you should advise the building owner how they should do this work, and what records they need to keep as part of their legal obligations.

### **Fire Service Act 1975**

As a FPANZ Evacuation Consultant, you clearly need to know and understand the relevant provisions of the FSA. Section 21 is one section you need to know and understand. It indicates which buildings require an approved evacuation scheme. This section defines ‘relevant building’ as a building that meets one or more of the criteria listed below. If it:

- provides employment facilities for 10 or more people
- is where 100 or more people gather for any purpose
- contains hazardous substances in quantities exceeding the allowed minimum, no matter what the building is being used for
- provides early childcare facilities (other than in a household unit)
- provides nursing, medical, or geriatric care (other than in a household unit)
- provides specialised care for people with disabilities (other than in a household unit)
- provides accommodation for people under lawful detention (other than people serving home detention, community detention, or serving a prison sentence on home detention or on parole).

You also need to know and understand sections 21B to 21H. These sections set out the exclusions for ‘relevant building’, such as a Crown building, or class of Crown building as specified by the Minister by gazetted notice, and the premises of a diplomatic mission (as defined in Schedule 1 of the Diplomatic Privileges and Immunities Act 1968).

The NZFS manages the evacuation scheme requirements of the Fire Service Act 1975.

### **Fire Safety and Evacuation of Buildings Regulations 2006**

The FSEB Regulations are made under the Fire Service Act 1975. The FSEB Regulations are regulated by the Department of Internal Affairs. The NZFS manages the approval of evacuation schemes as set out in the Regulations.

For all buildings (except single family dwellings), building owners must have evacuation Procedures in place for the safe, prompt and efficient evacuation of the building occupants in the event of a fire emergency. If the legislation requires that a building owner put in place a Fire Evacuation Scheme, that

scheme must be developed in a way that enables people to evacuate the scene of a fire safely and in a reasonable time. Further, the building owner is required to maintain the scheme.

The Regulations are in two parts: Part 1—Fire Safety for Buildings; and Part 2—Evacuation schemes for buildings described in section 21A(1) of the FSA. Part 1 focuses on evacuation Procedures and general matters of fire safety for the types of buildings listed in Schedule 1 to the Regulations. The Schedule lists mainly buildings that the public can access, but it does include some residential buildings such as rest homes, groups of pensioner flats, and boarding houses. Part 2 sets out the requirements for evacuation schemes for buildings as described in section 21A(1) of the FSA.

We also note here the Fire Safety and Evacuation of Buildings Regulations 1992. These Regulations were revoked when the 2006 FESB Regulations were made. Nevertheless, they still apply where a building's evacuation scheme was approved under the 1992 Regulations and the scheme is still being maintained.

### **Wider legislation**

A FPANZ Evacuation Consultant's knowledge must extend to a wider range of laws, regulations, and codes (such as the Building Code 2004, especially s35), the Hazardous Substances and Noxious Organisms Act 2000; Sale of Liquor Act; and the Ministry of Education's licensing regulations for childcare. The licensing requirements of various ministries (such as the Ministry of Education or the Ministry of Health) require an approved evacuation scheme as one of the conditions to issue a licence.

The Health and Safety in Employment Act 1992 is worthy of separate mention. Section 6 of this Act requires that employers take all practicable steps to ensure the safety of employees while at work. In particular, section 6(e) requires that employers develop processes to deal with emergencies that may happen while employees are at work. You have an important role in helping employers comply with this legislative requirement, at least in respect of fire emergencies.

(For more details on the legislation noted in this section, see Appendix 3 of this Code of Practice. Appendix 3 has selected regulations from the FESB Regulations 2006.)

## **What other guidance supports development of evacuation schemes?**

Every FPANZ evacuation consultant should be aware of the New Zealand Construction Industry Council's 2004 Design Documentation Guidelines. The guidelines recommend the involvement of a FPANZ Fire Evacuation Consultant in the design concept phase. Fire evacuation consultants can provide advice about how the active and passive systems will interact with building occupants to allow safe evacuation.

Every FPANZ evacuation consultant should also be aware of the International Fire Engineering Guidelines. Chapter 1.8 of these guidelines discusses occupant evacuation and control in detail. When consulting on a building, you must get a copy of the fire engineering design report to understand the intent of the designer.

(For more details on the guidelines noted in this section, see Appendix 5 of this Code of Practice. Appendix 5 has notes on the International Fire Engineering Guidelines.)

## Part C: Developing the Fire Evacuation Scheme

Every FPANZ Evacuation Consultant must follow a process to develop a fire evacuation Procedure or scheme specific to a particular building, its occupants, its use, and its location.

These requirements are discussed in detail in this part of this Code. For a step-by-step process, see the flowchart following.

flwochart

## What are the steps in developing the scheme and applying for approval?

You can develop a Fire Evacuation Scheme in nine steps:

1. Review the regulations.
2. Write the Fire Evacuation Scheme, remembering to:
  - tailor the scheme to your client and their particular building
  - plan for contingencies (such as a university using a marquee tent for an event attended by more than 100 people; or if a fully tenanted building is only partially tenanted during the scheme's lifetime)
  - consider people with disabilities (remembering that the definition of 'disabled' in the legislation is broad)
  - identify the location of hand-operated fire-fighting equipment (see appendix 6).
3. Do the paperwork for the scheme and application to NZFS.
4. Send the draft Fire Evacuation Scheme and draft application to your client for approval. This may include your proposal to do other work after implementation, such as:
  - running trial evacuations or training programmes at least every 6 months
  - providing wardens' vests, signage, and so on
  - training wardens.
5. Finalise copies of the Fire Evacuation Manual and complete the Fire Evacuation Scheme application if required.
6. Submit the Fire Evacuation Scheme application to the NZFS for approval, and send your client a copy.
7. Send your client a copy of the approval letter, once received from the NZFS.
8. Organise training and the first trial evacuation, including the first means of escape inspection.
9. Write a report and give it to your client (the report will list items the client needs to rectify, offer suggestions and recommendations, and note points of interest).

For points to consider when creating a Fire Evacuation Scheme, see the section entitled *Develop the Fire Evacuation Scheme* following.

The NZFS provides a detailed guide to making a Fire Evacuation Scheme application and a range of frequently asked questions online.

## What are the building levels?

For the purposes of this Code, four levels of building have been defined. These range from the simplest to the most complex (e.g. a hospital, a rest home, a multi-level hotel, or a shopping centre). As a FPANZ Fire Evacuation Consultant, you might work on any or all of these four categories of building type.

However, the levels are linked closely to a FPANZ Fire Evacuation Consultant's level of competency. You will only work on a particular level of building if you are deemed competent to do so.

The building levels and what they mean are set out in the table below.

| Building level | Applies to buildings with:  |
|----------------|---|
| Level 1        | <ul style="list-style-type: none"><li>• occupant loads of up to 100 people, and</li><li>• a 'one out–all out' philosophy</li><li>• excludes buildings containing occupants who are disabled, detained, aged, injured or are children (such as rest homes and hospitals)</li></ul> |
| Level 2        | <ul style="list-style-type: none"><li>• occupant loads of 101–450 people, and</li><li>• a 'one out–all out' philosophy.</li></ul>   |
| Level 3        | <ul style="list-style-type: none"><li>• occupant loads over 450 people, or</li><li>• a staged evacuation to a place of safety within the building</li></ul>   |
| Level 4        | <ul style="list-style-type: none"><li>• a staged evacuation to a place of safety within the building</li><li>• situation-specific voice announcements being used (along with standard voice messages) during evacuation.</li></ul>  |

## Development process

Follow this process in developing the scheme.

### Assess the building

You can assess a building using the following steps:

1. Send an authorised agent form to your client for their signature, so they can authorise you to act on their behalf.
2. Talk to your client. Ask about their business, their building occupants and tenant activities.
3. Ask for contacts in the building and make appointments with key building occupants (as determined by your client).
4. Do a site walk through, focusing on issues to do with design, occupancy, and hazards. Get answers to these types of question.
  - (a) How many building occupants are there?
  - (b) What fire protection systems does the building have?
  - (c) What fire warning systems does the building have?
  - (d) How many people will be covered by the scheme?
  - (e) Do building activities align with the regulations?
  - (f) What fire instruction signs will be required?
  - (g) What hours is the building open to the public?

These and other questions are covered in more detail below.



