

## fire formal interpretations

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16/12/15

FI-119

NZS 4515:2009 *Fire sprinkler systems for life safety in sleeping occupancies (up to 2000 square metres)* – Clause 6.4.3.1

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### Question:

NZS4515:2009 clause 6.4.3.1 states that a tank must be designed in accordance with NZS1170.5. However, this standard specifically excludes tanks. Does overarching clause 1.9 apply in this case?

### Interpretation issued by the Fixed fire protection group:

No, clause 1.9 does not override 6.4.3.1(e) or 6.4.3.3(d).

This situation is addressed in NZS 4541:2013. The relevant clause is included verbatim below for guidance:

#### 606.3.1.1

Tanks shall be designed to take into account seismic and other geotechnical hazards, and shall remain serviceable after a design event. Roofed storage tanks and supporting elements on which the tank rests shall comply with 105.2, and shall be specifically designed and reviewed by a [Chartered Professional Engineer] CPEng with competence in the area of seismic design of water storage tanks and supporting elements, irrespective of whether the tank is of a standard design. If the tank material is included in the scope of the New Zealand Society for Earthquake Engineering (NZSEE): Seismic design of storage tanks (2009), the design shall comply with that design recommendation document.

#### NOTE –

(1) NZS 1170.5 states that the design of tanks containing liquids is beyond its scope because some critical seismic characteristic of tanks are different from buildings on which the Standard is based. However, some provisions from NZS 1170.5 are relevant and applicable. As an example (for concrete tanks), provisions relating to: subsoil type, various factors including seismic zone hazard, return period (limit state and building importance level), near fault, damping, and ductility correction are relevant to tanks containing liquids. The same applies to structural analysis methods. For more detail, see Appendix A of NZS 3106.

(2) The requirement for each installation to be specifically designed is to provide appropriate consideration to the seismic zone and soil type relevant for the particular situation of the tank. Designers are also required to consider the same site specific factors for tanks manufactured to a standard specification or design.

(3) The SSC should require producer statements for the design, construction, and construction review of the tank and its supporting elements to ensure that this clause is met.