



IDENTIFYING AND DESIGNING FOR GEOTHERMAL HAZARDS

GUIDELINES FOR BUILDINGS AND ASSOCIATED SITE WORKS IN ROTORUA DISTRICT (THE GUIDELINES)



WHAT PROMPTED THE DEVELOPMENT OF THE GUIDELINES?

Following the adoption of Plan Change 9 (PC9) and its more enabling building rules, council wanted to ensure that there were appropriate processes in place to manage geothermal risks and hazards. The purpose of the Guidelines is to assist those planning, designing and carrying out building projects in Rotorua and encourage development that:

- keeps people safe, healthy and comfortable;
- doesn't exacerbate geothermal risks to neighbours;
- is appropriately durable to geothermal environments.

WHO SHOULD USE THESE GUIDELINES?

Anyone thinking about constructing a new building, extending, renovating or converting existing buildings or carrying out associated site works. You should consider these Guidelines whether you are a technical expert or not, and even if you think geothermal hazards are not an issue for your site and development.

The Guidelines provide a process for identifying what is relevant to your site and building proposal. Many will find after the first steps of the hazard identification process that they don't need to consider geothermal hazards further. Some will find that only building material durability needs to be considered.

WHAT THE GUIDELINES DO?

- Explain the types of geothermal hazards and associated risks.
- Explain how to identify whether a new building proposal may be subject to geothermal hazards.
- Identify where geothermal hazards are and provide a starting point for potential risk mitigations.
- Suggest the types of expert advice that might be needed with respect to geothermal hazard identification.

WHERE DO THE GUIDELINES APPLY?

The Guidelines apply to building anywhere in the Rotorua district. Not all parts of the district are equally affected by geothermal hazards, but the Guidelines provide a process for stepping through consideration of whether geothermal hazards are relevant on any given site.

WHAT THESE GUIDELINES MEAN FOR BUILDING OR PLANNING CONSENT APPLICATIONS:

The Guidelines provide information intended to assist those undertaking building work to comply with the Building Act and Building Code, focusing specifically on Hazardous Agents on Site (F1 of the Building Code) and Durability (B2 of the Building Code), as well as the District Plan.

With the adoption of Plan Change 9, the District Plan now includes a requirement for most types of buildings in the Rotorua Geothermal System to submit to council, at the same time as a building consent application, an assessment of geothermal hazards and mitigation (Rule NH-R8).

The assessment is to be prepared by a suitably qualified and experienced person. The intention is that this assessment will encourage broad consideration of how to manage geothermal hazards. Completing the assessment should also assist to address the requirements of the Building Code.



The Guidelines are intended to support the preparation of these assessments, providing guidance on key matters including how to identify hazard, potential options for mitigation, who should be involved in assessing the hazard and designing mitigation options.

WHAT TECHNICAL INFORMATION WILL COUNCIL NEED TO SUPPORT BUILDING OR PLANNING CONSENT APPLICATIONS?

Due to the complex geology in Rotorua, council already expects that building consent applications for most new buildings and larger additions are accompanied by geotech reports. This is not expected to change and the provision of these reports is also intended to satisfy the requirements of PC9.

However, expert advice may be required for some sites to assess hazards when undertaking building work of a type that doesn't typically need a geotech report (such as small additions). The Guidelines include a step by step process that will help to identify whether expert advice is needed.

WHICH HAZARDS AND RISKS DO THE GUIDELINES ADDRESS?

- geothermal gas emitted diffusely through the ground;
- elevated ground temperature;
- issues with proximity to geothermal surface features and geothermal bores;
- durability issues (such as accelerated corrosion) which affect large parts of the district.

WHAT THE GUIDELINES DON'T ADDRESS:

- Naturally occurring harmful substances associated with geothermal areas such as arsenic and heavy metals.
- Land instability associated with geothermal areas (this will continue to be addressed on a site-by-site basis using existing subdivision and building consent processes and geotechnical assessments)
- Risks during site investigation and construction in geothermal areas (the guidelines instead focus on managing risks associated with the use of buildings).

The Guidelines are focussed on risks associated with 'normal' buildings and not other types of structures such as pools or viewing platforms. The Guidelines also do not address design and management of geothermal bores or other geothermal infrastructure (addressing only site layout around bores).

WHO WAS INVOLVED IN THE DEVELOPMENT OF THE GUIDELINES?

The Guidelines were developed with the assistance of local and regional council officers, structural/geotechnical engineers and geologists, and were reviewed by GNS Science. In addition, a number of other technical experts in the areas of building and health as well as council staff from other districts were consulted.

CAN I PROVIDE FEEDBACK ON THE GUIDELINES? IS COUNCIL OPEN TO CHANGES?

The Guidelines are intended to be a living document that will be reviewed and updated as required. If you have any concerns or other feedback you can direct this to Kim Smith, Senior Policy Advisor (kim.smith@rotorualc.nz) to consider.