5. Record your findings so that you can develop the Fire Evacuation Scheme.

In assessing the building, you will gather data about the building, such as design, occupancy, hazards, and site.

|           |   |
|-----------|---|
| Design    | <p>You will need to:</p> <ul style="list-style-type: none"><li>• consider the construction, height, layout, and other physical features of the building</li><li>• consider the flammability of construction materials, and the type and quantity of smoke likely to be produced if there is a fire</li><li>• look for design features that will reduce fire spread (such as fire-resistant partitions and doors), and those that may increase fire spread</li><li>• look for features (such as smoke-stop doors) that will aid evacuation in the event of a fire</li><li>• find out whether there are fire safe refuge points in the building</li><li>• note the number and location of exits from the building, and the number, location, and complexity of routes to those exits</li><li>• consider the adequacy and appropriateness of fire prevention, fire warning, and fire-fighting systems and equipment available in the building</li><li>• if there is a sprinkler system, find out whether the installation of the sprinkler system complies with a New Zealand standard, and note the standard.</li></ul> |
| Occupancy | <p>You will need to:</p> <ul style="list-style-type: none"><li>• note the number of people who live or work in the building, and the number of visitors who may be in the building for a shorter time</li><li>• calculate the peak number of people who may be in the building at one time</li><li>• note when people are likely to be in the building (operating hours), where in the building they are likely to be, and how those locations relate to exit points</li><li>• consider the characteristics of people likely to be in the building, including age, health, physical ability, knowledge of building layout and evacuation Procedure, and any special needs.</li></ul>  |
| Hazards   | <p>You will need to:</p> <ul style="list-style-type: none"><li>• note building and equipment use that may increase the risk of fire or that may provide hazards in the event of an evacuation</li><li>• look at areas where goods are stored, and where they are packed and unpacked, to see whether routes through the area are kept clear, and, if not, whether there are alternative routes</li><li>• note whether hazardous goods are stored anywhere in or near the building</li><li>• think about appliances that may be hazardous during an evacuation, particularly appliances that produce an open flame.</li></ul>  |
| Site      | <p>You will need to:</p> <ul style="list-style-type: none"><li>• examine the site to identify places where people can assemble safely after exiting the building</li><li>• note down hazards to avoid when planning exit routes and places of safety.</li></ul>   |

## Develop the Fire Evacuation Scheme

Once you have assessed the building, you need to develop the Fire Evacuation Scheme.

In developing the Fire Evacuation Scheme, you need to ensure the scheme is specific to the building and takes into account the factors you found in the building assessment. You must write your scheme so that a reader with no technical experience can understand it. As your scheme will instruct building occupants in the actions they must take during an evacuation, the scheme's structure must be logical and clear. So schemes will include statements that:

- all occupants are required to comply with the Fire Evacuation Scheme
- certain changes to the scheme require the NZFS be notified
- the building owner (or their representative) is responsible for maintaining the scheme.

When developing the Fire Evacuation Scheme you will include wide-ranging aspects such as training, fire-fighting equipment, means of warning, and places of safety. You will also identify who will be responsible for managing and maintaining the scheme.

Specifically, you will need to develop a Fire Evacuation Scheme that includes:

- safe and timely evacuation in the event of a fire (or suspected fire)
- appointment, identification, and duties of wardens
- training
- signs and notices
- fire-fighting equipment
- places of safety
- means of warning
- automatic sprinkler systems
- provision for persons with a disability
- management responsibilities
- maintenance of the scheme.

## Write the Fire Evacuation Manual

The Fire Evacuation Manual captures the details of the Fire Evacuation Scheme for that specific building.

|                 |   |
|-----------------|---|
| Evacuation plan | <p>The processes in an evacuation plan are part of the overall Fire Evacuation Scheme. In almost all cases, the evacuation plan will be for everyone to react to an audible warning signal by immediately making their way to a place of safety outside the building. You will need to plan and document safe exit routes (including alternative routes in case one is blocked), and calculate the number of routes required for all occupants to leave the building safely and efficiently.</p> <p>In larger buildings or building complexes, it may be appropriate to have a phased evacuation plan, where only those at immediate risk from the fire are evacuated. Those not at immediate risk can stay in location, but are warned to stand by for evacuation if necessary.</p> <p>In places where large numbers of the public may need to be evacuated without causing panic, the alarm may be given to selected staff (for example, by pagers or a coded audible signal), who can then start the evacuation.</p> |
|-----------------|---|

|                                   |  |
|-----------------------------------|--|
|                                   | <p>Where evacuation may present risks (such as in a hospital where people are on life-support systems), the evacuation plan may include a 'staged evacuation'. This requires the movement of occupants to a place of safety within the building. The NZFS will attempt to contain and extinguish the fire. If this is unsuccessful, building occupants will be evacuated to another place of safety or outside.</p>  |
| Wardens                           | <p>The Fire Evacuation Manual will set out the responsibilities of evacuation wardens, and what they will wear in a fire emergency so others can identify them. An evacuation warden is a person who works in the building and who is responsible for helping other people to reach a place of safety. You can call this role by another name; you do not need to use the word 'warden'. You need someone responsible for the entire building (the building warden), and one or more people responsible for each floor or area of the building.</p> <p>The manual will say how many wardens are needed, and state that each warden needs a deputy, to carry out the responsibilities if the warden is absent.</p> <p>Wardens will search their area or floor to ensure that the evacuation is complete. Only in exceptional circumstances will they use a head count or roll call instead of this check.</p> |
| Training                          | <p>See the separate section 'Train the building occupants' below this table.</p>   |
| Signs and notices                 | <p>The building must display notices that state how to raise an alarm if there is a fire, and what to do if an alarm is raised. Signs must be clear and unambiguous, and be positioned so that people can see them easily. Signs must be large enough and well enough lit that people can read them easily. In an accommodation building, you will need notices for the building occupants and notices for stairwells and other exit routes. This part of your scheme may also specify emergency exit signs and emergency lighting. Signs and notices are described in clause F8 of the Building Code.</p>   |
| Hand-held fire-fighting equipment | <p>Fire-fighting equipment includes hand-held fire extinguishers and hand-held hoses. Your plan needs to show the location of any fire-fighting equipment. The equipment should be clearly visible, and easy to reach. You will generally site equipment on an escape route or near to a known hazard such as machinery that produces an open flame. You should clarify which building occupants will be trained in the use of hand-held fire-fighting equipment and how they will be trained.</p>   |
| Places of safety                  | <p>A place of safety will generally be outside the building. It will be a place near the building where people can gather safely after escaping from a fire. Examples include a footpath, an open space, a public space, or an adjacent building.</p> <p>A building may only have a place of safety inside if it has an automatic sprinkler system. A place of safety inside should also have appropriate fire safety features, including at least two firecells.</p> <p>Safety from the fire is not the only consideration: the location and type of place of safety may vary according to the occupants of the building. For example, a place of safety for a childcare centre should take into account hazards to children such as traffic, and a place of safety for a prison includes preventing those evacuated from</p>   |

|                             |   |
|-----------------------------|---|
|                             | being a hazard to others.   |
| Means of warning            | <p>Your scheme must specify how people will be warned of a fire. This will almost always be a fire alarm system.</p> <p>A fire alarm system typically has detector heads, manual call points, and alerting devices wired to a control panel. The detector heads are designed to activate the alarm when they sense smoke, heat, carbon monoxide, or a combination of these triggers. The manual call points allow someone to manually activate the alarm (typically by breaking a glass cover and pressing a switch). The alerting devices may be bells, sirens, horns, loudspeakers, or other electronic noise makers. Visual alerting devices may also be present.</p> <p>Your scheme will specify the position of manual call points and any fire alarm mimic panels.</p> <p>Some alarm systems also automatically signal the NZFS when the alarm is activated. You will need to identify how a 111 call is to be made. This should include identifying the address of the building and any cross street.</p> <p>If the building is used by mass groups of public visitors and a staff alarm system will be used, specify how staff will be notified (such as by text message, personal pager, discreet sounders, a coded phrase on a public address system, or a combination of ways), and what steps need to be taken next. These steps will include a general public alarm after the staff have had time to start the evacuation.</p> |
| Automatic sprinkler systems | Your scheme will describe the automatic sprinkler system (if any) that operates in the building. In particular, it will note whether or not installation of the sprinkler system complies with the applicable New Zealand standard.   |

|   |  |
|---|--|
| Provision for persons with a disability | <p>Your scheme will:</p> <ul style="list-style-type: none"> <li>• specify where people can gather if they are prevented by a disability from using the usual exit route</li> <li>• list the equipment (such as evacuation chairs) that will be used to evacuate people from this gathering point</li> <li>• name the people who are, or who will, be trained in how to use this equipment.</li> </ul> <p>You may also develop (or help to develop) personal evacuation plans for people with disabilities, detailing what actions they need to take in the event of an emergency. Your scheme may also include the names of those who agree to be responsible for helping people with disabilities, if those people are not otherwise named.</p> |
| Management responsibilities             | <p>Your scheme will state who is responsible for:</p> <ul style="list-style-type: none"> <li>• appointing and training wardens</li> <li>• managing trial evacuations</li> <li>• monitoring escape routes to ensure they remain clear and easy to use</li> <li>• monitoring access to fire-fighting equipment and other components of the building's fire safety precautions</li> <li>• ensuring the safe use of appliances and the control of open flame</li> <li>• monitoring the packing and unpacking of goods, and the storage of goods and materials to ensure that no hazard is created.</li> </ul>  |
| Maintenance of the scheme               | <p>Your scheme will include:</p> <ul style="list-style-type: none"> <li>• reasons for updating the scheme (such as changes in occupancy or building changes)</li> <li>• a timetable for regular reviews of the scheme</li> <li>• the name or role of the person who will initiate scheme updates</li> <li>• how to document scheme changes (see the section entitled <i>Maintain the Scheme</i> following).</li> </ul>   |

## Apply for NZFS approval

The application document for NZFS approval is no more than a summary of the building Fire Evacuation Scheme. The NZFS requires the Fire Evacuation Scheme be described within the framework of the application. This means you must adapt the Fire Evacuation Scheme to suit the questions asked in the application form.

