BUILDING PERFORMANCE

Operation Magazine

Report into the Joint Operation – Boarding House Fire Safety and Landlord Compliance

MARCH 2024

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Ministry of Business, Innovation and Employment (MBIE) Hīkina Whakatutuki – Lifting to make successful

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Overview

Background

Following the tragedy at Loafers Lodge in Wellington on 16 May 2023, the then Minister for Building and Construction asked the Ministry of Business, Innovation and Employment (MBIE) to investigate whether there were similar buildings to Loafers Lodge vulnerable to fire, elsewhere in New Zealand. As a result, the decision was taken to inspect properties meeting a similar profile throughout New Zealand to identify and address any immediate fire safety concerns. The inspections would also be used to inform any future work to strengthen fire safety requirements in boarding houses.

Building scope/criteria

Buildings were chosen based on a similar profile to that of Loafers Lodge with the specific requirement that the buildings needed to:

- be a boarding house; and
- be three storeys or more in height; and
- have no sprinkler system.

The Residential Tenancies Act 1986 (the RTA) defines a boarding house as a residential premises:

a. *containing 1 or more **boarding rooms** along with facilities for communal use by the tenants of the boarding house; and*
b. occupied, or intended by the landlord to be occupied, by at least 6 tenants at any one time

The RTA defines a **boarding room** as:

> *a room in a boarding house that is used as sleeping quarters by 1 or more tenants of the boarding house, and that is for use only by a tenant whose **tenancy agreement relates to that room***

The RTA defines a **boarding house tenancy** as:

> a residential tenancy in a boarding house
>
> a. *that is intended to, or that does in fact, last for 28 days or more; and*
> b. *under which the tenant is granted exclusive rights to occupy particular sleeping quarters in the boarding house, and has the right to the shared use of the facilities of the boarding house*

Building selection

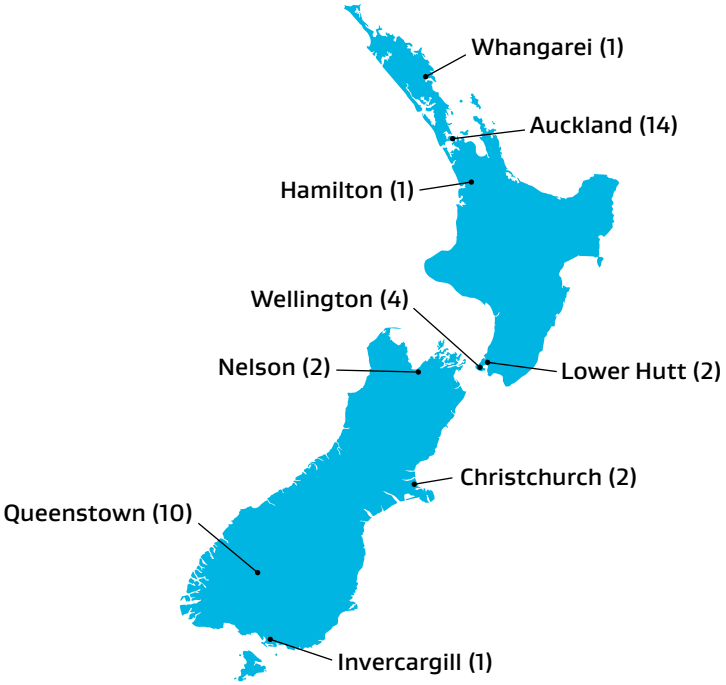
The Chief Executive of MBIE wrote to councils on 9 June 2023 requesting they "provide information on the stock of boarding houses (or similar types of accommodation) in their area" to MBIE. Councils were asked to take a broad approach in determining what a boarding house is, and to focus on boarding houses that were three or more storeys in height.

An initial analysis of the data identified 70 buildings spread across 13 council areas that were similar in profile to Loafers Lodge and may have a similar level of fire safety risk.

A more detailed review of the 70 buildings against the specific building criteria for Operation Magazine (see page 3) reduced the number of buildings to be inspected down to 40 across 9 council areas. The total of 40 was further reduced to 37 buildings following an inspection refusal by three building owners (mainly due to having recently had an inspection by their council).

Locations

The buildings were spread across New Zealand. Almost two-thirds of the boarding houses were in three council areas: Auckland Council, Queenstown Lakes District Council and Wellington City Council. Other council areas with buildings in scope included Nelson, Lower Hutt, Christchurch, Whangarei, Invercargill, and Hamilton.



The regulatory framework

There are two broad types of legislative requirements for buildings under the Building Act 2004 (Building Act):[1]

- requirements that relate to the initial construction of the building, and
- requirements for ongoing compliance.

Initial construction requirements

All building work (including the work required to build a new building) requires a building consent[2]. A building consent provides assurance that if the proposed building work is built in accordance with the building consent it will comply with the Building Code. Once building consent is obtained, construction commences, and the building work is inspected at key stages of the project. When all the building work is complete, a code compliance certificate is issued, providing assurance that the building work/building complies with the building consent (and consequently the Building Code).

1 In some cases, Building Act requirements for ongoing compliance for single, detached household units differ from other building types.
2 Some minor construction and alteration work is exempt from building consent requirements.

Building Code requirements change over time. However, an existing building does not need to be upgraded to comply with new Building Code requirements except in some cases where alterations are carried out on the building.

Ongoing compliance

The main considerations in relation to ongoing compliance under the (Building Act that are relevant to this Report are:

1. Building Warrant of Fitness (BWoF) and Compliance Schedule requirements
2. Change of Use and alteration requirements
3. Dangerous, affected and insanitary buildings (including buildings with inadequate means of escape from fire)

There are also ongoing compliance obligations for boarding houses under the RTA, which are summarised in this section.

BWoF and compliance schedules

A compliance schedule is required for any building (except a single, detached household unit that doesn't have a cable car attached to or servicing it) that has one or more specified systems (eg fire alarms, sprinklers, lifts, air conditioning systems). The compliance schedule states the inspection, maintenance and reporting procedures for the specified systems that must be undertaken in order for a building to have a BWoF.

A BWoF is not issued by the local authority. It is a building owner's declaration confirming that the specified systems have been inspected and maintained for the previous 12 months in accordance with the compliance schedule. Building owners are required to engage independently qualified persons (IQPs) to undertake the inspection, maintenance and reporting procedures listed on the compliance schedule and provide certification (in the form of a 'Form 12A') that those procedures have been carried out.

Change of use and alterations

When the use of a building is proposed to be changed, or a building is proposed to be altered, there may be upgrade requirements, especially to the fire safety systems in the building, as a condition of this work going ahead. These provisions in the Building Act are intended to ensure that the quality of New Zealand's building stock improves over time.

