



BUILDING IN A FAULT AVOIDANCE ZONE

GUIDANCE FOR BUILDING IN ROTORUA DISTRICT

VERSION 1 JUNE 2025



BACKGROUND – ACTIVE FAULTS IN THE ROTORUA DISTRICT

Tectonic process can cause the ground surface to break and tear. These 'ruptures' tend to occur repeatedly at the same location, creating signs (traces) in landform that mark where fault rupture is more likely to occur again in the future. This displacement of the ground surface can cause damage to buildings, infrastructure and other structures, which could potentially injure people.

Rotorua has the highest density of active fault traces in New Zealand due to its location in the Taupō Rift. However, individual faults in the Rotorua district tend to have low to moderate slip rates (activity) compared to the fastest moving faults in New Zealand.

FAULT MAPPING

GNS (New Zealand's crown research institute for geological sciences) has mapped fault traces in the high resolution version of the [New Zealand Active Fault Database](#). This mapping also includes 'buffer areas' (referred to as 'Fault Avoidance Zones') around the fault traces to account for uncertainty in their location. This mapping supersedes the older mapping in the District Plan, which is proposed to be removed by Plan Change 8 (Natural Hazards).

THE BUILDING ACT, BUILDING CODE AND FAULTS

RLC appreciates that, if you are considering building in a Fault Avoidance Zone, it can be complex to understand the implications for building and building consent applications. The following points may assist but should not replace professional and legal advice.

(1) Faults raise an issue of compliance of building work with [Clause B1 \(Structure\)](#) of the Building Code. In summary, this seeks that buildings have a low probability of rupturing, becoming unstable, losing equilibrium or collapsing throughout their lives, taking into account the physical conditions likely to affect building stability.

(2) In the first instance, consideration could be given to whether there are any alternative locations for the building work that are unaffected by potential fault rupture.

(3) If alternative locations are not available, consideration could also be given to confirming whether the proposed building site is, indeed, affected by an active fault. Fault Avoidance Zones were mapped at a district scale. In some instances, further site-specific investigation can show that the fault rupture hazard does not affect the planned building location. Demonstrating this requires expert input. As a first step, consult an engineering or other consultancy with qualified geo-professionals or GNS.

(4) If the fault avoidance zone remains over the building site, then clause B1 should be considered for both new buildings and building alterations where there are changes to load or structural elements. Alterations must also consider the relationship to the existing structure. An alteration must not reduce the extent to which the existing building meets clause B1 (see section 112 of the [Building Act 2004](#)).

(5) Sites affected by Fault Avoidance Zones will likely be considered not to meet the requirements of 'good ground' pursuant to NZS3604:2011. This means the common compliance pathways for clause B1 using acceptable solutions are unlikely to be available. Verification methods also do not specifically address active faults. Therefore, applications for building work in a Fault Avoidance Zone relevant to clause B1 will need to follow an Alternative Solution based on performance of the building in relation to fault rupture hazards.

(6) Rotorua Lakes Council supports reference to the [Ministry for the Environment guidance](#) to help define the requirements in clause B1 in the context of fault rupture (although it recognises it may not be appropriate in every circumstance). This guidance provides a basis for demonstrating compliance using a risk-based approach, based on the fault's recurrence interval and building importance level. On the other hand, specific building design and justification is likely to be needed to address fault rupture where the recurrence interval is unknown or less than that suggested for the building importance level in the Ministry's guidance. This will likely require collaboration and discussion between designers and engineers as recommended by the Ministry of Business, Innovation and Employment (MBIE): [\(Improving_Collaboration_Between_Architects_and_Engineers.pdf\)](#).