The Property Owners Guide to Fire Protection Compliance

Mark Bishop, Managing Director

First Fire Systems Ltd

What you need to know about meeting fire safety compliance requirements to keep buildings and people safe

Contents

Chapter 1

The need to protect buildings against fire risk is a necessity that no-one argues about.

But for many building owners managing that fire risk can be a real headache.

The maze of regulations and compliance requirements can make it very difficult to know exactly what has to be done to ensure you meet your legal obligations, and to ensure you keep buildings protected and people safe.

It can mean you need a small army of experts and service providers to keep it all on track – meaning the costs and time involved in maintaining fire protection can be high.

The safest building is one where all design requirements have been met, where suppression equipment and systems have been properly installed, and where fire protection systems will reliably operate when they need to.

We wrote this guide to help you navigate the maze - so you can have the peace of mind that comes from knowing you've done what the regulations require you to do, that you have a safe building and that the people who use it are not at risk.

"It doesn't matter how a fire starts – what counts is how it's stopped, and above all keeping people safe. That's what fire protection systems are all about."

Mark Bishop, Managing Director, First Fire Systems

Why focus on compliance?

To be sure of having a fully functioning Fire protection system when you need it most, each of the following three stages have to be right;

1. Standards and Design
2. Construction & installation
3. Maintenance and testing

The best fire protection you can get is when each of these three stages have been completed by experienced experts who know and understand what the standards and regulations require.

Because a fire protection system that doesn't function when you need it is worse than useless.

You need to be sure that if a fire starts your fire detection and suppression systems will do exactly what they were designed to do – flawlessly, reliably, and accurately .

At minimum those systems have to give personnel enough time and opportunity to get out and be safe, and at best they must snuff out any fire before it can take hold.

Chapter 2

Fire Systems Design And Construction

The Building Act (2004) spells out the regulations and various design requirements for building construction

As it relates to the New Zealand Fire Service, the Building Act 2004 has four main goals:

1. People can use buildings safely and without endangering their health.
2. Buildings have attributes that contribute appropriately to the health, physical independence and wellbeing of the people who use them.
3. People who use a building can escape from the building if it is on fire, or if there is an emergency.
4. Buildings are designed, constructed and able to be used in ways that promote sustainable development.

Interpretation of what the act means in practical terms is spelled out in the Building Code which also sets out the various requirements for Specified Systems – from SS1 through to SS15. Specified systems are systems or features that contribute to the proper functioning of the building.

An SS-1 Sprinkler System

How fire protection systems are designed

Building Consent Authorities (BCA) generally require a Fire Report with a building consent application whenever any of the following building works are proposed;

- A new building
- Alterations to an existing building
- Change of use of an existing building
- Subdivision of land that affects a building
- Extending the life of a building beyond its specified life

A Fire Report is prepared by a Fire Engineer (who is a qualified professional) which specifies the provisions that have to be met and the design requirements for the particular building and location. Fire engineers refer to the New Zealand Building Code for information on design criteria.

Generally, the fire safety provision for commercial buildings are a lot more extensive and complex than for residential buildings, reflecting expected higher fire loads and public safety issues as well as other issues.

This report is produced primarily to assist the designer but it can also be used to inform the owner or any other related parties about how the proposed building design will meet the fire safety provisions of Building Code and what is required to comply with those provisions.

The New Zealand Building Code is a performance-based code, which means it prescribes the required outcomes rather than specifying what has to be done. It includes the following fire safety requirements:

- Providing means of escape to occupants
- Preventing the spread of fire to neighbouring property
- Providing protection to fire service personnel during firefighting
- Limiting the effects of fire to the Environment
- Alerting occupants to the presence of fire

For a copy of the Building Code go to

http://www.dbh.govt.nz/compliance-documents#handbooks

Chapter 3

Specified Systems

Specified systems are systems or features that contribute to the proper functioning of the building.

A specified system is a system or feature that is contained within a building for the primary purpose of maintaining health or life safety of building users i.e. fire alarm, sprinkler, mechanical ventilation system, etc.

Specified systems require ongoing inspection and maintenance to ensure they function as required, because if they fail to operate properly, they have the potential to adversely affect health or life safety.

Where one or more of these systems exist in a building (except a single household unit), a compliance schedule is required.