Change of use

Every building is designed for a specific use, and that use has certain requirements that ensure it will be safe, healthy and durable when used in the way it was designed. If that use changes, the building may need to be upgraded to support the new use.

A building owner cannot change the use of a building until the council gives the owner written confirmation that certain requirements of the Building Act have been complied with. The requirements will vary, depending on whether the change of use means that household units will be incorporated into the building:

- Where household units will be incorporated: the council will need to be satisfied that the building in its new use will comply with the Building Code as near as reasonably practicable.
- Where household units won't be incorporated: the building will have to comply, as near as reasonably practicable, with Building Code requirements concerning:
  - means of escape from fire (including all active and passive fire safety systems), protection of other property, sanitary facilities, structural performance, and fire-rating performance
  - access and facilities for people with disabilities (if relevant).

The rest of the building must continue to comply with the Building Code to at least the same extent as it did before the alteration.

In either case, the new building work itself will need to fully comply with the Building Code.

Alterations

If a building owner wants to make alterations to their building, they may need to upgrade the whole building. Upgrade provisions relate to:

- means of escape from fire (including all active and passive fire safety systems)
- access and facilities for people with disabilities (if relevant).

All other aspects of the building must continue to comply with the Building Code to at least the same extent as before the alteration.

Councils can allow people to alter their building use without ensuring it complies with the Building Code's relevant provisions if they are satisfied that certain conditions are met.

Dangerous, affected and insanitary buildings

The Building Act allows councils to classify buildings as dangerous, affected or insanitary if certain criteria are met. Where a building is classified as dangerous, affected or insanitary the council can take various measures to prevent people from using the building, and can require certain work to be carried out in order to make the building safer.

The Building Act also creates an offence for people who use, or allow the use of, a building that has inadequate means of escape from fire. Means of escape from fire includes any active fire safety systems (eg a fire alarm) or passive systems or features (eg the escape route out of a building). The Building Act allows councils to require the owner to remedy such breaches.

Residential Tenancy obligations

Boarding houses are also subject to general provisions that apply to all tenancies such as the obligation to maintain the premises in a reasonable state of repair and comply with health and safety obligations.

Boarding houses must comply with all RTA regulations relating to smoke alarms which include rules relating to where smoke alarms should be placed and what qualifies as a smoke alarm. There is also an obligation to provide tenants with a copy of the fire evacuation procedures and house rules, and to have them displayed in the premises.

All boarding houses have also been subject to the healthy homes standards since 1 July 2021. The healthy homes standards set specific minimum requirements for heating, insulation, ventilation, moisture ingress and drainage, and draught stopping in rental properties. All new or renewed tenancy agreements, including those for boarding houses, must include specific information about the rental property's current level of compliance with the healthy homes standards.

Inspection overview

Purpose

The purpose of the inspections was to check the compliance with the RTA and the Building Act in relation to fire safety and landlord tenancy obligations and identify any immediate risks to the safety of the people residing in the buildings.

Duration

Inspections began on 28 August 2023 in Wellington with the last inspection carried out in Whangārei on 27 October 2023.

Number of buildings inspected

In total, 37 buildings were inspected across nine council areas as part of the operation - Whangārei, Auckland, Hamilton, Lower Hutt, Wellington, Nelson, Christchurch, Queenstown and Invercargill. In three instances, the building owner refused entry to the building and therefore an inspection was not undertaken (discussed under 'powers of entry' below).

Method

The inspections were led by staff from MBIE's Tenancy Compliance and Investigations Team (TCIT) and Building System Delivery and Assurance (BSDA) Team. TCIT and BSDA staff were supported by fire engineers in MBIE's Building Performance Engineering (BPE) Team, Fire and Emergency New Zealand (FENZ) and the relevant council whose area the building was located in.

FENZ role

FENZ assisted in assessing the fire safety systems in the building. The role of FENZ during the inspections was to carry out a fire safety assessment (described below). Any issues discovered by FENZ that were outside the scope of the Operation were agreed to be addressed by FENZ at a later date by direct engagement with building owners.

Inspection scope

The fire safety assessments comprised three broad categories of checks:

- compliance with the compliance schedule and building warrant of fitness (BWoF) requirements of the Building Act,
- the general level of fire safety in the building, and
- compliance with tenancy and landlord obligations.

Compliance schedule and building warrant of fitness (BWoF)

Buildings were checked to ensure they had a current BWoF, that the BWoF was publicly displayed and that it complied with the requirements of the Building Act and regulations.

The compliance schedules for each building were assessed to ensure they complied with Building Act requirements and that they aligned with the specified systems that were present in the building.

Fire safety assessments

The fire safety assessments consisted of visual checks of the fire alarm, fire and smoke separations, emergency lighting, fire hydrant systems and escape routes.

Documentation for the above systems and features was also reviewed where available.

Tenancy and landlord obligations

TCIT's landlord assessments focused on their compliance with fire safety standards as required by the RTA. TCIT also checked compliance with the Healthy Homes Standards, maintenance, cleanliness and general provisions of the RTA specific to boarding houses at each property; including but not limited to the display of house rules and access to kitchen and bathroom facilities.

An initial assessment was undertaken to confirm that the building either met the definition of a boarding house within the RTA or otherwise came within its jurisdiction. Visual inspections were then conducted to confirm compliance with general maintenance obligations, general health and safety obligations, fire safety obligations, such as smoke alarms and fire evacuation procedures, and healthy homes obligations as set out in the RTA and regulations.

Further documentary evidence demonstrating RTA compliance has been sought following the on-site visits.

Inspection limitations

In most cases an inspection of the whole building could not be undertaken. This was mainly due to access issues or privacy issues (eg we could not gain access to private rooms that were occupied). In some cases construction work in parts of the building meant it was not safe to enter some areas.

Out of scope

This was not an assessment of the building's compliance with the Building Code, the Fire and Emergency New Zealand Act 2017 or any other regulations.

There was no in-depth review of building consent documentation, building or system designs, fire engineering reports or briefs accompanying these.

Powers of entry

The RTA does not give MBIE automatic right of entry to a property. Where there are reasonable grounds to believe that there has been a breach of the tenancy agreement or of the Residential Tenancies Act 1986, an application may be made to the Tenancy Tribunal requesting authorisation of entry.

The Building Act allows warranted officers to enter buildings but only in limited circumstances. For example, where entry is required for the purpose of monitoring the performance of functions of territorial authorities under the Building Act.

The means to gain legal entry to the buildings was through obtaining permission from the building owner. In most cases building owners were open to our request. However, in three cases the owner refused permission. It appears this was mainly due to inspections that had been undertaken by the council just prior to the proposed visit.

Buildings where entry was refused, but where the council had already inspected and made recommendations, were part of the initial findings sent to council and will be followed up.

