



engineering  
new zealand  
te ao rangahau

# CASE SUMMARY

## DISCIPLINARY COMMITTEE

## DECISION

Summary of a Disciplinary Committee's decision dated 18 June 2021 about an own-motion investigation by Engineering New Zealand.

### BACKGROUND

In 2015, Engineering New Zealand was made aware of concerns surrounding the structural design of six buildings in Masterton. The concerns were raised by a Chartered Professional Engineer (CPEng). The matter was referred to the Ministry of Business, Innovation and Employment (MBIE), as the relevant regulatory authority.

Following the publication of two reports commissioned by MBIE in which concerns about the structural integrity of the six buildings were raised, Engineering New Zealand initiated an own-motion inquiry into their design. An engineer, ("Mr C"), was identified as the Chartered Professional Engineer who had signed the Producer Statement for the design (PS1) of one of the buildings investigated (the Building).

### INVESTIGATION

Following an initial investigation this matter was referred to an investigating committee for formal investigation.

The Investigating Committee considered whether Mr C provided engineering services relating to the engineering design work on the Building in accordance with accepted standards.

#### **Building design process**

The Building was a single-storey building attached to an existing workshop. It was designed in two phases – Mr C was only involved in Phase Two, carrying out the engineering design work and signing a PS1 for that aspect of the project.

Mr C told the Investigating Committee the designs they signed off were at an "early design stage" and the calculations at that time were believed to be incomplete. The design was later substantially changed, and the original designs did not reflect how the Building was ultimately built. However, the updated drawings

did not appear to be held on Masterton District Council records for the property, nor did there appear to have been a building consent amendment relating to the updated drawings, or a PS1 for the revisions.

The Building was completed in 2005. It did not appear that a Producer Statement – PS4 – Construction Review was completed, although a Code Compliance Certificate was issued for Phase Two of the development.

### **Design issues identified**

External reviews of the Building's design were carried out by two engineering firms, Holmes Consulting and GA Hughes & Associates Ltd. The Investigating Committee also obtained independent expert advice from Barry Brown FEngNZ CPEng IntPE (NZ) and Stuart George CMEngNZ CPEng IntPE(NZ).

The GA Hughes review identified structural vulnerabilities including significant eccentricities and inadequate bracing, and load paths and resistance to lateral loads that were unclear and likely to be inadequate. Holmes Consulting's review estimated the Building's strength to be 25-33% of the New Building Standard and "likely to be considered earthquake prone". Holmes also identified issues with the Building's load paths and bracing.

Mr C said the drawings held on the Masterton District Council property file for the Building (and reviewed for the purposes of providing both the above reports) differed significantly to the revised set of drawings. They said:

"Given the substantive changes and the short time between the initial and second drawing sets, it seems highly likely that a full design and drawing review was not carried out initially in the knowledge that the design was going to change considerably."

Mr C said the differences had a significant impact on the structural integrity of the Building and as such many of the comments made in the GA Hughes and Holmes Consulting reports "do not apply as they relate to either precast panels (not constructed) or members which are actually subjected to much lower loads than the initial design indicated".

Mr C said that, based on the reviewed set of plans, the overall seismic load capacity of the structure would be substantially greater than indicated in the reviewing engineers' reports. They said they were disappointed in themselves for signing a PS1 for the original drawings that they believed were preliminary and were always going to be updated.

The independent advice from Mr George and Mr Brown commented on the document confusion and the fact it remained unclear what was ultimately built. In relation to the original designs, both experts identified concerns, particularly in relation to the precast concrete wall that appeared to have been removed from later revisions. In relation to the revised designs both experts still identified concerns relating to the adequacy of the lateral force resisting system.

The Investigating Committee considered the original design for the Building did not meet required standards and it was inappropriate for Mr C to sign the PS1 based upon the original design which was not complete at the time. They considered this was a serious departure from accepted standards. Accordingly, the Investigating Committee referred the complaint to a disciplinary committee.

# DISCIPLINARY COMMITTEE DECISION

In an agreed statement of facts filed before the Disciplinary Committee considered its decision, Mr C admitted they had not acted in accordance with accepted standards in providing engineering services relating to Phase Two of the design, and the admitted facts established grounds for discipline under [section 21 of the Chartered Professional Engineers of New Zealand Act 2002](#). They accepted they had performed engineering services in a negligent or incompetent manner.

Mr C also accepted:

- the original designs that were provided to and accepted by the Council were inadequate and not of an acceptable standard
- they did not carry out a comprehensive check of their designs or calculations, and
- signing a PS1 for a design that had not been adequately checked significantly undermines the integrity of the producer statement process and the extent to which building consent authorities and the public can rely on engineers.

The Disciplinary Committee's view was Mr C had been negligent, but not incompetent. The Committee upheld the complaint and ordered Mr C to pay a fine of \$500 and costs of \$8,000. In considering the appropriate penalty the Committee considered the extent of time since the design of the Building and the fact it appeared to be a one-off breach of expected standards. The Committee ordered Mr C's name to be permanently suppressed.

## System concerns

In addition to Mr C's negligent conduct, the Investigating Committee had concerns about the Building's development which, while beyond the scope of the investigation, were notable. These related to several checks and balances in the system that appeared not to have worked as well as they should have.

The Investigating Committee was concerned the updated drawings were not held on the Council files, and there was no record on the Council files that the Building's design had been changed. It was not clear whether the Council file was incomplete, or whether the initial designs were in fact submitted for building consent and were the plans on which the building consent was granted, with the Council having never received the updated plans.

If the building consent was granted on the initial designs, it was unclear how they passed through Council checks to receive consent, or why it was not identified during construction that the constructed building differed from the plans. No external engineering review appeared to have been carried out in this case.

The fact a Code Compliance Certificate was granted for this building suggested the revised plans must have been available and on-site during construction. Why these plans were not officially recorded on the Council files and why a revised PS1 and building consent appears to have never been issued in relation to the updated plans was of concern. The Investigating Committee noted that two other building consent amendments were recorded on the Council files relating to fairly minor amendments.