Types of specified systems

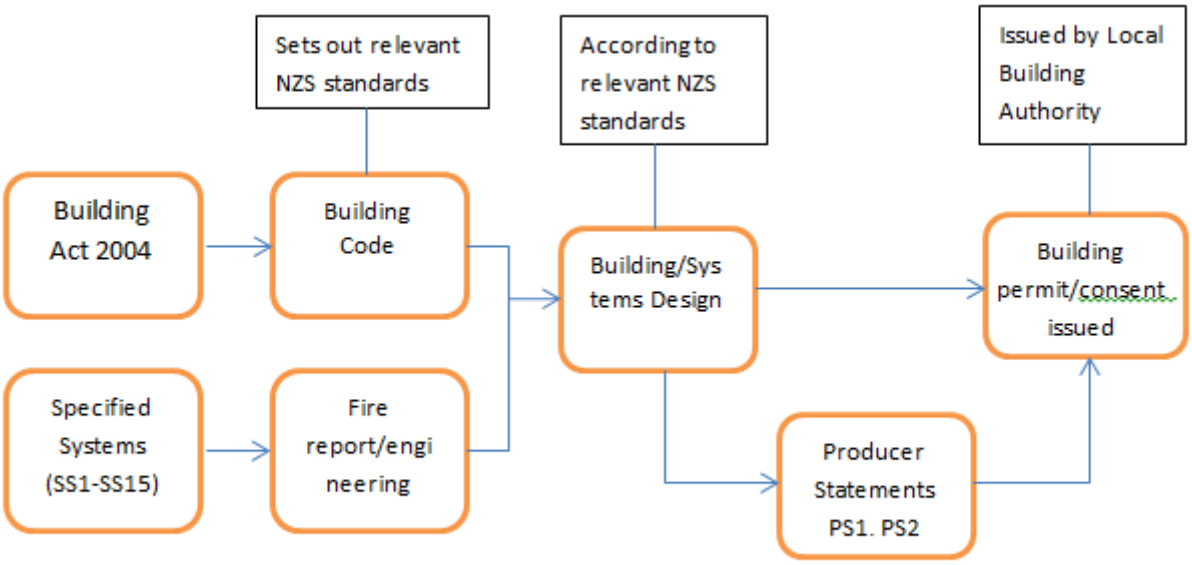
SS 1	Automatic systems for fire suppression
SS 2	Automatic or manual emergency warning systems for fire or other dangers
SS 3	Electromagnetic or automatic doors or windows
SS 4	Emergency lighting systems
SS 5	Escape route pressurisation systems
SS 6	Riser mains for use by fire services
SS 7	Automatic back-flow preventers connected to a potable water supply
SS 8	Lifts, escalators, travelators, or other systems for moving people or goods within buildings
SS 9	Mechanical ventilation or air conditioning systems
SS 10	Building maintenance units providing access to exterior and interior walls of buildings
SS 11	Laboratory fume cupboards
SS 12	Audio loops or other assistive listening systems
SS 13	Smoke control systems
SS 14	Emergency power systems for, or signs relating to, a system or feature specified in any of SS 1 to SS 13 above
SS15	Means of escape

Note: Not all these specified systems relate to fire protection - SS 8 –SS 12 are not related to fire protection compliance requirements

Chapter 4

From Fire Design to Building Consent

When the design and specification requirements have been met a Local Authority then issues a building permit so that construction work can begin.



Producer Statements

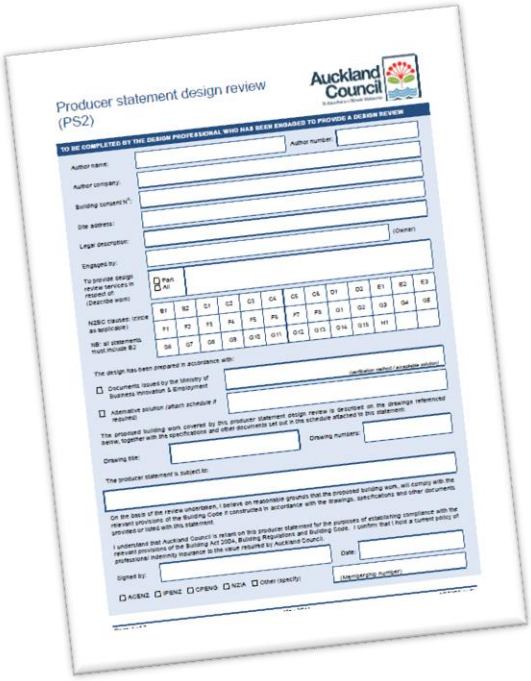
Producer Statements are documents used to track the progress of certain stages of the design and construction process.

