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Calls for Commercial Building Owners to have clarity over Earthquake **Strengthening**



Confusion amongst commercial building owners unsure about complicated earthquake rules may lead to inaccurate parts of buildings being strengthened or owners paying twice to ensure floors are safe, according to new research released by the Ministry of Business, Innovation and Employment.

Undertaken by Engineering NZ, the research says the two sets of rules for engineers doing seismic assessments of commercial buildings has confused the owners of thousands of multi-storey buildings with weak types of precast concrete or hollow-core floors.

The newer rules (created in response to Kaikōura's earthquake and called Yellow Book/Chapter) are superior but

the older rules (the so-called Red Book) are actually the only ones with legal standing.

But, the research says the older rules are not as good at spotting a building's weakest parts, especially not for concrete buildings or for floors which typically are the weakest part. It has been known for 30 years that precast concrete or hollowcore floors are particularly weak.

"This means that the [two approaches] identified different vulnerabilities in buildings, implying that retrofits based on the Red Book may not address a building's greatest vulnerabilities," says the new report.

It also says commercial building owners wanted to know that retrofits address the weaknesses in their buildings that pose risk to people's lives and safety, and needed confidence in the rules around that.

Yet, only the Red Book contained the rules that are legally mandated for use in determining if a building is quake-prone, and the newer rules carry no such weight, even though engineers trust them more.

The research asks for the superior and newer Yellow Chapter to hold sway, as confusion could lead to building owners being forced to get a quake-prone assessment completed under the Red Book and then get a second assessment under the Yellow Chapter.

MBIE says that first it wants to figure out the impact if it were to alter what is mandated. The ministry has yet to assess these impacts, even though the Yellow Chapter was brought out three years ago.

The research shows impacts already exist, such as building owners being reluctant to get a seismic assessment done at all.

"They want confidence that retrofit work will be aligned with any imminent regulatory environment. They expect regulation to be based on the latest knowledge," the research says. "(Instead), businesses and government agencies vacating buildings has contributed to this confusion."

NAI Harcourts' Tony Kidd says market resistance to buildings with low Initial Evaluation Procedure (IEP) ratings exists, and both occupational and investment markets generally adopt a level of 67% NBS (the rating given to a building as a whole to indicate its seismic standard) when considering decisions and discounting. However, many tenants now demand a rating more than 67%, and Government and Blue Chip tenants require 80% to 100% NBS.

Older buildings are losing their attractiveness unless they've undergone seismic upgrading. They also cost more to insure and upgrade, leading to being more costly to lease. This negatively impacts demand when compared to more modern and cheaper space.

Banks and insurers are becoming more suspicious of older buildings with low IEP scores, impacting on demand and value. Other concerns are upgrade costs, insurance cover, security of tenure, tenant renewal and regulatory changes, Tony says.

"It's never certain that insurance companies will play ball," Tony says. "No insurance means the banks are out, which reduces the liquidity of the asset and potential buyers. Even if insurance is achieved, buildings that are earthquake-prone cost more to insure, both premium-wise and excess".

For more information: <https://www.engineeringnz.org/news-insights/mbie-releases-yellow-chapter-findings/>

- **New Zealand is unusual worldwide for its high proportion of commercial and apartment buildings with the weak floors**
- **More than 60% of commercial floor area in Wellington, for example, falls into this category**
- **Research on how to fix them began seriously after the Kaikōura quake**
- **Floors can be highly vulnerable and fail in many ways, including 'web splitting' and the floor slab falling off its seating.**

Commercial Green Buildings Highlighted

The role of sustainable buildings in the campaign against climate change has just been highlighted by a World Green Building Week that has campaigned the importance of 'green buildings' to humans and economies.

Organised by the World Green Building Council (WorldGBC) and led by its global network of 70 affiliate councils, the week has spotlighted the popularity of resilient buildings to commercial landlords and occupiers as climate change and sustainability principles grow in importance.

Like the rest of the world, New Zealand investor stakeholders and tenant clients are wanting accountability and good governance around green ratings from building owners, and the Government last year mandated that all buildings its agencies occupy must have a certified and verified sustainability rating.

The built environment is responsible for 38% of global energy-related carbon emissions and 50% of all extracted materials, and the need for developers and building owners to be onboard the resilience train is escalating.



WorldGBC says by 2050, the world's building stock will double, increasing the impact that the built environment sector has on natural resources, climate change and people's livelihoods. More info: www.worldgbc.org/WGBW2021