Property-specific issues

The recording and reporting of the issues, and associated recommendations, was achieved by two means; property reports and initial recommendations. In almost all buildings inspected, at least one issue was found. To ensure the rectification of issues took place, MBIE contacted the relevant councils outlining the issues with a recommended course of action to address those issues for the buildings in their areas.

Property reports

At the completion of each inspection an individual inspection report was written. This covered an overview of the condition, suitability and (where possible) the compliance of fire safety features in the building, compliance with BWoF requirements and compliance in relation to landlord obligations.

Initial recommendations

Many buildings inspected had fire safety issues or non-compliances with the BWoF requirements in the Building Act. To limit the risk of these not being addressed in a suitable time MBIE provided a list of initial observations and recommendations to each council before completion of the individual property reports. The observations and recommendations were sent out with an email that requested councils to comment on each recommendation and describe their plan to rectify the associated issue (if applicable). Upon completion of the individual reports, councils will receive (where applicable) a follow-up email with any additional recommendations or changes to initial recommendations.

Responses from councils

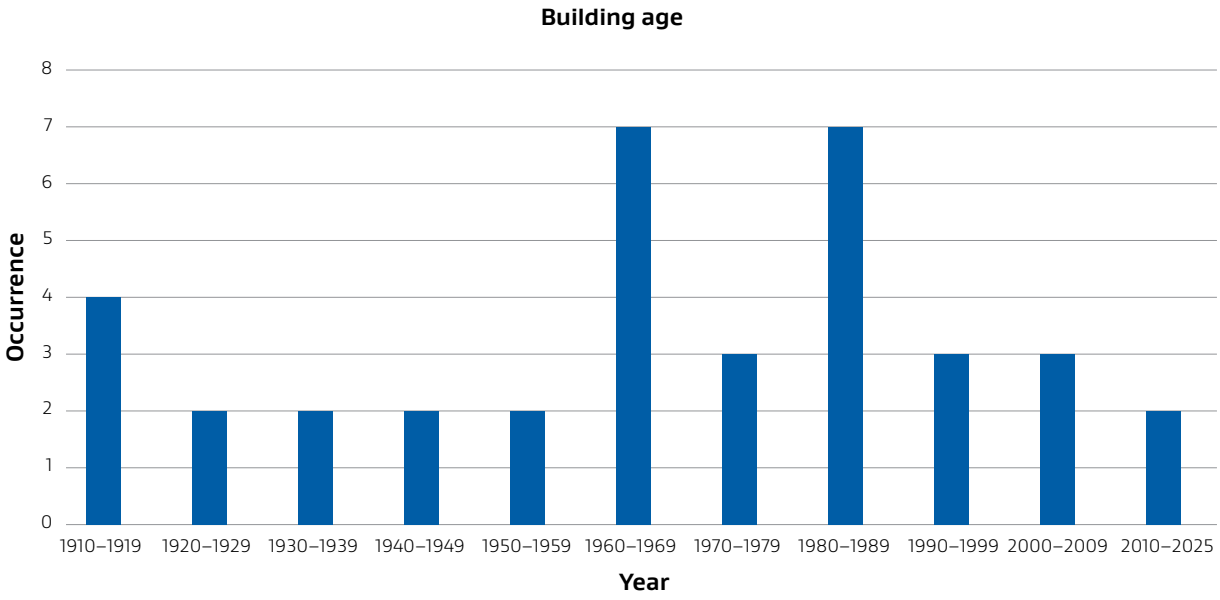
All councils responded positively to the need to address the recommendations. In many cases, the issues highlighted by MBIE had already been resolved.

Inspection findings

The buildings

Building age

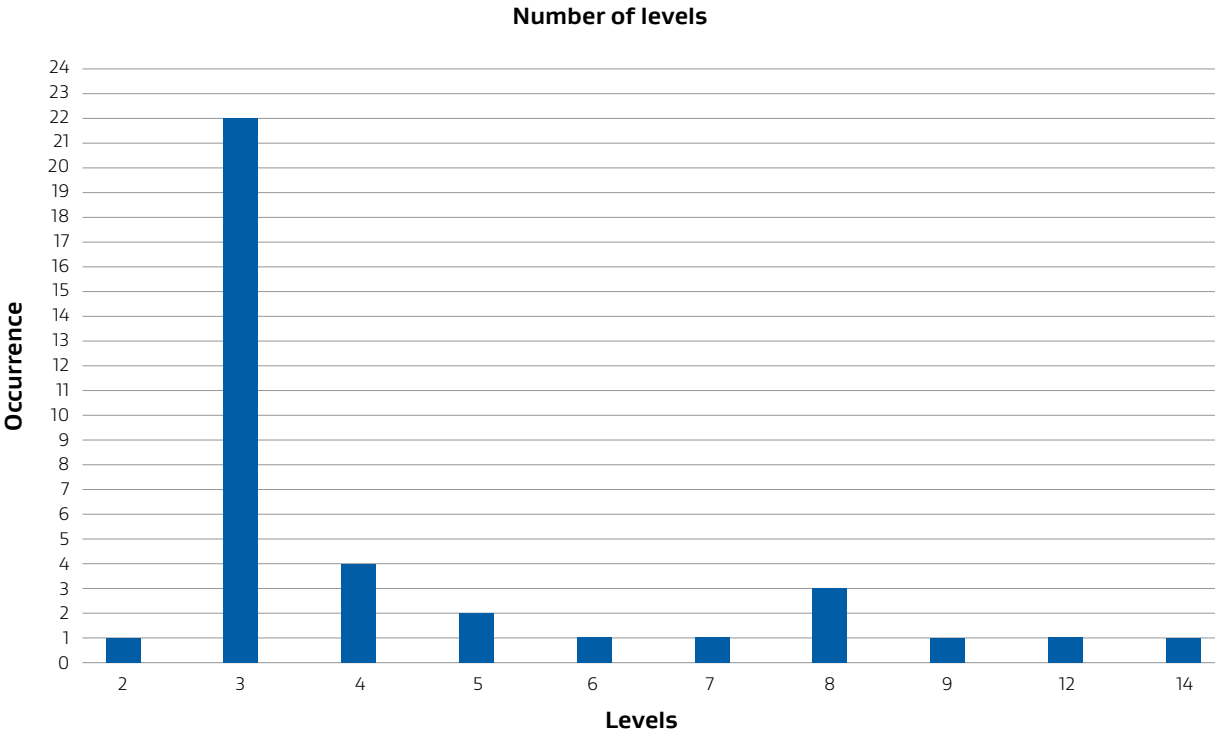
The average age of the buildings is 60 years. The oldest building was originally constructed in 1910 and the newest in 2022. The majority of buildings were not originally built as a boarding house or as accommodation. Some prior uses were as office buildings, single family dwellings and classrooms.