PS1 – Issued at Design Stage by a suitably qualified professional, about the design methodology and criteria used.

PS2 - Design Review . Before the design is approved it is reviewed and confirmed by an independent suitably qualified professional concerning the design methodology and criteria used.

PS3 – Issued at Construction Stage. A statement from the organisation constructing or installing the system regarding materials used and methods employed.

PS4 – Construction review statement confirming that the system was constructed in accordance with building consents and relevant standards.


Producer statement design review (PS2)

Auckland Council

An Auckland Council producer statement

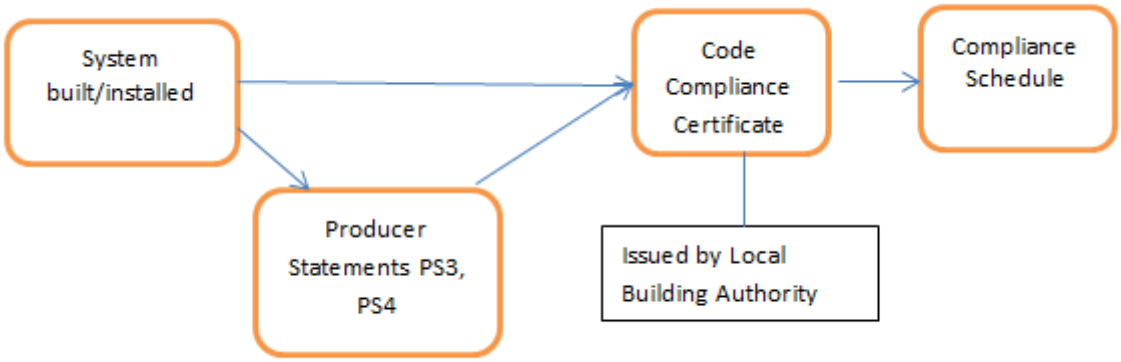
Chapter 5

Construction and Compliance

Following building consent the fire protection systems are constructed or installed as per the specifications.

Producer statements 3 and 4 are created and submitted to the local authority, after performing their inspections will issue a code compliance certificate to confirm that the systems (and building whole) has been constructed according to the relevant building code requirements.

At the same time the Local authority issues a compliance schedule which specifies all the building systems that must be maintained, according to what standards, and how frequently. In general each of the Specified Systems from SS1 to SS15 will have a specific schedule



A Building Warrant of Fitness ensures that a Fire Protection systems will perform as expected:

At the time when a fire protection system is installed, provided it has been designed and installed in line with the correct process described above, it will comply with Building Code requirements.

However building systems can deteriorate over time, or be modified, or fail to operate for any reason. Like a vehicle Warrant of Fitness, a Building Warrant of Fitness (BWoF) ensures that systems are tested and maintained at regular intervals, so that should a fire situation arise the protection systems will operate as they should.

The Local Building Authority controls the process of issueing BWoF's by means of **Compliance Schedules**

Compliance Schedules

A compliance schedule is an inventory or list of specified systems, contained within a building and states the performance standards which must be met with regard to:

- Inspection, testing and maintenance procedures
- The frequency of inspections
- Who should perform those inspections

The Compliance Schedule for a building must identify which systems are present (SS1 – SS15), the performance standards for those systems, and how those systems will be monitored and maintained to ensure that they will continue to function as intended.

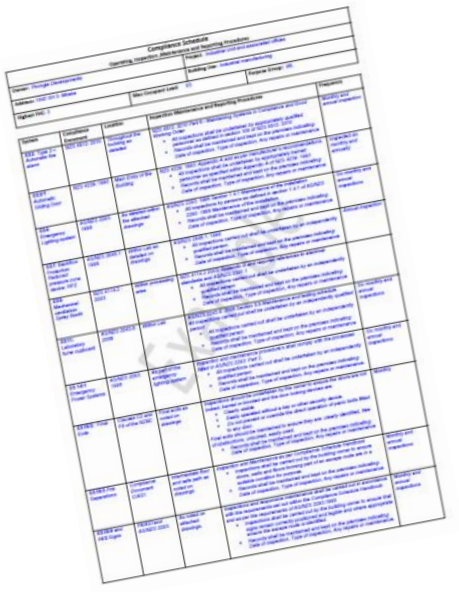
Compliance Schedule Reports

Section 110 of the Building Act requires that an owner of a building for which a compliance schedule has been issued must obtain annual written reports relating to the inspection, maintenance, and reporting procedures of the compliance schedule.

