

## **Seismic Restraint Code for Luminaires**

NZ Building Code Clause B1/VM1 is the relevant document which calls up NZS1150 Part 5 and Section 8 is the chapter in question. We do not have copies of these documents but a Structural Engineer will be familiar with them.

Whilst the rules themselves have not changed the Seismic Hazard Factor within the rules has been increased from 0.2 to 0.3, initially for the Christchurch Earthquake Zone soon after the earthquake, and more recently for the rest of the country. These changes occurred in early 2011 and 2012 respectively. In broad terms this effectively requires Seismic Restraint strength limits to be increased by 50%. The entire country is now classed as a high seismic hazard area where this was once upon a time limited to Wellington, and a few small zones around the country.

The change will impact on luminaires as follows:-

1. The rules surrounding Seismic Restraints as set out in NZS4219 – 2009 (Seismic Restraint) have historically been abused and the fact that we have had some spectacular failures of ceilings in Christchurch has led TAs to refocus on them.
2. The weight of small luminaires even with an increase of 50% being factored in may still be below the minimum individual weights as specified requiring special treatment in NZS4219. They are also within the basic load capabilities of most ceilings so further restraining mechanisms are not required. However, with medium and large luminaires the increase in load factor could mean that either the ceilings have to have extra bracing mechanisms to support them, or the luminaires themselves have to be separately treated in order to relieve the ceiling of the extra load under seismic forces.
3. Whilst this has been a big issue with recessed luminaires in the past it has not impacted so much on small or surface mounted luminaires. These upgraded requirements may well create a change of construction methods for lightweight suspended ceilings and/or require fixing lugs to be fitted to luminaires for anchoring dedicated seismic restraint mechanisms.
4. If the ceilings are going to be designed to take the loads imposed by luminaires we may have to address heavier duty fixings that will ensure the luminaire remains anchored to, or in, the ceiling.
5. Equal attention will be required to be applied to remote gear boxes and other luminaire accessories including diffuser attachments and louvres.

### **SUMMARY**

**The Regulations have not changed, but an escalation of the factors in load calculations in the last 12 months together with a heightened awareness of previously abused requirements means that some luminaires that once upon a time might have not been fitted with restraints or heavy duty fixings for reasons of neglect or no requirement at all, may now have to be attended to.**