More than three quarters of the buildings were constructed prior to 1991, before the Building Act (and its predecessor The Building Act 1991) came into force. These buildings would not have been required to have a building consent unless a renovation or change of use occurred after 1991. This Operation did not include a comprehensive review of the council records, but it appears most have gone through the consent process for an alteration or change of use since initial construction. Only one building (in Queenstown) has had no change of use or alterations since it became a boarding house prior to 1991.

Building size

The buildings ranged in size from 2 to 14 storeys, with 3 storeys in 60% of cases. The average number of beds per site was 95, ranging from 5 to 350 beds on a site with multiple buildings, and 285 beds in one building. One building was 12 storeys tall but only one storey was used as boarding house accommodation. The single 2-storey building inspected is below the project scope minimum. However, still contributes to the findings in this report.



Fire safety systems and features – overview

A building can have a variety of different fire safety systems and features depending on its size and use. Many fire safety systems and features are also specified systems (SS).

Fire safety systems are generally categorised into active and passive systems. Active fire safety systems that are also specified systems include:

- Automatic suppression systems for fire or other dangers (SS1)
- Emergency warning system (SS2)
- Access Controlled Doors (SS3/2)
- Interfaced Fire/Smoke Doors (SS3/3)
- Emergency Lighting (SS4)
- Escape route pressurisation system (SS5)
- Riser Main (SS6)
- Mechanical Smoke Control (SS13/1)
- Smoke Curtains (SS13/3)
- Emergency warning intercommunications system (SS15/1)

Passive fire safety systems that are also specified systems include:

- Natural Smoke Control (SS13/2)
- Signs for SS1-13 (SS14/2)
- Final exits (SS15/2)
- Fire Separations (SS15/3)
- Exit signage (SS15/4)
- Smoke Separations (SS15/5)

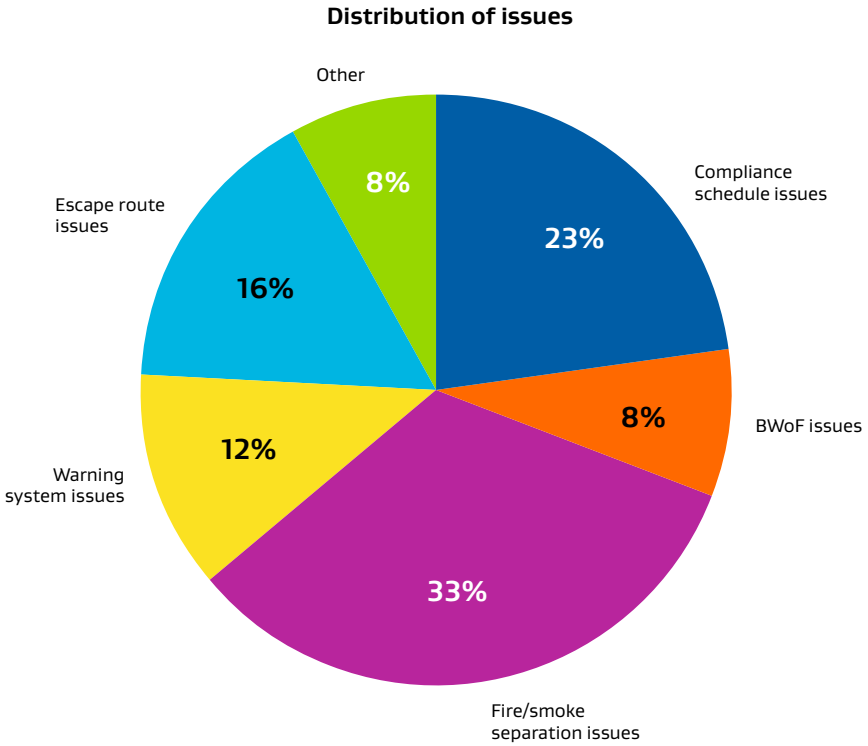
The fire safety specified systems – buildings inspected

Fire safety systems present in the buildings inspected during the operation

Specified System	Number of buildings where the system is present
Automatic suppression systems for fire or other dangers (SS1)	3
Emergency warning system (SS2)	37
Access Controlled Doors (SS3/2)	8
Interfaced Fire/Smoke Doors (SS3/3)	18
Emergency Lighting (SS4)	35
Riser Main (SS6)	8
Smoke Curtain (SS13/3)	1
Signs for SS1-13 (SS14/2)	37
Final exits (SS15/2)	37
Fire Separations (SS15/3)	34
Exit signage (SS15/4)	38
Smoke Separations (SS15/5)	23

Fire safety issues

In total, Operation Magazine identified 134 distinct issues (relating to fire safety and Building Act obligations) across the 37 buildings inspected. The issues identified were placed into six broad categories which are shown in the graph below.



The six issues are classed under two even broader categories:

1. Compliance with legislative requirements, which includes:
    a. Compliance schedule issues
    b. BWoF issues
2. Issues with the fire safety systems and features, which includes:
    c. Fire and smoke separation issues
    d. Warning system issues
    e. Escape route issues
    f. Other issues

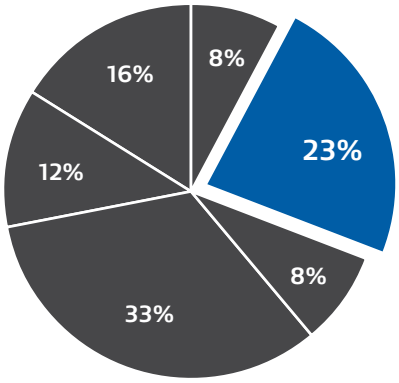
Compliance with legislative requirements

The Building Act has stringent requirements for buildings which have fire safety, and other life safety systems present. The focus of the Operation Magazine inspections, in relation to legislative requirements, was on the compliance schedule and BWoF obligations of the building owner, IQPs and the council. Across 37 buildings, 42 instances of non-compliance with compliance schedule and BWoF requirements were observed.

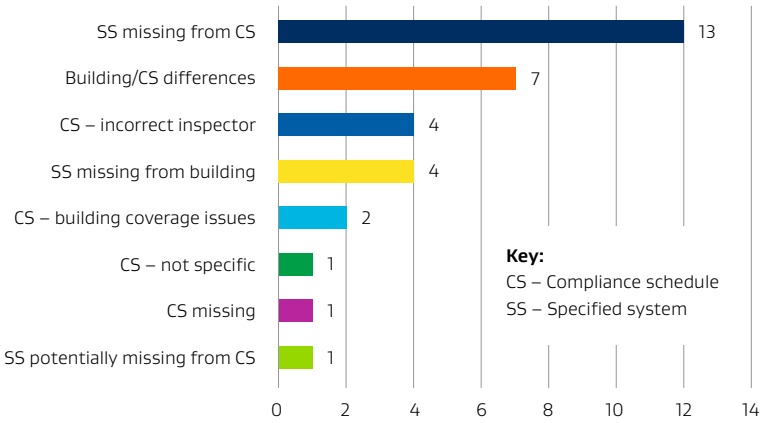
Compliance Schedule Issues

The compliance schedules for each building were assessed to ensure they complied with Building Act requirements and that they aligned with the specified systems that were present in the building. Compliance schedule issues accounted for 23% (31) of the 134 distinct issues identified during Operation Magazine.