A building owner must ensure that compliance reports are:

- Signed by an IQP who carried out one or more of the inspection, maintenance, and reporting procedures
- Kept for a period of 2 years
- Produced when required by the territorial authority and any other person or organisation who has the right to inspect the building under any Act.

The owner must also ensure the BWoF states where the reports, along with the compliance schedule, are kept.



A typical Compliance Schedule

Fines for non-compliance

The Building Act 2004 contains a number of provisions to protect public health and safety that are important for building owners and managers. There is a range of penalties for failing to comply with these provisions:

- If a person is the owner of a building for which a compliance schedule has been obtained, they are liable for a fine of up to $20,000 with a further fine of $2,000 for each day the offence is continued; Building owners can be fined up to $20,000 for failing to display a Building Warrant of Fitness, or displaying a false or misleading Building Warrant of Fitness;
- Building owners who fail to give written notice of a change of use commit an offence and are liable to a maximum fine of $5,000;
- It is also an offence carrying a fine of up to $100,000 to use or permit the use of a building, which is not safe or sanitary, or if it has inadequate means of escape from fire.

Chapter 6

Building Warrant of Fitness (BWoF)

A BWoF is required where a compliance schedule has been issued for a building.

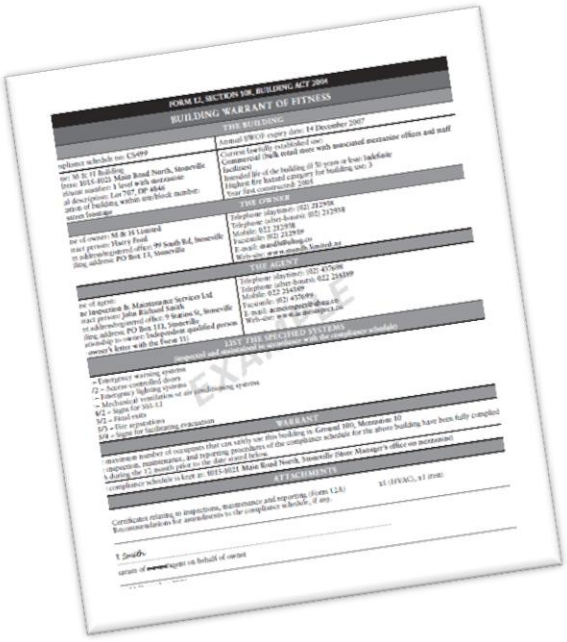
A BWoF verifies that the inspection, maintenance and reporting procedures for all the specified systems within a building have been carried out in accordance with the compliance schedule for the previous 12 months.

Section 108 of the Building Act requires that a BWoF must:

- Be supplied on each anniversary of the issue of the compliance schedule
- State the location of the compliance schedule and associated compliance schedule reports
- State that the inspection, maintenance, and reporting procedures have been fully complied with during the previous 12 months
- Have attached to it all Form 12A certificates issued by IQPs for the specified systems
- Have attached to it any recommendations from an IQP to amend the compliance schedule.

A BWoF must be displayed in a building where it can be seen by building users

Building Act (2004)



A BWoF (Form 12) must be displayed where it can be seen by building users

Forms required for a BWoF

Form 10
Compliance schedule statement form (issued by building consent authority)

Form 11
Application to amend a compliance schedule

Form 12
Building Warrant of Fitness (issued by owner or owner's agent)

Form 12a
Certificate of compliance with inspection, maintenance and reporting procedures (issued by IQP)

In order for a BWoF to be valid, the owner must obtain Form 12A(s) covering all the specified systems in the building and attach them to the BWoF, before supplying it to the territorial authority.

There may be a Form 12A for each specified system or one Form 12A may cover several specified systems. This will depend on the number of IQPs required for a building. Whatever the case, when those certificates are considered together, they must certify that the inspection and maintenance procedures stated in the compliance schedule for all specified systems have been fully complied with during the previous 12 months.

The Form 12A cannot be amended or altered to create exceptions from the requirement to fully comply with the inspection, maintenance, and reporting procedures for the previous 12 months.

