Earthquake Strengthening Project update

Our engineering consultants, New Zealand Consulting Engineers Ltd **(NZCEL)** have now completed a **Detailed Seismic Assessment** (DSA) of our Church building, and this has been delivered to Hutt City Council (HCC) early this week.

NZCEL consider that the church is NOT earthquake prone, so we have asked HCC to remove their Earthquake Prone Building notice, posted on March 20 this year.

HCC will probably now ask one of their engineering consultants to peer review the DSA to inform their response to our request.

Summary of the Detailed Seismic Assessment

Our Church has been assessed to have a seismic lateral load capacity of between 30-40%NBS (New Building Standard) in its current condition.

The limiting structural element is the fixing of the diagonal strap bracing within the roof structure. The reinforced concrete walls, bell tower and foundation bearing capacity are capable of resisting about 100%NBS demands.

If the roof bracing system is upgraded it is relatively easy to reach a rating of over 67% and possibly100%NBS.

Conclusion of the DSA

Although the current %NBS is close to the threshold test of 34% for being an earthquake prone building it is NZCEL's view that the building is NOT earthquake prone, as the building is unlikely to collapse in a earthquake, and in this case there would be is no legal requirement to strengthen or demolish the building.

Recommendation

The parish (and Diocese) prefers to strengthen to 67%NBS or better before reusing the church. NZCEL recommend that this can be most economically achieved by bracing the roof by adding a plywood diaphragm in selected roof bays. Other, more expensive and disruptive options would be to replace the concrete tile roof along with improved bracing or replace the existing roof diagonal bracing, including upgraded fixings to the concrete walls.

How might HCC respond?

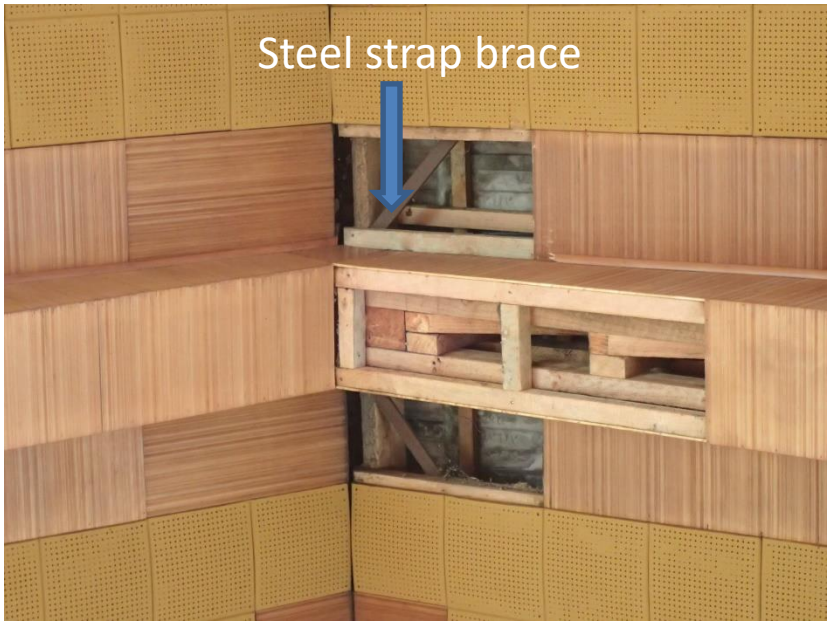
We hope that HCC will accept the DSA's findings.
But because they are on the margins of 34% for an Earthquake Prone building the Council's peer reviewers may not accept all of NZCEL's findings.
If that happens we hope that the reviewers and NZCEL will at least agree on the underlying strength of the Church, which will help us going forward.

If the DSA's findings are accepted following peer review, we will move on to design, tender pricing, acceptance and construction.
Because the works will constitute a significant upgrade some ancillary works may also be required for Building Act compliance eg fire protection upgrade.