Compliance schedule (CS) issues



Issue break-down



In most cases, non-compliance with compliance schedule requirements occurred because there were specified systems in the building that were not on the compliance schedule. In one case, a building had no compliance schedule at all despite the requirement to have one.

All specified systems in the building are required to be listed on the building's compliance schedule. Where they are not, it is unlikely these systems will be subject to essential inspection and maintenance procedures, increasing the likelihood of failure which could be catastrophic in the event of a fire. Anecdotal evidence suggests that where systems aren't listed in the compliance schedule it is most likely because they were installed without a building consent. As a result, they do not go through the approvals process that would ensure the compliance schedule is updated to capture the new systems. We understand that the installation of access control doors (a specified system) without building consent is a common occurrence. One possible explanation for this is that installers are not aware of the requirement to obtain a building consent before carrying out the installation of these systems.

Compliance schedules were also found to be inaccurate in other ways. In 7 buildings the system described on the compliance schedule differed to the system actually installed in the building. In other cases, the compliance schedule lacked the required detail.

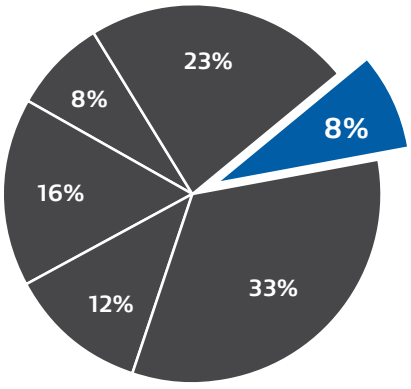
Inaccuracies and lack of detail in a compliance schedule can often result in the specified systems not being correctly and thoroughly maintained.

These issues are consistent with those found during MBIE's regular programme of monitoring Territorial Authorities with regard to their performance relating to compliance schedules.

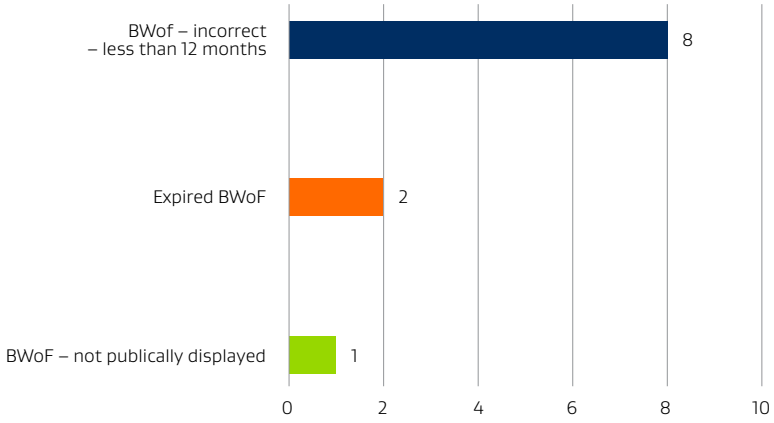
Building Warrant of Fitness Issues

Buildings were checked to ensure they had a current BWoF, that the BWoF was publicly displayed and that it complied with the Building Act requirements and Building (Forms) Regulation 2004 requirements.

BWoF issues



Issue break-down



The most common breach of the BWoF requirements was where the owner (or owner's agent) had not complied with the Building Act requirement to have a full 12 months' worth of inspection, maintenance and reporting procedures. In some cases, only one out of the 12 months had been complied with.

It is an offence under the Building Act to not have had the full 12 months' worth of inspection, maintenance and reporting procedures. The Building Act does not provide any flexibility or exemptions to the requirement, even if the systems are performing as required (the legislative purpose of the BWoF regime). This means for those buildings where procedures have not all been carried out, at the time the next BWoF is due, a valid BWoF cannot legally be supplied or displayed. Despite this, eight building owners, whose building were subject to Operation Magazine inspections, issued BWoFs anyway.

This type of non-compliance also means that, for these buildings, there were significant periods of time where the specified systems had not been inspected to ensure they were operating correctly. In most cases, not completing a full 12 months of procedures is due to procedures of the compliance schedule being missed, which can happen for a variety of reasons, including:

- An owner or IQP cannot get to (or into) the building to carry out the inspection
- An IQP being unavailable (eg they are sick or double booked)
- A contractual issue between an IQP and owner (eg non-payment)
- An owner not being aware of their obligations to have procedures being carried out
- Building work resulting in inability for SS to be inspected.

Anecdotally, we are also aware that another reason that BWoFs cover less than 12 month's compliance is because a building owner changes IQPs and the old IQP refuses to certify the procedures that they have carried out. This leaves the owner with certification for only the period of time that the new IQP has been carrying out the procedures.

In a few cases, the BWoF for the building was either expired, or not on display. This could be because procedures were missed and a new BWoF was unable to be provided. It could also be because there is a delay in providing the BWoF.

Breaches of the BWoF requirements are an unacceptably common occurrence. During MBIE's assessments of Territorial Authorities[3], 64% of Territorial Authorities were found to have a policy of accepting BWoFs with less than 12 months compliance, or accepting documentation from IQPs which stated that one or more of the inspection, maintenance or reporting procedures had been missed (whilst still allowing the BWoF to be issued).

Fire safety systems and features

Depending on the specific type of fire safety system or feature in the building concerned, Operation Magazine inspections included a combination of inspections for the 'condition' and 'adequacy' of the fire safety systems and features. Where possible, the 'compliance' was also checked. However, due to the nature of these inspections, the building consent documentation was, in most cases, not able to be viewed in order to check the compliance requirements.

The measure for acceptable *condition* is whether the system was in a good state of repair and performing to the level likely required when it was installed.

The measure for *suitability* is a general expectation that the buildings have adequate active and passive fire safety systems to ensure the building is safe for people to occupy no matter their age eg compliance with section 116B of the Building Act[4].

The measure for *compliance* is defined by what was required by legislation when the building was constructed (or altered or had its use changed), whether the council applied the appropriate requirements, and whether the systems still comply with these requirements.

The fire safety assessments consisted of visual checks of the fire alarm, fire and smoke separations, emergency lighting, fire hydrant systems and escape routes. Where possible, some simple fire safety systems were tested (eg domestic smoke detectors and emergency lighting systems).