Inspection and Maintenance

The Building Act requires that each specified system have inspection and maintenance procedures to ensure the system is performing, and continues to perform, to the performance standards set out for that specified system.

The inspection, maintenance, and reporting procedures need to be relevant to the performance standard, and therefore the way the system was designed, to ensure the specified system continues to perform in the way it was intended.

Often a New Zealand or international Standard will be suitable for the inspection and maintenance procedures for a particular specified system. In other cases it may be an inspection and maintenance document provided by the manufacturer/designer of the system, or it may be an inspection document prepared by a person qualified to do so (this may be developed using a combination of manufacturers' specifications and other inspection Standards).

The inspection and maintenance procedures, including frequency, need to be appropriate to the particular specified system and its purpose within a building. This may include considering the age of the system, the system's historical performance, or a change in the use of the building.

Example

Inspection statement for mechanical ventilation system – fire and smoke control: Inspection content and frequency for the mechanical ventilation system shall be in accordance with sections 1 and 18 of AS 1851:2005 – Maintenance of fire protection systems and equipment. In particular, inspections shall be carried out in accordance with tables 18.4.1.1 to 18.4.1.6 and 18.4.2.2 to 18.4.2.5.

Chapter 7

Maintenance and Testing

There are two types of maintenance which need to be considered in the development of the compliance schedule, planned preventative maintenance and responsive maintenance.

Planned preventative maintenance

Planned preventative maintenance is aimed at avoiding breakdown or malfunction, through regular service, cleansing, adjustment, lubrication, or periodic replacement. Planned preventative maintenance will generally be based on published Standards or recommendations made by the designer, manufacturer or supplier.

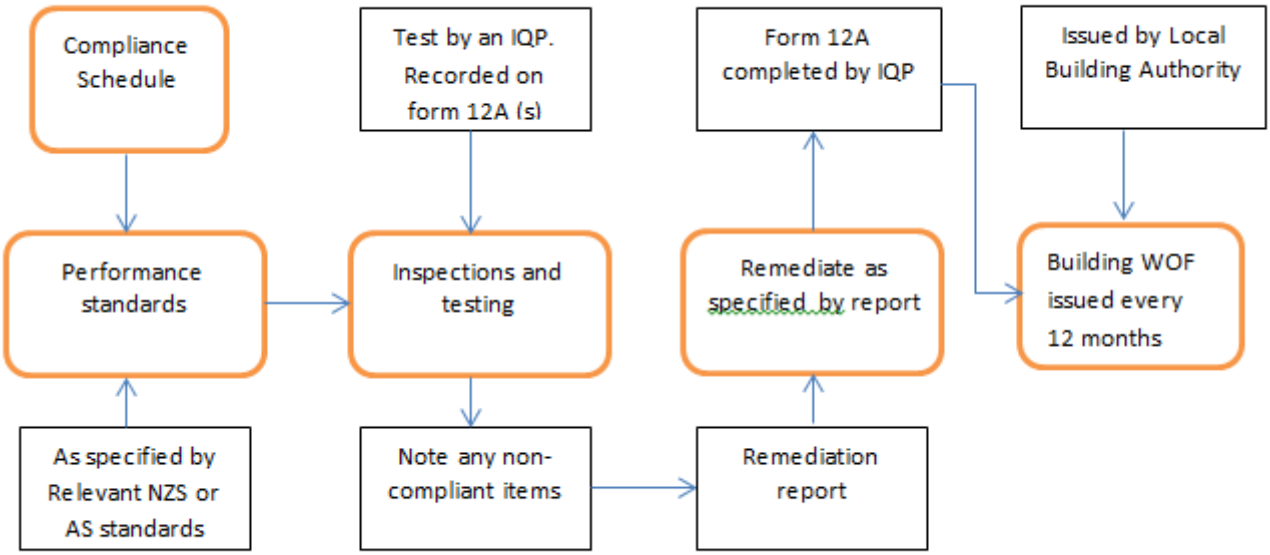
Example:
Maintenance shall be carried out in accordance with the attached 'Operating and Maintenance Manual for HVAC Services at 123 Common Street' dated 15/07/2004 by XYZ Engineers.

Responsive maintenance

Responsive maintenance is required where the system or a component of the system has failed, resulting in the performance standard not being satisfied. This may be identified during inspection, testing, planned preventative maintenance or reported by building users.