The NZFS has a national evacuation scheme processing team. The NZFS has developed a Fire Evacuation Scheme website, guidance documentation, and relevant application forms. Application for approval of a Fire Evacuation Scheme can be done online. The *NZFS Guide to Evacuation Schemes* (Guide) explains how to answer the questions listed in the application form. You can submit this form online at [evaonline.fire.org.nz](http://evaonline.fire.org.nz) or post it to the address noted in the Guide.

The NZFS has 20 working days to make a decision on your submitted application, unless its processing team needs more information. If the NZFS does not approve an application, it will provide a list of the changes you must make to your scheme application. You have 20 working days from the date the application is returned to you to submit your amended scheme.

## Put the Fire Evacuation Scheme into operation

Once your Evacuation Scheme is approved, you need to carry it out. Your role may see you:

- develop and post signage
- train people who have particular responsibilities during an evacuation, such as floor and building wardens
- manage trial evacuations, including reports to the NZFS before and after a trial evacuation
- provide equipment such as tally boards.

## Train the building occupants

In training the building occupants, you will focus on two types of training:

1. Training of those who will manage the evacuation Procedure so that they understand their responsibilities, and know what they are expected to do if there is a fire. Your scheme will specify the type, duration, and content of training.
2. Trial evacuations or evacuation training so that all regular occupants know what to do if they discover a fire, how to make a '111' call, and how to evacuate the building during normal business hours and outside normal business hours. Under the FSEB Regulations, evacuations or evacuation training sessions must be held at least every six months. If your scheme includes trial evacuations, it must state what needs to be done before, during, and after each trial.

## Maintain the Fire Evacuation Scheme

Most buildings are not new buildings. Generally your role will be to assist the owner to maintain an existing scheme, updating it when there are changes to the building or its occupancy, and resubmitting it as required by legislation. Follow these steps:

1. Visit the site and arrange for any changes required to make it fire evacuation ready.
2. Run through the new scheme with occupants (including identifying wardens) and make sure everyone understands it.
3. Provide warden vests, signage, and so on.
4. Warn the building owner that you will check on fire evacuation preparation.
5. Return to make that check.
6. Train wardens.
7. Run the trial evacuation.
8. Report on the trial evacuation to the building occupants, the building owner, and the NZFS.
9. Make any changes and undertake any training required before the next trial.

Your implementation of the steps above will depend on your arrangement with your client.

The FSEB Regulations requires that NZFS is informed about certain changes in writing, such as:

- substantial modification to means of escape
- extensions to the life of the building
- changes to the occupancy type.

## Guidelines: What factors should you consider as a FPANZ Fire Evacuation Consultant?

In this section we list eight factors you should consider when working as a FPANZ Evacuation Consultant. The eight factors are a guide, not an exhaustive list. As you read this section of the Code, you may think of other factors you need to consider in your role. No doubt you will have your own lessons learned from your day-to-day work.

The eight factors are:

1. Varied workload
2. People
3. Communication
4. Legislative interpretation
5. The application and approval process
6. Voluntary schemes
7. On-site inspection
8. Training.

### Factor 1: Varied workload

Be flexible in your approach to your work.

Whether you work as a FPANZ Evacuation Consultant for a small or large fire evacuation company, you will find no two days are the same. Your day may start out at a site and end at your office writing a report, or it may start with fire evacuation training and end with a fire drill. Or you may spend several days travelling to different client sites.

A new client may come to you by word of mouth or from your website. They may have considered fire evacuation of their building in detail or contacted you as an afterthought.

You may be writing a new scheme for a new building. Ideally the client would know they need to involve a FPANZ Evacuation Consultant from the start. If they do, look carefully at the building purpose so that you can give your client a workable process that carries on past when occupation of the building starts. Or you may be writing up a new scheme for an existing building or reviewing an old scheme (originally developed under previous regulations). Also, you may work on any building type—from level 1 to level 4. You need to know your buildings well and the various classes of fire.

So you must know what you do in your role and what your client expects you to do as their FPANZ Evacuation Consultant.

Be accountable, not just responsible, for your work.

In any work you do, you are responsible and accountable to your client. Your client is responsible for you while you work on their premises. Once your work is complete and the client has signed off on it, you remain responsible for the work you did, but the client becomes accountable for your work. They have signed off your work as done correctly and to the appropriate standard.

You have a duty of care to your client, and the details of how you can carry out this duty of care can be legally binding.

## Factor 2: People

Understand that people are vital to the process.

The most important factor in your job is the people you have to deal with. These may include your client (who may be a building owner or building occupant), members of the NZFS, architects, building occupants, and government department employees. So, despite what some others may think, always remember that the building is the servant of the people, not the other way around.

Make people feel comfortable with the information you give them.

Base your advice to a client on the person you are dealing with, their business type, and the building type. In a trial evacuation and when training, make building occupants believe the fire evacuation Procedure is easy. Make them feel relaxed so they will not panic when faced with a real fire. Remember to focus on how people respond in an emergency. Think about how people take in the information you give them.

Defuse any potential public backlash.

The nature of your work means that you deal with people at the coalface. And, legally, those people must sometimes comply with your requests. While some people will appreciate what you do and understand the implications of your work, others may be negative towards you. These people view you as an imposition—as taking time out of their busy day. One difficult aspect is getting building occupants to understand why they need to do a trial evacuation at least every 6 months. It can also take a bit of time to coordinate and accommodate the wishes of building occupants (such as the time or day they all agree on for a fire evacuation). You may need to do more than one fire evacuation (for example, if a computer centre and a call centre work at different times of the day in the same building). Be honest and direct in your dealings with the public. Try to defuse any heated discussion by turning statements into questions and getting the public involved, or by giving an example the public will understand.

Give the client value for money.

This Code is a code of practice. In your work as a FPANZ Evacuation Consultant, never cut corners. Always use best practice, be professional, and do your job well. Do not focus on 'money' at the exclusion of 'value'. Think of the work you provide your client (value) as having an inherent ethical component where you use concrete, acceptable standards of practice to do the best for your client. And there are intangible 'values' to your job—such as knowing you are contributing to the safety of the people in the building by seeing a safe evacuation.

Giving the client value for money is not separate from giving the client extra useful information they might need. You might make sure the client looks at other aspects of the exit process, such as those affecting occupational health and safety. For example, when checking the path from the exit point to an assembly point, the client might need to make sure paving slabs are level or trees are not overgrown.



## Factor 3: Communication

Use effective listening skills.

You will spend your day liaising between people and between people and organisations. Try to avoid a top-down approach. Know the legislation, but be an effective listener. Listen to what people—including building occupants—are telling you they need.

Communicate with building occupants in a quick and effective way.

You need to communicate with building occupants in a quick and effective way. This can be difficult in multi-tenanted buildings (such as a high rise) with complex needs. Consider a building with multiple businesses. Or a multi-purpose premises used for one type of business by day and another by night. How might you develop a Fire Evacuation Scheme for two types of businesses at different times of the day?

Be aware of building occupants in the building who speak English as a second language. How do you make these building occupants understand the need for regular drills and what to do in those drills? You might find it useful to draw a diagram or picture, or describe an action using hand gestures.

You need to make sure all wardens can communicate clearly with others. Wardens must make sure they answer questions about fire evacuation matters from building occupants clearly. If they do not know the answer, they need to seek out people who can make a decision. If there are none on site, they need to contact the NZFS. Also see Factor 8 on training below.

Communicate your approved scheme to the client so they understand what it means for them.

You need to do 6-monthly maintenance to keep the scheme approved. Some building owners want to get involved; others simply want the invoice for work done. Explain why trial fire evacuations are necessary. Then explain the wider issues. Let your client know exactly what these details mean for them—what actions they need to take. Once the client has signed the authority for you to act on their behalf and to continue maintaining the scheme for them, automatically diarise it into your system. Consider creating a database to catalogue your process and hold your forms. As long as the information is inputted correctly, you can ensure consistency. If you are using an online software program, consider giving your client monitored access to your system.

Keep in contact with your client. And always let them know if any action you intend to take will impact in any way on their daily business.

Communicate the legislation.

Always communicate details about legislation to your client clearly. Two times you might do this are (1) if you need to tell your client about a change in legislation, or (2) if you need to tell your client that they must comply with a section in existing legislation. Try extracting the relevant section from the legislation, inserting it in an email, and explaining what it means in practical terms for your client so they can understand it. Also see Factor 4 on legislative interpretation below.

Learn to prioritise and to think outside the box on client need.

We all learn from experience about what works in practice and what does not. As a matter of priority, always focus on the key things that need to be dealt with first. Then factor in things that might happen and think outside the box. Recognising in advance what might hinder a safe evacuation from a building will help your client and help with the trial evacuation. You might find that some aspect of building use (such as the on-site storage of dangerous goods) is specific to some clients and not to others, and requires special attention.

Your client may be a building owner who hires their building by the day for the use of others. In this case, how do you hold a trial fire evacuation and best advise your client about fire evacuation Procedures? Reporting processes must be considered for building visitors, including contractors working in the building.

## Factor 4: Legislative interpretation

Make the relevant legislation underpin your best practice.

Your degree of responsibility and accountability and that of your client is directly linked to the legislation that underpins what you both do and how you do it. The legislation and regulations aspire to dictate best practice, but a lack of breadth or consistency and interpretation in them can open the door to miscommunication. Specific buildings have requirements for more regular fire drills.