Documentation for the above systems and features were also reviewed where available.

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3 MBIE's BDSA team carry out regular assessments of Territorial Authorities under section 204 of the Building Act to ensure they meet Building Act obligations.

4 Section 116B creates and offence for someone to use, or permit the use of, a building without adequate means of escape from fire (including both active and passive system)

Overview

Issues with the fire safety systems and features accounted for 69% (92/134) of the overall issues found during Operation Magazine. These 92 issues were grouped into the following categories.

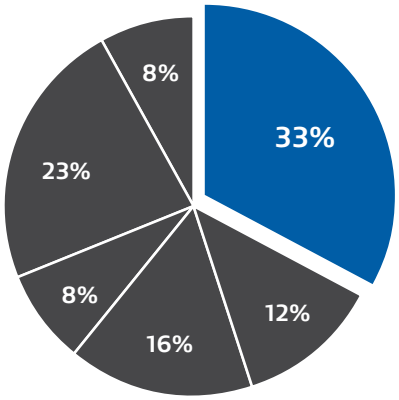
1. Fire and smoke separation issues
2. Emergency warning system issues
3. Escape route issues
4. Lift issues
5. Other issues

Fire and Smoke Separation Issues

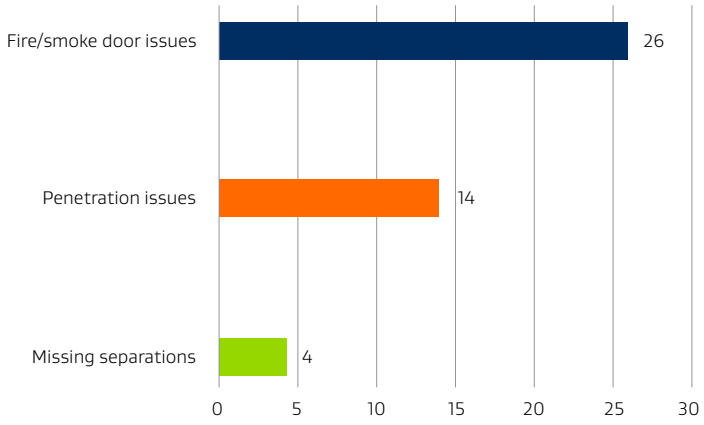
Fire and smoke separations provide resistance to the spread of fire and smoke between different parts of the building. For example, stairs used as part of the building's escape route will often be separated from other parts of the building with fire and smoke separations to ensure safe egress of occupants out of the building in the event of a fire.

As most compliance schedules did not include the location of fire and smoke separations, the inspection was limited to observing the **condition** of the separations, for example, whether there were obvious damage or gaps to walls and doors. Where service penetrations were accessible and visible, these were checked to see whether appropriate passive fire protection had been applied. Doors were checked for whether they were fire and/or smoke rated, and whether they closed properly.

Fire/smoke separation issues



Issue break-down



Issues with fire and smoke separations accounted for a third (44) of overall issues found during Operation Magazine.

Over half of the recorded issues with fire and smoke separations related to deficiencies with the fire and smoke doors. The most common issues with doors were that they were not 'tagged' showing their fire and smoke resistance ratings[5], they had damaged or missing seals or were held open without functioning mechanisms in place to release those doors on activation of the fire alarm. Not all doors within fire separations had self-closers. In some cases, fire doors appeared to have been removed.

5 Note that some of these doors may not have been subject to the requirement due to their age.

Issues with fire ratings of walls and floors were common and, in some cases, a major concern. Some buildings had major damage to walls and partitions, or a lack of fire separation between floors, such as staircases open to all levels.

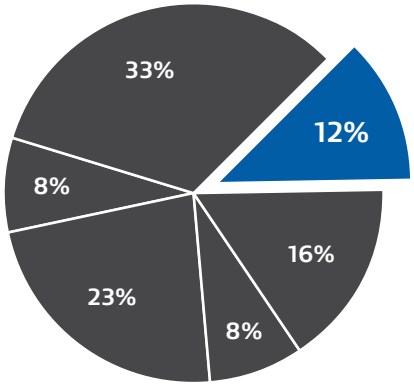
Most of the buildings that were inspected had penetrations for services (such as plumbing, data or electrical cabling) that were not correctly protected through fire separations, in turn compromising their effectiveness. BRANZ study report 410[6] suggests any defects more than 25 mm in diameter through a fire separation have no integrity and will fail during a fire. Penetrations were either not sealed off, pipe penetrations had collars that were incorrectly or only partially fitted and wire and cable penetrations were overloaded ie, more wires or cables being used than the application was rated for.

Concerningly, most of the buildings that had issues with fire or smoke separations also had a BWoF. This means that the IQP responsible for oversight of these separations, provided a Form 12A certifying the inspection and maintenance procedures had been carried out, allowing a BWoF to be issued. The inspection and maintenance process should ensure any defects are fixed. Providing a BWoF that is issued based on incomplete inspection and maintenance procedures could mean the BWoF is false or misleading which is an offence under the Building Act.

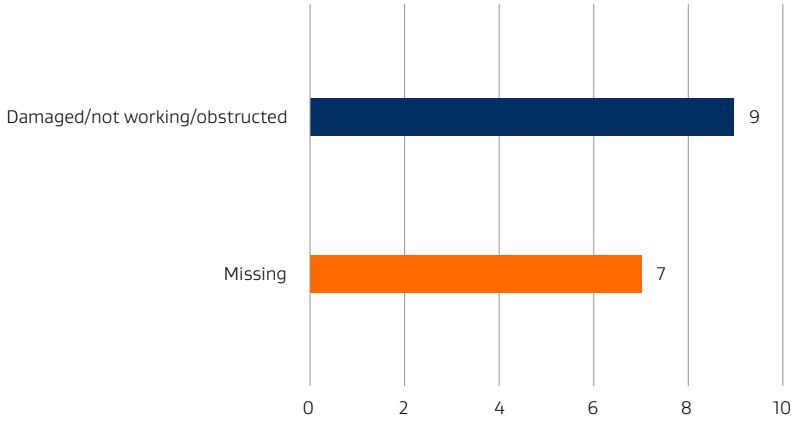
Emergency warning system issues

Fire alarm systems are a type of emergency warning system. These systems come in various forms, but all have the common purpose of providing early warning to building occupants about the presence of fire.

Warning system issues



Issue break-down (condition)



Condition

Issues with fire alarm systems were a regular occurrence. Nearly half of all issues found with the fire alarm system related to parts of the system (eg smoke detectors) missing. Other fire alarm systems were found to be damaged, obstructed, or not working.

