Fire Design A Beginners Guide



An outline of specific fire related issues.



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About this pamphlet: Fire Design

The Building Act 2004 puts significant emphasis on public safety and amenity of buildings. This pamphlet specifically outlines a range of fire related issues only, and can affect virtually all building work. The pamphlet does not address other building related issues.

What building consent will require a fire design report?

A good way to think about this is if any member of the public visit, stay, or work in the building then it will most likely need a fire design, with the exception of single residential houses.

- all commercial buildings including storage pack houses
- tents (depending on size)
- flats, motels
- multiple house-hold units
- 🗢 marae

What it covers

Fire issues should be addressed in these areas:

- carports
- houses /garages/ sleepouts
- commercial /industrial, (including motels, flats etc) /miscellaneous structures

Building Warrant of Fitness (BWOF)

If a fire alarm (excluding domestic battery smoke alarms) is required to be installed as part of the Building Consent, then it is automatically recorded on a BWOF (along with other systems and features such as emergency lighting, illuminated exits, sprinklers, fire alarms, lifts, auto doors, air conditioning, backflow etc). The building owner has regular responsibilities to ensure the continued correct operation of these life safety systems. Please refer to our specific BWOF pamphlet.

Alterations

Under the Building Act 2004, alteration work requires a Building Consent, and, if it fits into the categories as described previously, then the "means of escape from fire" require addressing. This includes looking at all active and passive protection features to protect people from the effects of fire whilst escaping. It excludes addressing some cross boundary issues – but your fire designer can advise you on this.

General requirements

Buildings that are on boundaries are required to have fire rated walls. There are some standard dimensions provided in the NZ Building Code as to when and where fire walls stop and start. The further a building is from the boundary the less fire rating is required. Cross boundary issues are critical, particularly where there are sleeping type purpose groups involved. Early warning systems are the focus of fire protection, and means of escape with appropriate signage, are pivotal in getting people to a safe place. Specific fire engineering design information is contained in the Acceptable Solutions of the NZ Building Code 'C' documents.

Change of use

Under the Building Act 2004, where a change of use occurs, two fire related sections require addressing – "means of escape from fire" (as described above) plus protection of other property. This in essence requires a full fire design summary. Both alterations and change of use can be completed to "as near as is reasonably practicable". New work must comply fully.

Fire and Emergency New Zealand (FENZ)

FENZ require you to have an Evacuation Scheme where:

- more than five people are sleeping (commercially)
- ten people working
- or 100 people as a crowd are gathered

This is administered by them, and you should contact your local Fire Safety Officer.

Where to go to get more information

- A fire design is quite a complex exercise and Council recommends that you contact a qualified fire design professional.
- The Approved Documents ('C' or Fire documents) are available at the Gisborne Public Library
- Contact Council for advice (06) 867 2049
- Visit Ministry of Business, Innovation and Employment on www.MBIE.govt.nz



Fire code requirements for carports

An open-sided building/carport, which is detached or attached to the house does not require any fire rating if it complies with the following:

- The roof area is under 40 sq metres
- At least two sides of the perimeter are completely open to the environment
- No part of the roof is closer than 300mm to a relevant boundary. If your carport does not fit within this criteria it will require additional fire safety requirements

Fire code requirements for houses and garages/sleepouts

Houses, garages or sleepouts within 1 metre of a defined boundary are required to have a specific designed 30-minute firewall. There are requirements detailing how this wall is to be constructed, the effect of eaves, overhangs and material choices such as exterior linings. Penetrations like windows in a firewall also have to be rated for approval. One option is to shift the building further away from the boundary to negate the requirement for a firewall.

Notional boundary introduced

Since 1 January 2017 if buildings on the same section under one title and have the same ownership, a notional boundary exists between the two buildings. For instance, between the main house and sleepout. The requirements may apply to each building.

Choose location of notional boundary

The notional boundary can be located to give the best solution. For example, it may be easier or cheaper to provide a fire resistance rating (FRR) on one building than another on the same property. Therefore, the location of the notional boundary can be selected to take advantage of this.

Fire resistance rating (FRR) is required when buildings are less than 2 metres apart.

- ⇐ If the buildings on the same title are 2 metres or more apart, no FRR is required.
- If the buildings are less than 2 metres apart, one of the buildings will require an FRR of 30/30/30.
- The location of the notional boundary can be selected by the owner but cannot be changed once selected.

Smoke alarms

Automatic smoke detection is required in all new detached dwellings and altered dwellings. The position of these smoke detectors must be shown on all plans supplied for a Building Consent. The smoke detectors differ from the older type in that they require a hush facility to enable the alarm to be temporarily switched off. Multiunit developments require specific fire engineering design.

Fire code requirements for commercial/industrial buildings

The scale, function and location of your commercial building will determine the extent of fire engineering information required to be submitted with your Building Consent application. Often called a "Fire Design Summary" or "Fire Facts Sheet", this document analyses all of the clauses of the Fire Code of the NZ Building Code. This document is often provided by fire engineers, architects, engineers or designers. The document follows a logical process (specific for each building) through each of the clauses to arrive at conclusions as to the extent and range of fire safety precautions required. As an example, calculations are made for occupant density, the distance to travel for means of escape, what fire rated materials go where, what alarm type is required, where emergency lighting is required, smoke separation, do we need a fire hydrant outside etc. This is a specialty field, and Council has trained staff available to check the information supplied, and to provide you with help to ensure all buildings are safe to use.

Fire code requirements for tents/marquees etc.

These structures are often of a temporary nature and depending on complexity require similar requirements to a complete commercial building, including, but not limited to, fire alarms, emergency lighting, fire extinguishers and exit signage.





15 Fitzherbert Street, Gisborne phone 06 867 2049

email service@gdc.govt.nz web www.gdc.govt.nz facebook @GisborneDC