Avert difficulties in legislative interpretation.

Your client may find it hard to understand some terms and their meanings.

For example, consider the term 'evacuation scheme'. You know that a Fire Evacuation Scheme means the overall 'project' (from building inspections, to the fire action notice, to training and trial evacuation, and maintenance), and that a 'plan' is simply the processes (or steps you take) that are part of that scheme. Your client may confuse the two.

Or consider the terms 'place of safety' as distinct from 'safe place'. For example, in a hospital it would be impractical and potentially unsafe to evacuate patients or those working or visiting inside a hospital to a place of safety outside the hospital. So a 'place of safety' can be inside a hospital. A footpath outside a building might be viewed as a 'place of safety', but is it a safe place if you are evacuating children from a childcare facility?

Or consider the term 'means of escape' that used to mean the entire exit process, but now means separate points on the way out, taking into account fire separations and so on. And 'means of escape' has a different context if you are writing a Fire Evacuation Scheme for a prison. So you need to find innovative ways to interpret legislation so that your client knows what actions they need to take.

Keep your focus on the client.

You should help your client to finalise the process they are putting in place. No matter the circumstance and irrespective of legislation, your client is dependent on you coming up with a process (from a health and safety perspective) that will ensure they meet the needs of the people being evacuated from their building.

## Factor 5: The application and approval process

Know how to quote for a job so that it meets client need.

You might think that quoting for a job is the easiest part of your day as a FPANZ Evacuation Consultant, or it might be the hardest. You will include specific categories in your application, some set down by legislation. From first contact with a prospective client (or perhaps a current client with a new building), make sure you know exactly what your client wants. Walk through the building and do a detailed assessment. Raise any questions you might have and answer any questions your client may have. Get your client's approval to act on their behalf. Then fill out the application form accurately. Errors (such as an incorrect deposited plan (DP) number) can see your application being returned within the first 20 days, only to wait another 20 days for approval.

Make the application and approval process smoother.

The application document is no more than a form to the NZFS to approve the scheme, but it becomes the tool you need to use and put in place for your client. Essentially the application asks questions that you, being authorised to act on your client's behalf, need to answer before submitting the application for approval. Once the application is approved, you need to translate the questions and answers on the application into a practical document that tells the client what to do in an evacuation (the process) and how to ensure a successful evacuation (such as the correct use of fire-fighting equipment). To ensure a smoother process, you need to tailor the scheme to the client. Consider creating a modified version that relates specifically to the building, and write the scheme in such a way that your client understands it.

## Factor 6: Voluntary schemes

Make sure your client knows the difference between mandatory and voluntary.

Clearly explain the difference between scheme types. For example, if you need to get a building owner to understand why a Fire Evacuation Scheme is necessary, consider advising them to do some research of their own.

Make sure your client knows what they need to do under a voluntary scheme.

## Factor 7: On-site inspections

Understand your on-site inspection process.

Nothing compares to a walk-through of the client premises. Make sure your on-site inspection is thorough. Check the building in accordance with (1) any fire safety legislation, and (2) any building code legislation and regulations. Check for problem areas, such as exit sign placement, fire-fighting equipment, and fire doors. For example, make sure the fire doors are not wedged open.

Under the FESB Regulations, you are required to inform the NZFS of an impending trial evacuation. After a trial evacuation, the NZFS must be notified of the date and time the evacuation took place, how long it lasted (**see the form in Appendix 9**), and whether anyone

was hurt. Make sure your report to the client covers more than these basics. Extend to other items they need to know and make a set of recommendations. If necessary, offer to provide training. Essentially, you are providing a service to the client. It is about being aware, and making the client aware.

So before and after a trial evacuation, you will check the building's warrant of fitness and items such as exit doors, exit lights, and the means of escape. For example, does an exit door have a compliant or non-compliant lock? Some items may be impractical in buildings that are multi-storey and complex. So you need to know that responsible people in the building are carrying out such checks regularly. For example, get the client to confirm they check the emergency lighting weekly (even though the regulations do not require it). Try to make sure in the inspection process that the client cares as much about maintaining their building so the occupants stay safe, as they do about the building's bricks and mortar. Remind the owner that they are ultimately responsible and liable.

Know what are, and what are not, life threatening defects.

Divide defects into those that are not life threatening and those that are life threatening (such as alarms being linked in but not working). Tell the building owner about any life-threatening defects. You have a duty to notify and to explain what you found.

Under the legislation, you are obliged to tell the council of any defects you find. But in practice, unless the defect you find is life threatening, you might just tell the building owner.

Give the building owner a checklist that shows clearly what is satisfactory and what is not. Give a set of recommendations that sets out how the building owner can improve what they do—actions they might take to exceed minimum requirements.

Be careful to only provide services in areas where you are competent.

## Factor 8: Training

Train wardens well.

Your client might have opted for you to do regular training. Always use best practice. Pitch your training at the person in the building who is least likely to understand it.

Train building wardens well. Have them think of you as members of the NZFS arriving on scene, and ask them to tell you what they would say and do. Train wardens on the simple things, not just the complex. For example, make sure they know what the alarm sounds like and its sound level. If possible bring in a model fire; but, regardless, train wardens on how to identify what is burning in the building—to look for smoke not just fire. Tell them the definition of 'means of escape' and give them a typical scenario as an example. Walk them through the scenario, and 'talk in pictures'. Talk to them about the dynamics of a crowd and about basic crowd control.

Give wardens the skills they need to think about how people will react in a fire. Giving them this extra practical information improves their sense of accountability. As a FPANZ Fire Evacuation Consultant you are customer focused, and you need to instil in the wardens the idea that the building occupants come first. Wardens must be capable—in almost any circumstance—of doing their job once training ends.

Remind wardens that the wardens' form can become Crown evidence in court. So give them tips on how to avoid problems with the building's occupants. Train wardens about where their responsibilities start and end and where the individual responsibilities of building occupants start. For example, when training wardens about assembly points, give them techniques to make building occupants stay at the assembly point and not wander off, say, for a coffee or to shop. Always give wardens the opportunity to ask you questions.

Once you have finished a trial evacuation, debrief everyone (including the wardens) and get everyone to offer their comments. Remember to give your client a comprehensive report.

Our industry has people that work at critical steps in ensuring the health and safety of people and buildings. Evacuation consultants are there to teach something that building owners, wardens, and other occupants will inevitably forget straight away but need to remember when a real fire happens. How they remember a topic is about how you train them in that topic. Use any method you know that works and that will quickly and effectively trigger recall.

## Part D: Appendices

In Part D we provide a set of appendices. These appendices focus on terms, legislation, standards, codes, and guidelines you should be familiar with as a FPANZ Evacuation Consultant. The appendices also include references and Web-links so you can see related materials or learn more about what you need to know to do your job.

### Appendix 1: Acronyms and abbreviations

| Acronym          | Written in full  |
|------------------|--|
| BAR              | Building (Building Code: Fire Safety and Signs) Amendment Regulations 2012 |
| BWOF             | Building Warrant of Fitness  |
| CT               | Certificate of Title   |
| DP               | Deposited Plan   |
| EPA              | Environmental Protection Agency  |
| FSEB Regulations | Fire Safety and Evacuation of Buildings Regulations 2006                   |
| FPANZ            | Fire Protection Association of New Zealand                                 |
| HSNO Act         | Hazardous Substances and Noxious Organisms Act 1996                        |
| IFEG             | International Fire Engineering Guidelines 2005                             |
| IQP              | Independently Qualified Person   |
| NZFS             | New Zealand Fire Service   |

## Appendix 2: Glossary

For the purposes of this Code of Practice, the words and phrases in the table below are deemed to have the meanings noted next to them. Where possible, these meanings reflect the meanings used in the appropriate legislation. Included are other glossary terms that you should know and understand.

| Glossary word or phrase       | Meaning<br>(Definitions that start with a † are legal definitions)  |
|-------------------------------|---|
| authorised applicant          | A person who the building owner has authorised in writing can apply on their behalf. A Fire Service 'Authorised applicant' form is at <a href="http://evaonline.fire.org.nz">evaonline.fire.org.nz</a>  |
| automatic fire alarm standard | NZ Standard NZS4512:2010  |
| automatic sprinkler system    | <p>† A system that—</p> <p>(1) (a) satisfies s105 and s108 of the Building Act 2004 (in relation to the sprinkler system); and (b) is appropriate to the use and occupancy of the building; and (c) complies with subclause (2)</p> <p>(2) complies, at the time that it was installed, with one of the following standards:</p> <p style="padding-left: 40px;">(a) <i>NZS 4541:2007—Automatic fire sprinkler systems</i></p> <p style="padding-left: 40px;">(b) <i>NZS 4515:2003—Fire sprinkler systems for residential occupancies</i></p> <p style="padding-left: 40px;">(c) <i>NZS 4517:2002—Fire sprinkler systems for houses.</i></p> <p style="text-align: right;"><i>[Regulation 16; and 21B(4) of the Act]</i></p>   |
| Building                      | † has the meaning given by the Building Act 2004.   |
| Building Code                 | † has the meaning given by s7 of the Building Act 2004  |
| building event                | <p>A building with an approved evacuation scheme that has any of these changes to the building:</p> <p>(a) where building work is carried out on a building under s112 of the Building Act 2004 that results in its escape route from fire being significantly affected</p> <p>(b) where the escape route from a fire in the building needs to be changed under s107 of the Building Act 2004</p> <p>(c) where the building has a specified intended life under s7 of the Building Act 2004, or its life is extended under s116 of the Building Act 2004</p> <p>(d) where the building's occupancy is changed to the extent that their escape route from fire becomes inadequate</p> <p>(e) where the building no longer needs to have a Fire Evacuation Scheme (for example, if the building is demolished or is no longer used for a purpose as set out in s21A(1)(a) to (h) of the Building Act 2004.</p> <p style="text-align: right;"><i>[clause 8 of Schedule 3 of the Regulations]</i></p> |
| Building Warrant of Fitness   | <p>A statement from the building owner that says all compliance schedule requirements have been fully met in the previous 12 months and that the specified systems will continue to perform as required.</p> <p style="text-align: right;"><i>[Sections 2 and 21B(4) of the Act]</i></p>  |
| building owner                | <p>† in relation to the building, means:</p> <p>(a) the person who is entitled to receive the rack rent for the building; or</p> <p>(b) the person who would be entitled to receive the rack rent for the building if the building were let at a rack rent.</p> <p>† in relation to a building with a unit plan within the meaning of s2 of the Unit</p>  |