Suitability

In terms of fire alarm suitability, four aspects were considered:

1. The alarm type
2. The alarm panel type
3. Alarm monitoring
4. Silencing and isolating alarms

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6 Frank, K., Baker, G., MacIntyre, J., *Assessing the risk of non-compliant firestopping and smoke stopping in New Zealand residential buildings undergoing alterations*, BRANZ study report SR410 (2018)

Alarm type

Different types of alarms

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

Primary alarm type present in the buildings inspected

System	Number of buildings where alarm type present
Type 1	0
Type 2	7
Type 3	5
Type 4	11
Type 5	12
Type 6	1
Type 7	1

Alarm type findings

Most boarding houses inspected are older buildings converted from a prior use to boarding house accommodation.

When the buildings were converted to accommodation, they would have likely been required to upgrade their fire alarm systems. In the buildings inspected, the upgrades vary. Rather than replace the entire fire alarm system including the panel and the detectors, the existing alarm system has been converted:

1. Some existing conventional alarms were expanded by fitting alarm connected smoke detection but no hush feature in the sleeping areas. This is an update from a previous Type 2 or Type 3 to a Type 4 (with no Type 5 functionality). An activation will cause a building wide alarm.
2. Some boarding houses merely had domestic smoke alarms in sleeping areas which are not connected to the fire alarm. The activation of a domestic smoke alarm will only notify the occupant in that area.
3. Other building owners replaced the alarm panel only with an analogue addressable (programmable) version, and wired the conventional heat, smoke and sounding devices in each sleeping area to a relay to function as a Type 5.

Smoke detector findings

Half the buildings had smoke detectors installed throughout. Eight buildings had heat detectors throughout, one building was sprinklered, and 11 buildings did not have automatic detection coverage but used smoke alarms not connected to the alarm panel.

Some smoke detectors were tested during the inspections. Only about half were found to be in good working condition. Many had the battery removed or had dead batteries, or the alarm mechanism had been removed, leaving only the case.

The issues with the use of domestic smoke detectors

The issue with using domestic smoke alarms instead of alarm-connected smoke alarms can be summarised as follows:

- Lack of building wide protection – the activation of a domestic smoke alarm in a boarding house will not set off a building wide alarm.
- Defects not apparent - if smoke alarms fail due to battery depletion or tampering this will not be picked up – as opposed to a panel connected detector which will flash a 'defect' light
- Lack of maintenance – domestic type smoke detectors are often left off a building's compliance schedule because people do not understand they are specified systems. This often means they do not get the regular inspection and maintenance they need.

Alarm panel types

Alarm panel types

Most alarm systems have a fire alarm panel of which there are two types:

- Conventional panels – older panels which only have the ability to recognise zones within buildings.
- Analogue addressable panels (programmable) – newer panels which have the ability to recognise individual detectors and components within buildings.

Alarm panels present in the inspected buildings

Out of the 37 buildings inspected, 24 had conventional panels and 13 had analogue addressable panels. However, in 4 buildings where a conventional panel was replaced with an analogue addressable panel the devices were not replaced. Therefore, the system will function as if it has a conventional panel. Therefore, the majority (73%) of the panels function as a conventional system.

One panel was found in a private bedroom. When the panel location was approved, this area was a common area (lounge). It does not appear to be a consented change and there were no physical alterations to the building. For this building, inspectors (such as FENZ or an IQP) would not have easy access to the panel in case of alarm activation.

Alarm Monitoring

Overview

When a fire alarm system is monitored, it transmits a signal to a remote receiving centre when the alarm activates or goes into defect. The remote receiving centre can then notify the fire service and/or service technician, as appropriate.

If the alarm is not monitored:

- the fire service is not automatically alerted to the fire, and their response will be delayed as it relies on someone phoning 111
- the service technician will not be called out to fix the alarm if it goes into defect or alarm. If defects are not attended to, the building is not sufficiently protected.

Monitoring of alarms in the buildings inspected

Half (51%) of the alarms found during this operation were not monitored. Some examples included:

- In one building, the wires to connect to the alarm monitoring company had been cut.
- in another building the Certificate of Compliance issued on installation showed it was monitored, but the compliance schedule notes the alarm is not monitored.
- Another building is known to repeatedly have their monitoring discontinued as the owner continually failed to pay the monitoring fees.

Silencing and isolating Alarms

Overview

An alarm system can be silenced and/or isolated. It can also be reset.

The **isolating function** of an alarm system is usually used to deactivate an alarm system in a particular part or zone within a building, for example, where construction is happening in part of the building that may cause dust that could activate the alarm system.

The **silencing function** is used when an alarm sounds and there is a need to stop the audible aspect of the alert eg a false alarm. Silencing an alarm can also isolate all or parts of the alarm.

When an alarm is silenced, it isolates part of the system. Which part of the system is isolated will depend on the type of alarm panel and how it is programmed. For example:

- For an analogue addressable panel with the appropriate devices - only the device that activated will be isolated, which leaves the building still protected.
- For systems installed to the 2003 alarm standard or later - this can mean that an entire zone (eg, an entire floor and in some cases an entire building) is unprotected when the system is silenced.
- For alarm systems installed to an older alarm standard (older than 2003) - silencing the alarm would leave the entire building unprotected.

Silencing of an alarm is not as much of a concern when the alarm is monitored as this status will be sent to the remote receiving centre.

Resetting an alarm is what is needed after the alarm activates or when it is in defect.

Alarm isolation restrictions

The NZS 4512 (the fire alarm standard) does not allow the owner to isolate the alarm unless the building is fully sprinklered and fully protected with smoke detection or is not monitored. However, this requirement is only relevant if the alarm was installed to this standard. The isolation should not prevent the alerting devices, heat detectors or manual call points from activating. The isolation facilities should be secured against unauthorised use.

Findings - Owner/staff silencing alarm

In 13 (35%) of the buildings the owner/staff silences the alarm when it activates (only after they have determined it is in fact a false alarm). Of these, 10 alarms are not monitored.

7 of the 10 non-monitored alarms were installed to an alarm standard earlier than the 2003 edition. These buildings (which were 18% of the buildings inspected) are at a higher risk of total building isolation. This is a cause for concern because, where the building's alarm system is isolated, the whole building is unprotected and the alarm system would not emit an audible warning when activated.

Various panels were found in areas accessible to all occupants (eg, front lobby next to main entrance) with the silence key in the key switch or tied to/near the panel with string. There is a risk that (possibly inadvertent) tampering by unauthorised people will silence and perhaps isolate the alarm.

Findings - Owner/staff resetting alarm

In three (8%) of the buildings it was found that the owner (or staff) resets the alarm when activated. The following additional issues were identified in relation to resetting alarms:

- one panel had the reset instructions posted on the outside of the panel door
- a service technician instructs the owner to reset the alarm over the phone
- of the three buildings where the owner or staff resets the alarm, one did not have an Evacuation Scheme
- two buildings have up to date Evacuation Schemes but only one mentions the need for an alarm agent to reset the alarm.

