

16 November, 2016

## **NZS 1170.5 Amendment - Effects on Suspended Ceilings**

The earthquake standard (NZS 1170.5:2004 - Structural Design Actions - Part 5: Earthquake Actions - New Zealand) was amended in September 2016 as a result of the Canterbury Earthquakes. There is now more guidance around the seismic bracing design of suspended ceilings.

Suspended ceiling systems are classified as “parts” as per NZS 1170.5. The “part” classification of a suspended ceiling is important as it determines whether the seismic bracing is designed to withstand an Ultimate Limit State (ULS) level earthquake or a Serviceability Limit State (SLS) level earthquake.

Before the amendment ceilings only had to be designed to a SLS level earthquake. Previously anything 3m or more above floor level **and** greater than 10kg in mass required a ULS design; the more costly and complex option. The amendment has brought in further guidance and stricter rules in this area, stating that a “part” may only be classified as P7, which corresponds to SLS level design, if the part is less than 3m above floor level **and** weighs less than 7.5kg. Ceilings weighing more than 7.5kg now fall into the P2/P3 part category, which require ULS level design. This classification is further reinforced in the amended commentary that supports 1170.5, which specifically states suspended ceilings should be classified as P2/P3.

### ***What does this mean?***

The mass of a suspended ceiling must be taken as the total mass of both the tiles and ceiling grid. Virtually, all ceilings therefore have a mass of greater than 7.5kg and will have to be classified as a P2/P3 part.

This means all suspended ceilings must now be designed to withstand Ultimate Limit State level earthquakes to comply with Clause B1/VM1 of the New Zealand Building Code.

Typically within the suspended ceiling industry, generic seismic design guides provided by ceiling manufacturers have been used to design the seismic bracing for smaller, lightweight ceilings. These design guides typically only design for SLS level earthquakes, and now with the new requirement, these design guides are no longer best practice for compliance with B1/VM1.

## ***Future Works***

For suspended ceilings to comply with the building code in the absence of compliant seismic design guides, specific engineering will be required by a chartered professional engineer. BVT specialises in providing specific engineering design of suspended ceilings, and this will ensure your suspended ceiling is both safe and compliant with the New Zealand Building Code.

We have included a copy of 'Table 8.1 - Classification of Parts' from the standard for your reference. If you have any questions regarding the implications of the amendment on your suspended ceiling practices, the team and I are more than happy to help. Simply reach out to us on (03) 371 7593, or contact me directly on my cell phone 0221 001 038.

Kind regards,

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