| Glossary word or phrase        | Meaning<br>(Definitions that start with a † are legal definitions)   |
|--------------------------------|--|
|                                | Titles Act 1972 that has been deposited, means the body corporate.<br><i>[Regulation 3; and sections 2 and 21B(4) of the Act]</i>  |
| Certificate of Title reference | The reference for a title to land is an 'identifier' that looks like '345678' on more recent titles. On older titles it looks like 'WN345/678'. It may also be called the Certificate of Title Number or CT Number.  |
| Code Compliance Certificate    | A certificate issued by the building consent authority that confirms it is satisfied all building work done under a building consent complies with that consent.   |
| compliance schedule            | A schedule issued by the building consent authority to the building owner that lists specified systems (as defined in the Building Act 2004) and the maintenance, inspection and reporting processes for those specified systems.  |
| evacuation Procedure           | Specified actions that are in place for the safe, prompt and efficient evacuation of the building's occupants in the event of a fire emergency where those in the building must evacuate to a place of safety.<br><i>[Regulation 6(1)]</i>   |
| Evacuation Scheme              | In general terms, a Fire Evacuation Scheme is a plan or arrangement for the safe movement of people from a building in the event of a fire or other incident.<br>† means a Fire Evacuation Scheme:<br>(a) that is required under section 21B of the Fire Service Act; and<br>(b) that complies with Part 2 of the Regulations.<br><i>[Regulation 3(1)]</i>   |
| evacuation time                | Time interval between the time of warning of a fire being transmitted to the building occupants and the time when occupants in a part or all of the building are able to enter a place of safety.  |
| evacuation training programme  | A training programme that demonstrates clearly how the permanent occupants in a building will manage in a fire emergency when all occupants must evacuate the building. The programme must include details of how the permanent occupants are trained and assessed in the use of fire-fighting equipment in the building, and the use of any emergency equipment in the building used to help persons with a disability evacuate the building. |
| evacuation types:              |  |
| All-out                        | On detection of a fire event, a building-wide alarm sounds and all occupants evacuate to a safe place externally   |
| Staged                         | On detection of a fire, building wardens are notified about the fire and start the approved Fire Evacuation Scheme to a place of safety located within the building. Wardens must locate the fire, move occupants in the immediate vicinity, isolate the fire by closing the adjacent door, and take other actions as required.  |
| final exits                    | The point at which an escape route ends by giving direct access to a safe place.<br><i>[s15(b)]</i>  |
| fire hazard                    | The danger of potential harm and degree of exposure arising from—<br>(a) the start and spread of fire; and<br>(b) the smoke and gases that are generated by the start and spread of fire.<br><i>[Building Act 2004, Subpart B—Interpretation]</i>  |



| Glossary word or phrase        | Meaning<br>(Definitions that start with a † are legal definitions)   |
|--------------------------------|--|
| fire separations               | Any building element which separates firecells or firecells and safe paths and provides a specific fire resistant rating.  |
| Fire Resistant Rating (FRR)    | <p>The term used to describe the minimum fire resistance required of primary and secondary elements as determined in the standard test for fire resistance, or in accordance with a specific calculation method verified by experimental data from standard fire resistance tests. It comprises three numbers giving the time in minutes for which each of the criteria structural adequacy, integrity and insulation are satisfied, and is presented always in that order.</p> <p>Examples of FRRs are:</p> <ul style="list-style-type: none"> <li>(a) 60/60/30 indicating structural adequacy 60 minutes, integrity 60 minutes, insulation 30 minutes.</li> <li>(b) 30/-/- indicating structural adequacy 30 minutes but no time requirement for integrity or insulation.</li> <li>(c) 60/30/x indicating structural adequacy of 60 minutes, integrity of 30 minutes, and a requirement for insulation.</li> </ul> |
| firecell                       | An enclosed space or cluster of spaces (including a group of contiguous spaces on the same or different levels in a building) that is separated from other spaces by a fire separation barrier (wall, roof, or floor). In this context, 'floor' includes ground floors and floors with an underside exposed to the external environment (such as when cantilevered).   |
| hazardous substance            | <p>† Any hazardous substance as defined in s2 of the HSNO Act; and any infectious or radioactive substance that may impair human, animal, or plant health.</p> <p style="text-align: right;"><i>[section 2(1) of the Act]</i></p>  |
| household unit                 | <p>(a) a building or group of buildings, or part of a building or group of buildings, that is—</p> <ul style="list-style-type: none"> <li>(i) used, or intended to be used, only or mainly for residential purposes; and</li> <li>(ii) occupied, or intended to be occupied, exclusively as the home or residence of not more than 1 household;</li> </ul> <p>but</p> <p>(b) does not include a hostel, boarding house, or other specialised accommodation. <span style="float: right;"><i>[Building Act 2004, Subpart B—Interpretation]</i></span></p>  |
| Independently Qualified Person | Independently Qualified Persons are those persons recognised under transitional arrangements of the Building Act to undertake the inspection, maintenance and reporting of a specified system [as listed on a compliance schedule]   |
| means of escape from fire      | <p>† in relation a building that has a floor area:</p> <ul style="list-style-type: none"> <li>(a) means continuous, unobstructed routes of travel from any part of the floor area of that building to a place of safety; and</li> <li>(b) includes all the active and passive protection features required to warn people of fire, and to assist in protecting people from the effects of fire in the course of their escape. <span style="float: right;"><i>[section 2(1) of the Act] [also in BAR]</i></span></li> </ul>   |
| multi-storey building          | A building with more than one floor, including floors underground. A building with a basement and a ground floor is considered to be a multi-storey building.  |

| Glossary word or phrase  | Meaning<br>(Definitions that start with a † are legal definitions)   |
|--------------------------|--|
| occupant                 | † in relation to a building, includes any person lawfully entitled to be in the building (for example, a visitor).<br><i>[Regulation 3(1)]</i>   |
| owner                    | See building owner in this Glossary.   |
| permanent occupant       | †, in relation to a building, means a person, who:<br>(a) has a place of work in the building; or<br>(b) lives in the building.<br><i>[clause 5(3) of Schedule 3 of the Regulations, and section 2(1) of the Act]</i>  |
| person with a disability | † (a) a person:<br>(i) 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:<br>(A) a physical, sensory, neurological, or intellectual impairment<br>(B) a mental illness; and<br>(ii) who is unable to sense or understand a fire alarm or leave a building, during a fire emergency, in a way that a person without the same disability would be capable of doing; and<br>(b) includes any person who considers that he or she would be unable to leave a building during a fire emergency by using its means of escape from fire.<br><i>[Regulation 3(1)]</i> |
| place of safety          | Either—<br>(a) a safe place; or<br>(b) a place that is inside a building and meets the following requirements:<br>(i) the place is constructed with fire separations that have fire resistance sufficient to withstand burnout at the point of the fire source<br>(ii) the place is in a building that is protected by an automatic fire sprinkler system that complies with NZS 4541 or NZS 4515 as appropriate to the building's use<br>(iii) the place is designed to accommodate the intended number of persons<br>(iv) the place is provided with sufficient means of escape to enable the intended number of persons to escape to a safe place that is outside a building.   |
| place of safety outside  | A place outside and clear of the building, and any driveways or roadways, where all occupants can be counted.  |
| required application     | An application required under s21B of the Act.   |
| safe place               | A place of safety within the vicinity of a single building, from which people may safely disperse after escaping the effects of fire. It may be a place such as a street, open space, public space or adjacent building.   |
| sprinkler system         | A fire detection, alarm and control system installed in a building that can detect and control a fire automatically. The sprinkler operates when the heat from a developing fire raises the temperature of the sprinkler head to a preset level that sets off its alarms to warn occupants in the building about the fire.   |

| Glossary word or phrase  | Meaning<br>(Definitions that start with a † are legal definitions)  |
|--------------------------|---|
| trial evacuation         | An evacuation drill that is carried out when there are no signs of fire, to evaluate the effectiveness of evacuation Procedures.  |
| usual hours of operation | The times when the building is occupied under normal circumstances, including normal working hours, shift hours, overtime hours, after hours, and use in the evenings or on weekends. |
| voluntary application    | An application under s21H of the Act (for a building that is not a relevant building).  |
| warden                   | A person who has specific responsibilities during an evacuation of a building in a fire emergency.  |

## Appendix 3: Legislation and regulations

The laws of New Zealand govern what we do. A law (or statute) starts out as a bill and needs to pass through various stages (first reading, select committee reading, second reading, committee of the whole House, third reading, and Royal Assent) to see if it will become an Act of Parliament. A regulation is made under powers delegated by Parliament when passing legislation. While Parliament is not involved in making a regulation, it does have the power (through the Regulations Review Committee) to scrutinise and veto any proposed regulation.

