

## Fire Research & Investigation Unit

# Heads Up



### BACKGROUND

Investigations into the two separate fires have highlighted similar issues. Both buildings were consented as commercial premises and had been unlawfully converted to accommodate residential occupants.

The first fire occurred at a building being operated as a car mechanical workshop and a car dismantler on the ground level with sleeping accommodation on the upper level. No automatic fire alarm system was provided in either of the ground floor tenancies. Since the original consent for a factory in 1981, there was no record of any consented work being done. A recommendation that a notice to fix be issued was on file however there was no evidence that one had been issued to the building owner.

The second incident involved a building originally built in the early 1900s, and subject to multiple alterations and extensions over time, the latest in 2001. However, none of the consented works included the conversion to residential use. The building included a single storey workshop adjoined to a two-storey commercial unit. Occupants of both the workshop and upper level of the commercial unit had converted these spaces to permanent accommodation. The workshop was fitted with automatic detection, but the rest of the building was only provided with manual call points. The use of the building as residential premises was also in breach of the district plan for the area. The Territorial Authority had issued several notices to the building owner, including two Dangerous Building Notices, listing necessary remediation works which had only been partially completed. Therefore the notices remained valid at the time of the fire.



Figure 1 - Second Incident: Rear facade of commercial unit overlooking the burnt out workshop

### INCIDENTS DETAILS

The fire in the first building occurred on the 9<sup>th</sup> December 2014. The Fire Service was notified at 10.09am. On arriving, firefighters were faced with the car dismantlers premises fully involved in fire with the fire encroaching into the upper level through the roof space. The fire was attended by five fire appliances and was extinguished by 11am. Occupants were able to evacuate safely, in part due to the fire occurring during daytime.

The fire in the second building occurred on the 3<sup>rd</sup> June 2015. The Fire Service was notified at 1.19am and the first responding appliances arrived at 1.26am to find the single-storey building fully involved and the fire spreading to the two-storey structure. The incident was escalated to third alarm, requiring 14 fire appliances and support vehicles before it was finally extinguished at 2.30am. The occupant of the two-storey unit was alerted by the activation of the fire alarm and was able to evacuate safely. Unfortunately, the occupant of the single-storey unit was unable to evacuate and died in the fire.

### FURTHER INFORMATION

In the first building, the walls of the upper level unit were constructed with standard 12.5mm Gib board mechanically fixed to the timber frame. There were a number of penetrations through these walls which had not been fire stopped. Therefore the upper level unit containing the sleeping risk was not adequately fire separated from the ground floor spaces. The structural steel beam supporting the floor did not appear to have any fire protection. Finally, no automatic detection and alarm system was provided. All these features would have been required under the Building Code

In the second building, the upper level unit was not appropriately fire separated from either the ground floor commercial unit or the adjacent single-storey unit. In addition, automatic detection was only provided in the single storey unit. The Building Code would have required both adequate fire separation and automatic smoke detection to protect the sleeping risk.

In both cases, the buildings had been unlawfully converted and were demonstrably dangerous prior to the fires. There is also evidence indicating that in both cases, the Territorial Authorities were aware of the issues, and in at least one of the cases, had taken steps to resolve them, although the situation had been allowed to continue for an extended period of time.



Figure 2 - First Incident: remnants of the wall separating the kitchen of the residential unit from the workshop

### LESSONS LEARNED/RECOMMENDATIONS

The following recommendations are relevant to these incidents:

- Building Consent Authorities (BCAs) and/or Territorial Authorities (TAs) should ensure that recommendations made by compliance officers are given due consideration and notices for remedial works are acted on.
- BCAs/TAs should investigate all non-consented change of use they become aware of, with priority given to those that introduce sleeping accommodation in the premises.
- Designers involved in alterations to existing buildings should undertake sufficient investigation to ascertain existing provisions, particularly fire rating, in order to support design assumptions.
- Where sleeping accommodation is introduced in an existing building, automatic fire detection and alarm systems throughout are essential to ensure the safety of occupants and should therefore be provided as part of the conversion works.
- Adequate fire separation is also critical between sleeping areas and other parts of the building. Where existing partitions do not provide the required fire resistance, they should be replaced/upgraded as required.
- Where possible, the NZFS also recommends that considerations be given to the installation of automatic sprinkler systems to protect occupants and safeguard business continuity.

### FURTHER INFORMATION

New Zealand Fire Service documents:

NZFS Incident Report, Fire Investigation Report and Post Incident Analysis Report (Incident number: F1743743)

NZFS Incident Report, Fire Investigation Report and Post Incident Analysis Report (Incident number: F1856085)