

FACING A SEISMIC STRENGTHENING PROJECT

– A regulatory and technical outline

22 March 2016

James Cook Hotel
Wellington



Programme outline

- Purpose of these seminars
- What is an earthquake-prone building?
- The strengthening process – what the engineer will do
- Council processes
- Architectural processes
- Body Corporate processes to obtain a DSA
- Questions
- Outline of future seminars

“I have an earthquake prone building – what does this mean for me?”

Absolutely Positively
Wellington City Council
Me Heke Ki Pōneke

- **Current legislation and Bill**
- **Council powers and responsibilities including strategic and high volume routes under the Bill**
- **Future regulations including new Methodology**
- **What happens when the Act changes?**
- **What is the impact on existing s124 notices?**
- **What happens when the Building Code changes sometime in the future?**

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Earthquake Resilience Seminar 1 Notes: Wellington City Council presentation.

UPDATE ON LEGISLATION

The EQP Bill is entering the final stages of being confirmed by Parliament. To date it has received near unanimous support from all political parties. It is hoped it will be passed by the end of May 2016.

Once the Bill is confirmed by Parliament, the legislation allows up to 2 years before it will be implemented. This time has been allowed so that the Ministry of Building Innovation and Employment (MBIE) can develop the regulations that will support the legislation.

At this point in time, it's possible the legislation may take effect from April 2017.

The new legislation is very similar to the Wellington City Council's existing EQP Building Policy, subject to the following:

- Maximum 15 years for an EQP notice.
- Proposal to introduce a shorter timeframe for EQP buildings located on high traffic or priority routes. These routes are yet to be defined by the MBIE regulations. At this stage the draft legislation refers to a maximum timeframe of 7 years for buildings located on priority routes.
 - Draft legislation will require councils to consult on "high traffic routes" proposal.

Once the legislation takes effect, at this stage the major change for EQP buildings in the Wellington City Council area will be:

- Maximum timeframe for an EQP notice is 15 years. This means that any existing notice that has more than 15 years left to run will be reduced back to the 15 year timeframe.

COUNCIL PROCEDURES

Once an EQP notice has been issued the owner(s) of the building will have until the expiration date on the EQP notice to either strengthen or demolish the building. If the work isn't done and the EQP notice expires, the local council will have the ability to require the building to be closed.

As well as closing a building with an expired EQP notice, a council can also seek a court order to undertake strengthening work. However, any costs incurred by the council can be passed back to the owner(s).

If it looks like you may not get the building strengthened in time, come and talk to the council. We are here to work with you to get this resolved and would prefer not to have to close a building.

Building and resource consent

If you're undertaking strengthening work the owner will need to apply for a building consent. You may also need a resource consent. This will depend on the location of the building and also if it's a heritage building.

Before you go too far into developing a solution for your building come and talk to officers to ensure they agree (in principle) with what is proposed. The aim is to ensure owners don't waste money on consultants and designs that could require rework due to the proposed solutions not meeting council requirements.

As well as engaging a structural engineer and architect to work with you strengthening your building, you may also require a fire engineer. The reason being the Building Act 2004 requires a local council to consider "Means of Escape from Fire" when it is assessing a building consent application. This includes applications to strengthen a building. The fire engineer will make an assessment on the current condition of the building for Means of Escape and make a series of recommendations on what is required to bring the building up to "as near as reasonably practical" (also referred to ANARP) to the current requirements of the Building Code. This outline needs to be lodged with the building consent application.

It is recommended that once the owner has the Fire report, they (and their fire engineer) meet with council building control officers and discuss the findings of the report. The aim is to get an understanding of any questions or concerns the officers may have with the report and its recommendations. This will help reduce the risk of delays in obtaining a building consent due to the application being suspended while further information is being requested from the owner (and fire engineer).

Financial incentives for strengthening

The council has also provided incentives for owners of EQP buildings to strengthen their buildings. This includes:

- Rates rebate –
 - During strengthening: If a building is empty during strengthening the owner can apply for a rebate on their rates.
 - After strengthening is complete the owner can apply for a further rebate:
 - Non heritage building- 3 year rebate.
 - Heritage building- 5 year rebate.
 - Category 2 heritage building- 8 year rebate.
 - Category 1 heritage building- 10 year rebate.
- Building consent fee subsidy. The Council will reimburse 10% of costs for a building consent to strengthen a building. This subsidy does not include all govt (MBIE & BRANZ) levies and the maximum subsidy is \$5000.00

To get an understanding of the amount of a rates rebate please contact the WCC Rates team on (04) 499 4444 and ask to be put through to the Rates Team or email the team on rates@wcc.govt.nz



The strengthening process – what the engineer will do

Dr Peter Johnstone
BE (Hons) PhD (Civil) FIPENZ MNZIOB MRSNZ

What will I cover in this session?



