

Fire Research & Investigation Unit

Heads Up



BACKGROUND

A devastating fire in one end of a house (that had been divided into two tenancies) highlighted the importance of internal fire separations between tenancies. Subdivision of existing buildings may occur when a building undergoes a change of use, or tenancy requirements are changed.

The purpose of fire separation is to prevent fire and smoke entering other occupancies inside a building or between adjoining buildings. This provides a higher level of protection to neighbouring occupants, especially when they are asleep. The increasing pressure for housing in many areas in New Zealand is contributing to the rate of both Code Compliant and unconsented building works including subdivision of residential houses.

The Building Act 2004 requires various levels of rated fire separation for buildings of different occupancies. However in all cases the materials employed for construction require a Fire Resistance rating classification which consists of 3 components (fire, smoke and insulation value) and is expressed in time format e.g. 15 minutes, 1 hour etc. The construction work is also required to comply with the building code and manufacturer's instructions.

Incident Details

A fire occurred on the 20 July 2016 in a residential house which had been separated into two tenancies. The main unit and the minor unit were both occupied at the time of incident and were both fitted with working smoke alarms.

The building was originally a single residential house and was converted approximately 3 years ago and a Code of Compliance Certificate was issued upon completion.

The fire started as an electrical fault in a ceiling mounted extraction fan in the bathroom and quickly spread throughout the ceiling void of the occupancy breaking into the main unit and causing widespread destruction in that tenancy. When the fire reached the internal wall separating the two tenancies, the fire separation prevented fire spread into the adjoining unit and enabled the safe escape of the occupant and the extinguishment of the fire in the main unit.



Photo above shows extensive fire damage in first unit.

Photo below shows undamaged adjoining unit in same house protected by a well constructed fire wall.



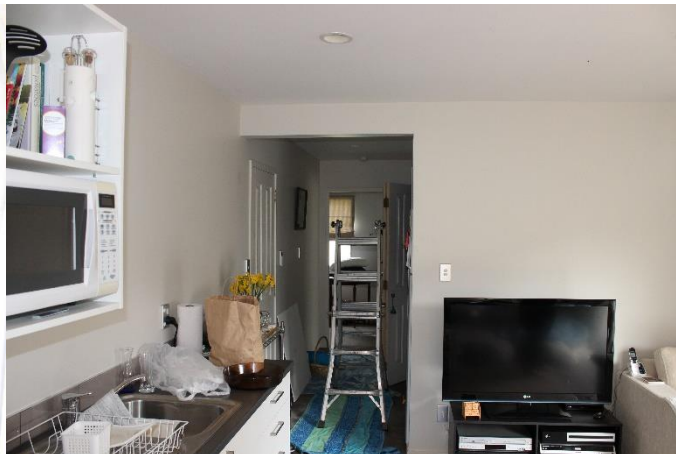
The adjoining unit remained almost totally undamaged. Inspection of the ceiling void above the main house revealed an intact fire separation which extended from the walls below terminating at the roof junction. Effective fire separation requires wall to floor and subfloor junctions to be sealed correctly where applicable.



Image above shows fire damage in ceiling space of fire affected unit. The fire separation wall is visible in the rear of image.

Image above shows partial roof collapse on the fire side of the separation wall.

The Fire Service frequently observes poorly finished fire separation junctions or penetrations made through fire walls after construction to allow access for pipework or wiring. Inadequate fire stopping allows fire to spread into adjacent fire cells. However this house fire example highlights how effective well-constructed fire separation can be in containing a fire to a single fire cell.



The photos above clearly show the value of effective fire separation in reducing damage in the event of a fire in a subdivided house.

LESSONS LEARNED/RECOMMENDATIONS

- Fire separation is an effective means of providing fire protection for occupants in subdivided houses.
- The value and protection provided by fire separation is only effective when the fire separation is installed in accordance with fire design and manufacturer's instructions.
- All required work needs to be consented, consequently inspected and a Code Compliance Certificate issued on completion

FURTHER INFORMATION

New Zealand Fire Service Documents - Fire Investigation Report #F2117966



For more information, or to contribute to 'Heads Up'
e-mail fireinvestigation@fire.org.nz