As a FPANZ Evacuation Consultant, you should know of and understand the sections in any legislation or regulation that are relevant to your job. Below we describe the content of selected legislation and regulations.

### **Selected regulations in the Fire Safety and Evacuation of Buildings Regulations 2006**

To show the types of building you might work in, we list the buildings to which Part 1 of the FSEB Regulations apply (as set out in its Schedule) — also look at s21A of the Fire Service Act 1975. These are:

- (a) land, sea, and air passenger transport terminals and facilities and interchanges, whether wholly on land or otherwise
- (b) public toilets wherever situated
- (c) banks
- (d) childcare centres and kindergartens
- (e) daycare centres and facilities
- (f) commercial buildings and premises for business and professional purposes, including computer centres
- (g) central, regional, and local government offices and facilities
- (h) courthouses
- (i) police stations
- (j) hotels, motels, hostels, halls of residence, holiday cabins, groups of pensioner flats, boarding houses, guest houses, and other premises providing accommodation for the public
- (k) hospitals, whether public or private, and rest homes
- (l) medical and dental surgeries, and medical and paramedical and other primary healthcare centres
- (m) educational institutions, including public and private primary, intermediate, and secondary schools, universities, polytechnics, and other tertiary institutions
- (n) libraries, museums, art galleries, and other cultural institutions
- (o) churches, chapels, and other places of public worship
- (p) places of assembly, including auditoriums, theatres, cinemas, halls, sports stadiums, conference facilities, clubrooms, recreation centres, and swimming baths
- (q) shops, shopping centres, and shopping malls
- (r) restaurants, bars, cafeterias, and catering facilities
- (s) showrooms and auction rooms
- (t) public laundries
- (u) petrol and service stations
- (v) funeral parlours
- (w) television and radio stations
- (x) car parks, parking buildings, and parking facilities
- (y) factories and industrial buildings where more than 10 persons are employed

- (z) other buildings, premises, or facilities to which the public are admitted, whether for free or on payment of a charge.

Buildings must meet the specified fire safety requirements set out in Part 1 of the Regulations, including:

- Regulation 4—requires a building owner to maintain all escape routes (including keeping them clear of obstacles and not using them for storage).
- Regulation 5—requires that flammable materials be stored away from any escape route.
- Regulations 6 to 8—requires that owners or building occupants implement and maintain evacuation Procedures for the safe and prompt evacuation of occupants in any fire emergency requiring evacuation (including how occupants will evacuate, what process they will follow, and how some occupants will be trained to help in any evacuations).
- Regulation 9—focuses on the fire prevention precautions for electrical and gas appliances, and appliances fuelled by flammable liquids.
- Regulation 10—focuses on how and where open flames can be used.
- Regulation 11—focuses on how certain flammable goods must be packed and unpacked.
- Regulation 12—focuses on how materials that may create a fire hazard are stored, and how they are controlled to minimise ignition and fire spread.
- Regulation 13—focuses on where fire-fighting equipment is kept for use by the building occupants, and how it is maintained.
- Regulation 14—focuses on the offences for any breach of any regulation under Part 1.

Evacuation schemes for buildings must meet the requirements set out in Part 2 of the Regulations (and as described in section 21A(1) of the Fire Service Act), including:

- Regulation 15—focuses on the minimum amounts of hazardous substances (as set out in Schedule 2 to the Regulations) (cross-referenced to s21A(1)(d) of the Fire Service Act).
- Regulation 16—sets down the requirements for automatic sprinkler systems (cross-referenced to s21B of the Fire Service Act).
- Regulations 17 to 19—focuses on general matters to be included in evacuation schemes, including reference to the requirements set out in Schedule 3 to the Regulations.
- Regulations 20 to 22—focuses on applications to approve evacuation schemes for new and existing buildings, and also on voluntary applications.
- Regulation 23—focuses on the process to approve or extend evacuation schemes (including time frames), and the notifications the NZFS must give where a Fire Evacuation Scheme is not approved.

#### **Compliance schedules in sections 100–107 of the Building Act 2004**

Sections 100–107 of the Building Act 2004 cover compliance schedules. Section 103 requires that all specified systems have details about inspections, maintenance, and reporting.

The schedule includes:

- automatic sprinkler systems or systems of automatic protection (1), including automatic protection gas/foam (2.1)
- emergency warning systems for fire or other dangers (2.1), and automatic gas detection (2.2)
- automatic doors (3.1), access-controlled doors (3.2), and interfaced fire/smoke doors/windows (3.3)
- emergency lighting systems (4)
- pressurisation systems (Escape Route, lift shaft) (5)
- riser mains for fire service use (6)

- any automatic back-flow prevention connected to a potable water supply (7)
- a lift that carries passengers (8.1), a service lift (8.2), and escalators and moving walkways (8.3)
- mechanical ventilation and air conditioning systems (9)
- building maintenance units that provide access to the exterior and interior walls of buildings (9.10)
- fume cupboards (11)
- audio loops or other listening systems (12.1), and FM radio frequency/infrared systems (12.2)
- smoke control systems (13), including mechanical (13.1), natural smoke control (13.2), and smoke curtains (13.3)
- emergency power/signs systems for, or signs relating to, a system or feature specified in any of clauses 1 to 13 (14), including an emergency power system (14.1) and signs (14.2)
- other fire systems (means of escape) (15), including (a) communication for evacuation, (b) final exits (as defined by clause A2 of the Building Code), (c) fire separations, (d) signs for communicating information intended to facilitate evacuation; and (e) smoke separations.

For more advice about section 175, see the compliance schedule handbook issued by the Department of Building and Housing (part of the Ministry of Business, Innovation and Employment as at 1 July 2012).

### Links

Below (with Web-links) are legislation and regulations relevant to being a FPANZ Fire Evacuation Consultant.

- Building Act 2004: [www.legislation.govt.nz/act/public/2004/0072/latest/DLM306036.html](http://www.legislation.govt.nz/act/public/2004/0072/latest/DLM306036.html)
- Building (Specified Systems, Change of Use, and Earthquake-Prone buildings) Regulations 2005: [www.legislation.govt.nz/regulation/public/2005/0032/latest/DLM313966.html](http://www.legislation.govt.nz/regulation/public/2005/0032/latest/DLM313966.html)
- Fire Safety and Evacuation of Buildings Regulations 2006: [www.legislation.govt.nz/regulation/public/2006/0123/latest/DLM382016.html](http://www.legislation.govt.nz/regulation/public/2006/0123/latest/DLM382016.html)
- Fire Service 1975: [www.legislation.govt.nz/act/public/1975/0042/latest/DLM432648.html](http://www.legislation.govt.nz/act/public/1975/0042/latest/DLM432648.html)
- Hazardous Substances and New Organisms Amendment Act 2000: [www.legislation.govt.nz/act/public/2000/0089/latest/DLM79501.html](http://www.legislation.govt.nz/act/public/2000/0089/latest/DLM79501.html)
- Health and Safety in Employment Act 1992: [www.legislation.govt.nz/act/public/1992/0096/latest/DLM278829.html](http://www.legislation.govt.nz/act/public/1992/0096/latest/DLM278829.html)

To show the depth and range of what you need to know and understand, consider liquor licensing laws, regulations for childcare (Ministry of Education), or regulations for prisons (Ministry of Corrections).

## Appendix 4: Standards and codes

All fire evacuation consultants should be familiar with the standards and codes that guide what they do. We list below those that are relevant to the role of a FPANZ Fire Evacuation Consultant. Web-links are included if available.

### **Standards**

NZS 4512: Fire Detection and Alarm Systems in Buildings

NZS 4541: Automatic Fire Sprinkler Systems

NZS 4515: Automatic Fire Sprinkler Systems for Residential Occupancies

NZS 4503: Hand operated fire fighting Equipment

### **Codes**

New Zealand Building Code

## Appendix 5: Guidelines

### **International Fire Engineering Guidelines: 2005, ISBN 1741 614 562**

The International Fire Engineering Guidelines (IFEG) 2005 is used in New Zealand, Australia, Canada and the United States. Each country has a Part 0 that is specific to them, while Parts 1 to 3 are common to all countries. Part 1 describes the Fire Engineering Brief that could result from the stakeholders' meeting.

Of particular interest to FPANZ Evacuation Consultants are building characteristics such as location, size, shape, structure, management, use, environment, and value. Also of interest are occupant characteristics such as distribution, state, physical attributes, mental attributes, level of assistance required, level of assistance available, emergency training, occupant roles, and building familiarity. Of further importance to evacuation consultants are building hazards such as hazardous materials or processes, unusual exit routes, unsafe practices, ignition sources, and fuel sources.