Testing and maintenance must be certified (signed off) by an IQP – an Independent Qualified Person

Maintenance & Testing Process for Compliance



Chapter 8

Testing Schedules

Fire protection systems must be inspected and tested regularly to ensure they operate as expected, to protect people and property.

Testing schedules are planned according to the Specified Systems present in the premises.

This sample schedule below gives and idea of testing frequency for each item under those specified systems – ranging from weekly testing to once every year.

SCHEDULE OF SPECIFIED SYSTEMS

Compliance Specification	Building Feature	Servicing		
	Description	Frequency	Type	Qty
SS 1	Automatic Fire Suppression System • Pre Action System • Vesda System • Inergen / FM200 Gas Flood • Diesel Pump • Diesel Pump • Electric Pump • Isolated Valves • Flow Switches • Survey • Valve Overhaul	Monthly Quarterly Monthly/6Monthly 6/monthly Weekly Annual Monthly Quarterly/Annual Quarterly/Annual 2 Yearly 4 Yearly	Pressure Checks Drain Test Test Survey Test Test/Isolated Test/Isolated Survey Overhaul	12 4 52 1 12 1 1 1 1
SS 2	Emergency Warning System (Automatic or manual fire alarm system)	Monthly Annual	Test Survey	12 1
SS 3	Automatic Doors / Interface Test	Annual	Survey	1
SS 4	Emergency Lighting System	Monthly 6Monthly Annually	Test Survey Survey	12 1 1
SS 6	Riser Main	Annually	Test/Inspection	1
SS 7	Automatic Back Flow Preventer System	Annually	Survey	1
SS 14/2	Signs relating to a specific System (1-13)	Monthly Annually	Inspection Survey	12 1
SS 15/1	Systems for Communicating spoken information: (EWIS)	Annually	Survey	1
SS 15/2	Final Exists	Monthly Annually	Inspection Survey	12 1
SS 15/3	Fire Separations	Monthly Annually	Inspection Survey	12 1
SS 15/4	Signs for Communicating information intended to facilitate evacuation	Monthly Annually	Inspection Survey	12 1
SS 15/5	Smoke Separations	Monthly Annually	Inspection Survey	12 1
SS 32	Hand Held Fire Fighting Equipment • Fire Hose Reels • Fire Extinguisher	Annual Annual	Inspection/Test Inspection/Test	12 1
	12A Documentation or Report in Lieu	Annual	Issued	1

Chapter 9

Performance Standards

These are the levels of performance a specified system is intended to meet, and continue to meet, at the time it was designed and installed in a building.

Compliance with the Building Code is normally achieved by referring to either an acceptable solution or a verification method. For example, the performance standard for sprinkler systems is NZS 4541:2013. This standard specifies what the maintenance, inspection and reporting regime is for sprinkler systems.

What is an IQP?

An IQP is an Independent Qualified Person (IQP) who has been accepted and registered by the Local Building Authority as having the qualifications and the expertise to test and inspect fire protection systems.

For the Auckland Council this requires a payment of $160, plus $120 for each specified system.

New applications are considered by the IQP panel at fortnightly meetings.

Once approved the Council adds you to the IQP register and sends you a Registered Independent Qualified Person Practicing Certificate and membership card.

Registration is valid for one year.

Note:
Only an individual can register as an IQP. That means companies can no longer register and appoint nominees as IQPs.

It also means that the individual who signs off a Form 12A is now liable - although the company who employs them will generally cover any liability through their public liability insurance

The term ‘Performance standard’ for a specified system is not defined by the Building Act. However, it can be interpreted as the level of performance a specified system was intended to meet, and to continue to meet, at the time it was designed and installed in a building.

The Building Act requires that a specified system must be inspected and maintained in order to ensure that it performs, and continues to perform, to that standard. If a specified system is designed and installed to an Acceptable Solution, Verification Method, Standard or specific documentation, this will set the performance standard for that specified system.

An example is the level required by NZS 4541 for sprinkler systems.

First Fire Systems has a registered IQP for Specified Systems SS1, SS2, SS3, SS4, SS5, SS7, SS13, SS14, SS15 a,b,c,d,e,f
For Northland, Auckland, Waikato and BOP, & South Island.

Chapter 10

Types of Alarm Systems

The two basic types of fire alarm systems in use today are known as manual and automatic. Both manual and automatic fire alarm systems can be designed to either protect lives only or protect lives and property.

Both types can be used to activate sprinkler systems and notify the fire department.