Site Inspection

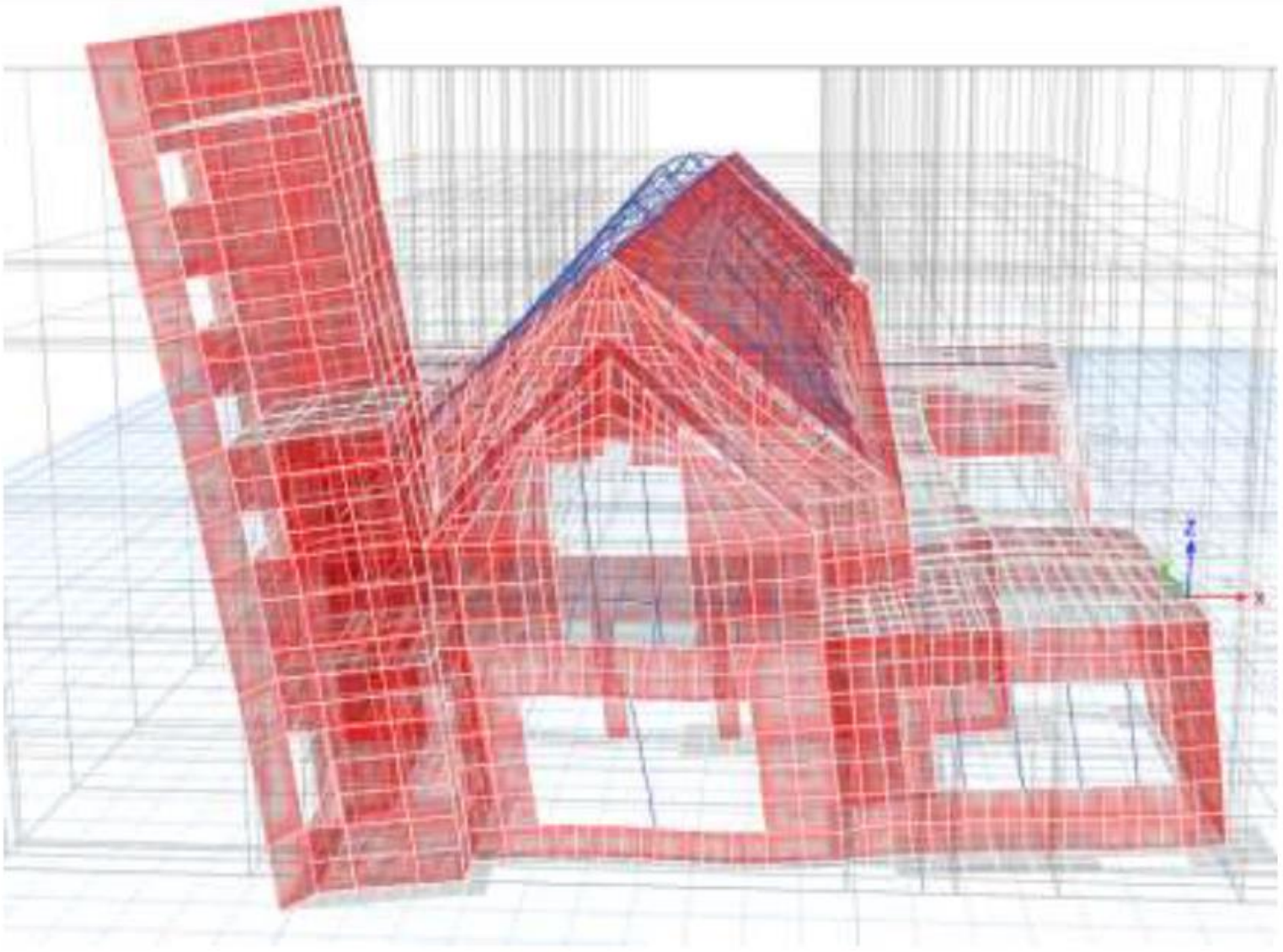
In May Craig Oldfield (our NZCEL engineer) visited the church to inspect the suspect roof bracing.

Project manager Dave and Engineer Craig Inspecting the church roof.



Steel straps brace the roof and have weak fixings.

Computer model output (deflections exaggerated).



There is information on the
Earthquake Strengthening Project
on the Church Website,
Google St Pauls Waiwhetu.

Our Seismic Review Committee are:

Colin Hickling
Murray McGregor
Jon Screech

Happy to chat anytime.