Chapter 1.8 of the IFEG sets out the 4-stage process of evacuating occupants from a building: (1) from fire initiation to occurrence of cues; (2) recognition of cues; (3) initiation of movement; and (4) the completion of movement and arrival at a safe place. These stages are all quantifiable, with input from evacuation consultants and the fire engineer.

### **Design Documentation Guidelines: New Zealand Construction Industry Council (NZCIC) 2004**

The New Zealand Construction Industry Council's 2004 Design Documentation Guidelines came about after researching global best practice in the construction industry, and consulting with and testing the guidelines with those working in the industry. The guidelines recommend involving a FPANZ Fire Evacuation Consultant in the design concept phase. Fire evacuation consultants can help determine how any active and passive systems will interact so occupants can safely evacuate a building.



## Appendix 6: Hand-operated fire-fighting equipment

Fire is divided into six classes (lettered A to F) for the purpose of effective fire-fighting:

1. Class A—wood, paper, and plastics
2. Class B—flammable liquids (such as petrol, diesel, and oil)
3. Class C—flammable gases
4. Class D—combustible metals (for example, like those producing a magnesium fire)
5. Class E—electrical fires
6. Class F—fires involving cooking oils and fats.

### What is the best extinguisher to use on the six classes of fire?

Some extinguishers are more suitable than others for putting out the different classes of fires. The table below lists preferred extinguishants for given risks. Material Safety Data Sheets may provide extra detail.

| Risk                |  | Preferred extinguishant  |
|---------------------|--|--|
| Class or capability | Perceived  | (not in order of preference)   |
| A                   | Clothing fire—a fire in the clothes being worn by a person | Water<br>Fire blanket  |
| A                   | Small carbonaceous solids fire                             | Water<br>Foam<br>ABE powder<br>Wet chemical<br>Vaporising liquid<br>Carbon dioxide (limited)           |
| A                   | Large carbonaceous solids fire                             | Water<br>Foam<br>ABE powder  |
| B                   | Petroleum-based liquid                                     | BE and ABE powder<br>Foam<br>Vaporising liquid (limited)<br>Carbon dioxide (limited)                   |
| B                   | Polar solvents   | BE and ABE powder<br>Alcohol-resistant foam<br>Vaporising liquid (limited)<br>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<br>Carbon dioxide<br>Vaporising liquid   |
| F                   | Cooking oils and fats fires                                | Wet chemical<br>BE powder<br>Fire blanket<br>Foam (limited)  |

## Appendix 7: Hazardous substances

In the table below we list hazardous substances, their classification, and their threshold quantity.

| Property and state of substance | Classification  | Threshold quantity          |
|---------------------------------|---|-----------------------------|
| Explosive                       | 1.1A, 1.1B, 1.1C, 1.1D, 1.1E, 1.2B, 1.2C, 1.2D, 1.2E, 1.2F, 1.2G, 1.2H, 1.2I, 1.2J, 1.2K, or 1.2L | 5 kg                        |
|                                 | 1.3C, 1.3F, 1.3G, 1.3H, 1.3J, 1.3K, or 1.3L   | 10 kg                       |
|                                 | 1.4B, 1.4C, 1.4D, 1.4E, 1.4F, 1.4G, 1.4S, 1.5D, or 1.6N   | 20 kg                       |
| Flammable (gas)                 | 2.1.1A  | 30 kg or 20 m <sup>3</sup>  |
|                                 | 2.1.1B  | 100 kg or 60 m <sup>3</sup> |
|                                 | 2.1.2A  | 300 L                       |
| Flammable (liquid)              | 3.1A  | 10 L                        |
|                                 | 3.1B  | 100 L                       |
|                                 | 3.1C or 3.1D  | 1000 L                      |
|                                 | 3.2A, 3.2B, or 3.2C   | 10 L                        |
| Flammable (solid)               | 4.1.1A  | 10 kg                       |
|                                 | 4.1.1B  | 100 kg                      |
| Flammable (substance)           | 4.1.2A or 4.1.2B  | 5 kg or 5 L                 |
|                                 | 4.1.2C or 4.1.2D  | 10 kg or 10 L               |
|                                 | 4.1.2E, 4.1.2F, or 4.1.2G   | 20 kg or 20 L               |
| Flammable (solid)               | 4.1.3A, 4.1.3B, or 4.1.3C   | 10 kg                       |
| Flammable (substance)           | 4.2A  | 10 kg or 10 L               |
|                                 | 4.2B  | 100 kg or 100 L             |
|                                 | 4.2C  | 1000 kg or 1000 L           |
| Flammable (solid)               | 4.3A  | 10 kg                       |
|                                 | 4.3B  | 100 kg                      |
|                                 | 4.3C  | 1000 kg                     |

| Property and state of substance       | Classification      | Threshold quantity            |
|---------------------------------------|---------------------|-------------------------------|
| Capacity to oxidise (liquid or solid) | 5.1.1A              | 5 kg                          |
|                                       | 5.1.1B              | 50 kg                         |
|                                       | 5.1.1C              | 500 kg                        |
| Capacity to oxidise (gas)             | 5.1.2A              | 10 kg or 10 m <sup>3</sup>    |
| Capacity to oxidise                   | 5.2A or 5.2B        | 1 kg or 1 L                   |
|                                       | 5.2C or 5.2D        | 5 kg or 5 L                   |
|                                       | 5.2E or 5.2F        | 10 kg or 10 L                 |
| Toxic (substance)                     | 6.1A, 6.1B, or 6.1C | 10 kg or 10 L                 |
| Toxic (gas)                           | 6.1A, 6.1B, or 6.1C | 0.5 kg or 2.5 m <sup>3</sup>  |
| Toxic                                 | 6.1D                | 100 kg                        |
| Corrosive (substance)                 | 8.1A or 8.2A        | 10 kg or 10 L                 |
| Corrosive (gas)                       | 8.1A or 8.2A        | 0.5 kg or 0.25 m <sup>3</sup> |
| Corrosive (substance)                 | 8.2B                | 100 kg or 100 L               |
| Corrosive (gas)                       | 8.2B                | 5 kg or 2.5 m <sup>3</sup>    |
| Corrosive (substance)                 | 8.2C or 8.3A        | 1000 kg or 1000 L             |

### Infectious and radioactive substances

The table below lists infectious and radioactive substances, their hazard description, and their threshold quantity.

| Substance property            | Hazard  | Threshold quantity                                     |
|-------------------------------|---|--|
| Infectious                    | Infectious Risk Group 3 micro-organisms as defined in AS/NZS 2243.3:2002 Safety in laboratories—Microbiological aspects and containment facilities  | Any amount   |
| Ionizing radioactive material | Category 1, 2, or 3 radionuclide as listed in Table 2 of Appendix 1 of International Atomic Energy Agency Safety Standards Series No RS-G-1.9 Categorization of Radioactive Sources (as at the commencement of these regulations) | Please provide all details as required.<br>Any amount. |

## Appendix 8: Types of building fire safety systems

### Types of fire safety precautions

(from the *Acceptable Solutions to the New Zealand Building Code*)

| Type |  |
|------|--|
| 1    | <p><b>Domestic smoke alarm system</b></p> <p>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 NZFS or an indicating unit.</p>  |
| 2    | <p><b>Manual fire alarm system</b></p> <p>An alarm system that 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 NZFS.</p>  |
| 3    | <p><b>Automatic fire alarm system activated by heat detectors and manual call points</b></p> <p>A detection and fire alarm system that activates automatically when a pre-determined temperature is exceeded in the space, and can be activated manually at any time.</p>  |
| 4    | <p><b>Automatic fire alarm system activated by smoke detectors and manual call points</b></p> <p>A detection and fire alarm system that activates automatically in the presence of smoke, and can be activated manually at any time.</p>   |
| 5    | <p><b>Automatic fire alarm system with modified smoke detection and manual call points</b></p> <p>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.</p> <p>The local alarm component of a Type 5 system:</p> <ul style="list-style-type: none"> <li>• 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 extend to other areas such as exitways or common spaces (which shall retain a Type 4 smoke detection system)</li> <li>• 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.</li> </ul> |
| 6    | <p><b>Automatic fire sprinkler system with manual call points</b></p> <p>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.</p>  |

| Type |   |
|------|---|
| 7    | <p><b>Automatic fire sprinkler system with smoke detectors and manual call points</b><br/>           An automatic fire alarm system with the same characteristics as a Type 6 alarm plus an automatic smoke detection system. The fire alarm signal resulting from smoke detection does not need to be directly transmitted to the NZFS.</p>  |
| 8    | <p><b>Voice communication system</b><br/>           An automatic system with variable tone alerting devices and the facility to deliver voice messages to occupants that allows two-way communication between emergency services personnel.</p>   |
| 9    | <p><b>Smoke control in air-handling system</b><br/>           Heating, ventilating or air-conditioning systems if installed in buildings, that shall control spread of smoke by having:</p> <p style="padding-left: 40px;">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</p> <p><b>or</b></p> <p style="padding-left: 40px;">fire alarm and warning systems Type 3, 4 or 7 as a means of smoke detection, in line with NZS 4512 to provide ancillary function output for control of the Heating, Ventilating and Air Conditioning system.</p> |
| 10   | <p><b>Natural smoke venting</b><br/>           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 activated by the smoke detection system. Smoke movement is by natural draught. Type 10 requirements apply only to common spaces (such as an atrium) in firecells with intermediate floors.</p>   |
| 11   | <p><b>Mechanical smoke extract</b><br/>           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.</p>   |
| 12   | Deleted   |
| 13   | <p><b>Pressurisation of safe paths</b><br/>           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.</p>   |
| 14   | <p><b>Fire hose reels</b><br/>           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.</p>   |
| 15   | <p><b>Fire Service lift control</b><br/>           The Fire Service lift control where required, shall enable the NZFS 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.</p>   |