Automatic fire alarm systems may operate in either a conventional or addressable configuration. Addressable systems make it possible to identify individual sensors, allowing greater sensitivity to conditions and hence fewer false alarms.

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Fire Alarm System Types

Type 1
Domestic smoke alarm system.

Type 2
A manual fire alarm system only, activated by manual call points.

Type 3
An automatic fire alarm system activated by heat detectors and manual call points.

Type 4
An automatic fire alarm system activated by smoke detectors and manual call points.

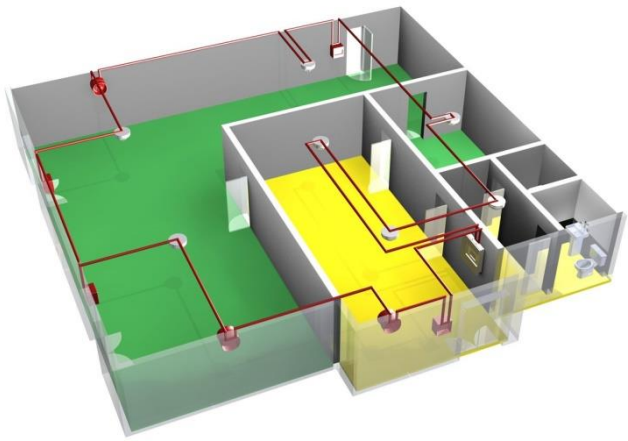
Type 5
Variation to a Type 4 that allows smoke detectors in some fire cells to sound a local alarm only, provided that heat detectors are also installed in those fire cells.

Type 6
An automatic fire sprinkler system and Type 2 manual fire alarm system.

Type 7
An automatic fire sprinkler system and Type 4 automatic fire alarm system

When an individual sensor is activated, the control panel activates alarms and sprinklers for that area only based on the sensor's address.

This type of alarm system configuration eliminates the necessity for an entire zone to be activated and enables firefighters to pinpoint the exact location of a fire



A single loop addressable alarm system

Chapter 11

When do you need an evacuation scheme?

A building owner must ensure the building complies with the Fire Service Act 1975 ("Act") and the Fire Safety and Evacuation of Buildings Regulations 2006 ("Regulations").

Some buildings, if they are used in whole or part for one or more of the following purposes, must have an approved evacuation scheme:

- The gathering together, for any purpose, of 100 or more persons
- Providing employment facilities for 10 or more persons
- Providing accommodation for more than 5 persons (other than in 3 or fewer household units)
- A place where hazardous substances are present in quantities exceeding the prescribed minimum amounts (set out in Schedule 2 of the Regulations), whatever the purpose for which the building is used
- Providing early childhood facilities (other than in a household unit)
- Providing nursing, medical, or geriatric care (other than in a household unit)
- Providing specialised care for people with disabilities (other than in a household unit)
- Providing accommodation for persons under lawful detention (not being persons subject to home detention)

Owners of buildings with an automatic sprinkler system (which meets the criteria set out in the Regulations) and which are only used for either (2) or (3) (but not both of those uses) do not need an approved scheme. However, owners of those buildings must give the National Commander notice that the building does not need an evacuation scheme, in the form set out in the Regulations: Notification that a scheme is not required

Information on the requirements for Evacuation schemes are available from the New Zealand Fire Service Evacuation website which details the requirements for call sites.

Chapter 12

Are your current systems compliant?

Changes or alterations to buildings will usually require a building permit, and along with that, a fire report.

In most situations any updates or additions to fire protection systems will be obvious, so it's likely that your compliance documentation will be updated at the same time as part of the process.

But what happens if you've made minor alterations that don't require a building permit? You may have changed your fire protection requirements without realising it.

Here's a short checklist which will let you know if you need to re-survey – to make sure you're not inadvertently compromising your compliance requirements.

If you tick any boxes in the "Y" column then it may well be a good idea to have a fire protection systems re-survey done.

	Y	N
Have you made any changes or alterations to buildings since the last building WoF that did not require a building permit?	☐	☐
Have you made any changes or alterations to internal partitions?	☐	☐
Are there any outstanding remedial actions required on fire protection systems that have not yet been carried out?	☐	☐
Have you installed any storage cupboards or chillers?	☐	☐

"Fires are unforgiving. It doesn't pay to take risks with protection. If you have any doubts about your current compliance status talk to us for free advice."

Mark Bishop, Managing Director, First Fire Systems

First Fire Systems

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