

Building System Performance  
Ministry of Business, Innovation and Employment  
PO Box 1473  
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New Zealand

Tēnā koutou,

## EARTHQUAKE COMMISSION SUBMISSION ON BUILDING CODE UPDATE 2022

Thank you for the opportunity to submit on the *Building Code Update 2022*. This letter provides our feedback and is in addition to the Consultation submission form.

The Earthquake Commission Kōmihana Rūwhenua (EQC) generally supports the intent of the Building Code Update because it represents forward progress in building safety and the resilience of the built environment. However, to realise the intent of the update more effectively, EQC recommends two changes:

1. *Clarify* in the proposed amended Comment 1 to Paragraph 3.1.1 that hollow-core floors are not considered in Verification Method B1/VM1. This is due to their inherent vulnerability, and there is no known way to comply with the performance objectives of the Building Code.
2. *Decrease* the proposed transition time to less than one year.

### The Earthquake Commission cares about natural disaster risk reduction

EQC has significant expertise in natural hazard risk reduction. EQC's role as a Crown entity is responsible for:

- investing in natural hazard and risk research to help communities reduce their risks;
- providing residential property insurance against the impact of natural hazard events; and
- incentivising and/or implementing methods of reducing or preventing natural hazard damage.

EQC has a crucial role not only after a natural hazard event has occurred, but also in reducing risk from, and building resilience to natural hazards in Aotearoa New Zealand.

### Our Submission

EQC is only submitting on the updates regarding the structural stability of hollow-core floors. **EQC generally supports the intent of the update.**

EQC agrees that hollow-core floors are a particularly vulnerable form of construction. Per the Advice on Hollow-Core Floors<sup>1</sup> jointly released by Engineering New Zealand (ENZ), Structural Engineering Society (SESOC), and New Zealand Society for Earthquake Engineering (NZSEE):

- Hollow-core floor systems are known to be fragile, and susceptible to brittle failure during earthquakes.

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<sup>1</sup> <https://www.sesoc.org.nz/precast-flooring-resources/>

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- There is no known way to show that some components of hollow-core floor systems, comply with current building design standards, or the performance objectives of the Building Code.

As such, *EQC supports removing consideration of hollow-core floors from Verification Method B1/VM1 Paragraph 3.1.1* and requiring their design and use to qualify as an alternative solution.

**EQC recommends making the following changes to the Building Code Update.**

In the proposed amended Paragraph 3.1.1, the proposed 'Comment 1' gives the impression that the update is correcting an editorial or administrative issue. It suggests that hollow-core floors are removed from B1/VM1 because the detail given by C18.6.7 (e) sits in the Commentary, rather than in the standard itself, and is thus not a valid part of the verification method.

This is not, or should not, be the driver for this update. This update removing consideration of hollow-core floors from B1/VM1 is because hollow-core floors are particularly fragile systems, and there is no known way to guarantee they meet the performance objectives of the Building Code. The update can, and should, reflect this, and at least should not suggest that the update has a different motivation. *EQC suggests proposed amended Comment 1 in Paragraph 3.1.1 be updated as follows:*

*"1. ~~The proposed detail for the support of hollow-core flooring units in Clause 18.6.7 (referenced by Clause 18.7.4.4 of NZS 3101.1:2006) is in the Commentary (NZS 3101.2:2006). The Commentary is not part of the normative content of the standard, and hence is not part of this verification method.~~ The detailing requirements for support of hollow-core floors, including use of the proposed detail in Clause 18.6.7, comprises an alternative solution."*

Further, *EQC suggests that the proposed transition time be shorter than one year.* As described in the Consultation Document, there is already a downward trend in the use of hollow-core floor systems following the Kaikōura earthquake, and the advisory note(s) from SESOC and NZSEE.

The impact of removing consideration of hollow-core floors from B1/VM1 should have minimal negative impacts. However, it will have the benefit of preventing any new hollow-core floors being designed or installed in the meantime. Buildings are increasingly outliving their theoretical 50-year design life<sup>2</sup>, so preventing the introduction of vulnerable construction types now, has the potential to significantly improve the resilience of the built environment for decades to come.

EQC would be happy to discuss any of the proposals outlined in this submission. Please feel free to contact me at the address below.

Kind regards,



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<sup>2</sup> <https://www.stats.govt.nz/reports/housing-in-aotearoa-2020>