| Type |   |
|------|---|
| 16   | <p><b>Emergency lighting in exitways</b></p> <p>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 mains power supply failure.</p> <p>When required by Table 4.1 in F6/AS1, the minimum provision is for emergency lighting to be installed in all exitways. However, emergency lighting will also be needed in open paths for other spaces such as public buildings with over 1000 people in each firecell and in rest homes or hospitals.</p> |
| 17   | <p><b>Emergency electrical power supply</b></p> <p>The emergency power supply is necessary to ensure essential equipment (such as smoke control systems, emergency lighting and lifts) continues to operate during an evacuation. The requirement applies generally to tall buildings (over 58m) with sleeping accommodation or crowds.</p>   |
| 18   | <p><b>Fire hydrant system</b></p> <p>Fire hydrant systems need to comply with NZS 4510 'Fire hydrant systems for buildings'. Once a Type 18 Fire Safety Precaution 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.</p>  |
| 19   | <p><b>Refuge areas</b></p> <p>Refuge areas are required within safe paths in tall buildings (over 58m) where congestion is likely to occur. They also provide an opportunity for slow-moving occupants to rest without restricting the movement of others.</p>  |
| 20   | <p><b>Fire systems centre</b></p> <p>A facility for Fire Service use in buildings over 58m, or buildings over 25m that contain sleeping, which shall:</p> <ul style="list-style-type: none"> <li>• be readily accessed from street level and located in a position to be determined in consultation with the NZFS</li> <li>• be protected from the effects of fire including debris falling from an upper floor</li> <li>• contain all control panels indicating the status of fire safety systems installed in the building, together with all control switches.</li> </ul>                    |

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

Hold open devices must be controlled by smoke detectors. The smoke detectors may be installed purely to control 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 activating other fire safety precautions, but this is extra to the main fitted smoke detectors. Devices may be wired to smoke detectors that are independent of the fire alarm system or to those integral with the device. These devices may operate independently of any other hold open device. Not all devices will release if the entire alarm system (with ancillary systems) is activated, as the fire panel may be programmed to release each device individually.

# **FIRE ACTION**

## **IF YOU DISCOVER A FIRE:**

**WARN OTHER BUILDING OCCUPANTS  
OPERATE FIRE ALARM & PHONE THE FIRE SERVICE.**

**DIAL 111**

(FROM A SAFE PHONE)

## **WHEN WARNED OF A FIRE IN THIS BUILDING:**

**LEAVE THE BUILDING IMMEDIATELY USING THE NEAREST EXIT WHICH IS:**

**YOUR ALTERNATIVE EXIT IS AT:**

**ASSEMBLE AT:**

## **ONCE OUT, STAY OUT**

**WALK—DO NOT RUN.**

**STAY AT THE ASSEMBLY POINT UNTIL THE “ALL CLEAR” IS GIVEN.**

**DO NOT ATTEMPT TO EXTINGUISH THE FIRE UNLESS IT IS SAFE TO DO SO.**

**[Fire Evac**





















# TRIAL EVACUATION REPORT

\*=Compulsory

\* Building name:

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\* Building address:

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\* Name and company of person supervising trial:

---

\* Contact details of person supervising trial:

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\* Date of trial evacuation:

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\* 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 BWOFF?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Were there any building issues identified during the evacuation?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Any Injuries*  | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

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Signed:

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## Appendix 10: Useful weblinks

Below is a list of links to websites that you might find useful.

We have not included links to the FPANZ or NZFS websites.

| Name  | Weblink and what they do  |
|---|---|
| Aon Sprinkler Certification   | <p><a href="http://www.aon.co.nz">www.aon.co.nz</a></p> <p>Aon New Zealand is part of the global Aon Corporation, a company focused on insurance broking, risk management, and associated services. Aon New Zealand is a Sprinkler System Certifier (SSC).</p>  |
| BRANZ Limited<br>(New Zealand)  | <p><a href="http://www.branz.co.nz/">www.branz.co.nz/</a></p> <p>A body that provides an independent and unbiased research, testing, consultancy and information resource for the building and construction industry to customers in New Zealand, Australia, and globally.</p>  |
| Building Disputes Tribunal<br>(New Zealand)   | <p><a href="http://www.buildingdisputestribunal.co.nz/">www.buildingdisputestribunal.co.nz/</a></p> <p>A tribunal that provides adjudication, arbitration and mediation services to help parties resolve building and construction disputes.</p>  |
| Confederation of Fire Protection Associations International (CFPA-I)                  | <p><a href="http://www.nfpa.org/cfpa-i/">www.nfpa.org/cfpa-i/</a><br/>(hosted on National Fire Protection Association website)</p> <p>A body of leading fire protection organisations worldwide that have joined forces to collectively direct their resources at reducing the global fire problem and increasing life safety.</p>  |
| MBIE - Building and Housing<br>(New Zealand)<br><br>(see note in next column)         | <p><a href="http://www.dbh.govt.nz/">www.dbh.govt.nz/</a></p> <p>A government department that seeks to ensure that New Zealanders can have access to quality homes and buildings that meet their needs and reflect the New Zealand environment.</p> <p>As of 1 July 2012 a new ministry - the Ministry of Business, Innovation and Employment - was created from the merger of the Ministry of Economic Development, the Ministry of Science and Innovation, the Department of Labour, and the Department of Building and Housing.</p>  |
| Department of Labour occupational safety and health<br>(also see note in next column) | <p><a href="http://www.osh.dol.govt">www.osh.dol.govt</a></p> <p>The publications section of this website has an emergency procedures page that lists forms developed to help identify and manage emergency procedures. The forms cover fire and other possible emergencies. They were developed by the Department of Labour and the Environmental Risk Management Authority (ERMA). ERMA's responsibilities have now been incorporated into the Environmental Protection Authority (EPA).</p> <p><b>(Note:</b> The Department of Labour will be integrated into the new Ministry of Business, Innovation and Employment from 1 July 2012.)</p> |
| Environmental Protection Authority  | <p><a href="http://www.epa.govt.nz">www.epa.govt.nz</a></p> <p>A government department responsible for regulatory functions concerning New Zealand's environmental management.</p>  |

| Name   | Weblink and what they do   |
|--|--|
| Fire Protection Association (United Kingdom)         | <a href="http://www.thefpa.co.uk/fpa_home/">www.thefpa.co.uk/fpa_home/</a><br>The United Kingdom's national fire safety organisation that seeks to identify and draw attention to (1) the dangers of fire, and (2) the fire prevention measures (so as to minimise the potential for loss).  |
| Fire Protection Association Australia                | <a href="http://www.fpa.com.au">www.fpa.com.au</a><br>Australia's largest organisation seeking to promote fire awareness and the work of the fire protection industry.   |
| Ministry of Civil Defence and Emergency Management   | <a href="http://www.civildefence.govt.nz">www.civildefence.govt.nz</a><br>This site has some resources for evacuation planning and management. The focus is mass evacuation, but building evacuation gets a mention.   |
| National Fire Protection Association (United States) | <a href="http://www.nfpa.org">www.nfpa.org</a><br>An association that seeks to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training, and education.   |
| New Zealand Fire Service evacuation scheme           | <a href="http://www.onlineservices.fire.org.nz">www.onlineservices.fire.org.nz</a><br>NZFS website page for lodgement of evacuation schemes: allows schemes to be lodged online and provides information on how to complete and submit an application for a Fire Evacuation Scheme, provides copies of the forms for approval, notification, and maintenance.  |
| Non-natural disasters                                | <a href="http://www.whatstheplanstan.govt.nz/non-natural">www.whatstheplanstan.govt.nz/non-natural</a><br>A section of a Civil Defence website on emergency planning.  |
| Passive Fire Protection Alliance (Australia)         | <a href="http://www.pfpa.com.au/">www.pfpa.com.au/</a><br>An alliance that provides fire safety engineering for performance-based building solutions. It focuses on new science and philosophies about how best to contain and control fire. One change has been a move to significantly reduce passive fire protection systems if active fire protection features, such as sprinklers, are on site. |
| Society of Fire Protection Engineers                 | <a href="http://www.sfpe.org/">www.sfpe.org/</a><br>A society that seeks to advance the science and practice of fire protection engineering and its allied fields, to maintain a high ethical standard among its members, and to foster fire protection engineering education.   |
| Standards New Zealand                                | <a href="http://www.standards.co.nz/">www.standards.co.nz/</a><br>A body that develops standards and other specifications to improve the quality of goods and services, facilitate trade and commerce, and promote safety, health and welfare.   |