When the owner or staff reset the alarm, there is a risk that they render the alarm inoperable, leaving the building and its occupants unprotected.

Opening the panel door provides access to the network cards and wiring connections. There is a risk of damaging the system, and inadvertently isolating all or part of the system. A fire alarm system is a complex life safety device not dissimilar to a computer and should only be serviced and reset by qualified alarm technicians.

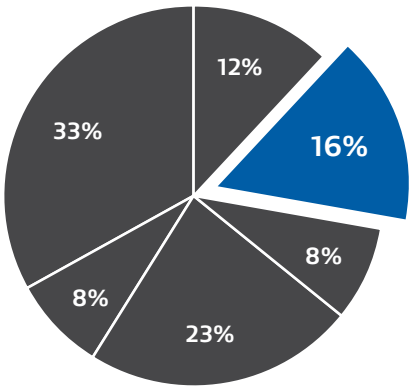
Escape route issues

A building's escape route provides the means for building occupants to exit out of the building in the event of a fire or emergency.

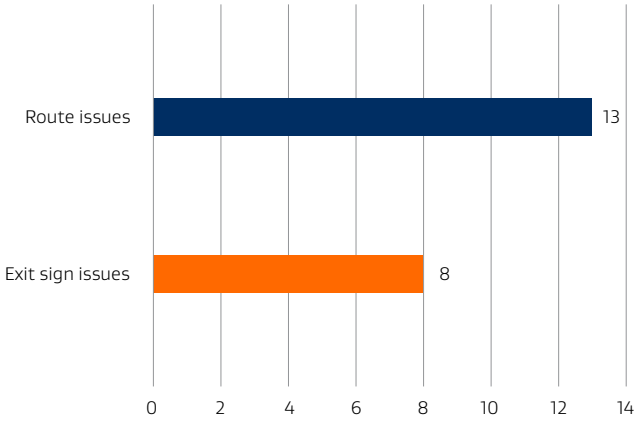
The inspections focused on the **condition** and **suitability** of the escape routes and included an assessment of how easy it would be for people to evacuate in case of fire.

Good fire safety design practice is that if it is not possible to escape in two separate directions the dead-end[7] portion should be short. Exit signage was checked to ensure it was clear, visible, and lit up when applicable. If there was emergency lighting, a quick check was done to ensure it lit up. Doors were checked to ensure they opened easily, were unlocked and that there were no obstructions along the way out of the building.

Escape route issues



Issue break-down



Escape routes were a major concern in some buildings where egress out of the building was obstructed or where the escape route itself was not adequate, safe or structurally sound.

7 the part of an open path where escape is possible in only one direction.

Many signs used to aid egress from a building in the event of a fire (eg exit signs) were found to be missing, misleading or illegible.

While some of the issues outlined above are design issues relating to the age and design of the building, many are issues that should either be identified and rectified under the compliance schedule and BWoF requirements or, where the building has undergone a change of use or alteration, through the requirement to upgrade the fire safety system (means of escape from fire).

Summary of landlord compliance issues

Key observations noted by TCIT during the course of the operation related to:

- A lack of ability from territorial authorities to clearly identify boarding houses operating in their region.
- Difficulty in accessing properties for the purpose of regulatory assessments.
- A lack of basic compliance with the RTA displayed by many boarding house operators in relation to the Healthy Homes Standards.
- A lack of understanding from both boarding house operators and other accommodation providers as to what constitutes a tenancy arrangement.

A lack of consistency in what is considered to be a boarding house, and a lack of standardised information meant that territorial authorities provided long lists of properties they believed could potentially be boarding houses. In many cases it was difficult to determine if a property was a boarding house without significant research. A lack of a consistent definition of a boarding house used by each council and a lack of oversight in relation to the number and location of boarding houses in each region raises concerns for the ability to regulate this sector and ensure the safety and welfare of tenants.

During this operation limitations in regulatory powers available to TCIT and the BSDA became apparent. Entry to boarding houses was a hurdle as there are no powers of entry available to enter a boarding house.

TCIT identified relatively few breaches of legislation relating to fire safety under the RTA. This is likely because fire safety requirements of the RTA are less strenuous than other rules and regulations operators are required to comply with.

Compliance issues found were overwhelmingly related to the healthy homes standards. Boarding house operators have been required to be compliant with these standards since 1 July 2021. Included in these standards are the provision of adequate heating in the main living room of a premise, insulation, drainage to keep a premise free of damp and water ingress, draught stopping requirements and ventilation.

TCIT has worked to address issues identified both at the time of each site visit and afterwards. During visits concerns were discussed with boarding house operators as they were identified. Following visits TCIT has used a range of approaches to address issues identified depending on their level of seriousness; beginning with the provision of education followed if needed with enforcement action including Formal Warnings and Improvement Notices. At the most serious end of the spectrum a small number of cases have become investigations and are currently ongoing. Issues TCIT has identified that sit outside of its jurisdiction have been reported to the relevant council.

Boarding house's compliance with the RTA appeared to be hampered by some operators' lack of awareness of their legal obligations. For boarding house operators who allowed a site visit assessment there appeared to have been little past incentive to become aware of their obligations. The general attitude of operators appeared willing but often minimalist.

While MBIE already has information available for boarding house operators and tenants on rights and obligations under the RTA, Operation Magazine has highlighted an opportunity to give targeted focus to educating boarding house operators about their obligations. In addition to information already available through existing channels, such as the tenancy.govt.nz website, Tenancy Services is planning to release targeted public information messaging in the second half of 2024 to ensure that those who are currently subject to the healthy homes standards, including boarding house operators, are aware of their responsibilities. MBIE will also continue to work directly with representatives in the boarding house industry as appropriate. As there isn't a clear peak body for this part of the rental sector and these dwellings are present across all regions, we anticipate challenges in ensuring messaging is picked up by all operators.

Next Steps

MBIE will monitor councils to ensure they have followed up with building owners about issues identified in the course of this operation.

MBIE will directly provide the report to all nine councils involved in Operation Magazine and inform the remaining 58 councils of its publication on MBIE's website.

Information obtained and lessons learned from Operation Magazine will inform several parts of MBIE's work programme including:

- MBIE's broader fire safety work programme.
- MBIE's ongoing programme of monitoring the performance of territorial authority functions.
- MBIE's guidance programme:
  - To support councils to take appropriate action, MBIE will provide guidance on the findings of Operation Magazine which will include information on the criticality of building warrant of fitness audits and enforcement of fire safety related provisions of the Building Act 2004.
  - To inform buildings owners of their legislative fire safety obligations.

Te Kāwanatanga o Aotearoa
New Zealand Government

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