- The meaning of %NBS
- The methodology around carrying out a Detailed Seismic Assessment (DSA)
- The importance of being provided with all available information on the building
- The importance of geotechnical information
- The importance of a peer review
- Methods of obtaining costings from quantity surveyors

What does NBS mean?

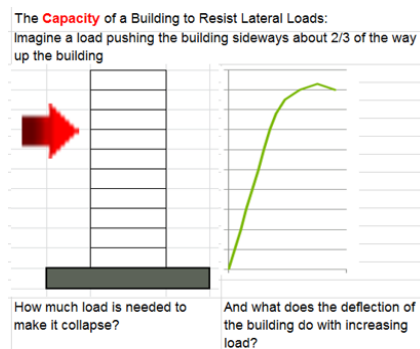


- The NBS – or New Building Standard – refers to the seismic load on a new building that results from our latest seismic code. (100% NBS).

Next - how strong is the building?



- The engineer needs to determine the building's strength or lateral load **capacity**.
- The %NBS result is equal to the seismic **capacity** divided by 100% of the **demand** of the latest code.



**%NBS = Seismic Capacity
divided by 100% Demand**

The methodology




- There is a “methodology” for calculating the %NBS.
- It was determined by NZSEE some years ago.
- Since the Christchurch earthquakes, there has been a noticeable variability of results when different engineers calculate %NBS for any one building.
- All results are “correct” because there are a variety of assumptions and engineers may make different assumptions at different points - this leads to a different end result.
- MBIE is currently working with a number of engineers to develop a more robust methodology.
- Results of that work are expected later this year.
- These seminars will cover that in more detail later in the year if owners ask for details.

Information, information, information!

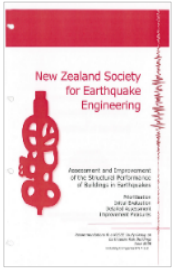


- The engineer needs to work out how strong the building is.
- It is most important to have as much information that exists for your building prior to commissioning the engineer, including:
 - any information from WCC archives and National Archives
 - any previous reports.
- Gathering this information yourself will cost you less than having the engineer do it.
- This information is like GOLD – it all contributes to the %NBS rating. Usually the more good information then the better the rating.
- There are many examples of lack of building information leading to inferior or incorrect results.
- Ferro-scanning is worth doing if reinforcing drawings are not available.


Four steps for your engineer



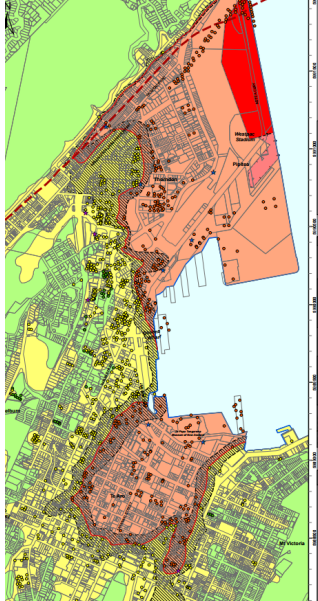
- **Step 1: Understand the building and study any old drawings**
Your engineer needs (if possible) original plans and specifications plus any details of upgrade or other work. The engineer must understand your building very **very** well.
- **Step 2: Determine the building's %NBS**
This will be done using the methodology in the NZSEE *Red Book*.
- **Step 3 – Investigate strengthening options**
Your engineer will provide options for how to improve the %NBS.
- **Step 4 – Advice on next steps**
This will include the cost of a Quantity Surveyor, architect, Council permits etc



Importance of geo-tech information



- *The %NBS of a building depends on the firmness (good) or sloppiness (bad) of the soil beneath the building.*
- *A same building with a 100%NBS on class C soil is only worth 60%NBS on class D soil.*
- *You get the soil class from a map like this from Geonet or have a specific test done Circa \$10k.*
- *If your building is not on Class C, it is well worth investing in a test to interpolate between Class C and D.*



Detailed Seismic Assessment report



- The DSA is a report that:
- Evaluates the strength of your building
- Compares it to a 100% new build requirement.
- Therefore gives a %NBS value
- Must be easy to understand and to peer review.
- Must be backed up by facts and justification of assumptions.
- Tabulates the code parameters
- Has a sensitivity study of assumptions.
- Has all the information on your building included as appendices for ongoing work.
- Is capable of leading on to a strengthening solution.

The peer review



The peer reviewer (if needed) should have a pro-active relationship with the assessing engineer. The draft report must be capable of being clearly understood by the peer reviewer and the final report should be the result of a broad agreement between the writer and the reviewer.

The WCC should be advised of and approve the peer reviewer because if the building was judged less than 34% then the council needs to sign it off.



The BC area of responsibility



- The BC needs to form a contract with the engineer.
- This must outline reporting expectations and brief the engineer after discussions.
- Things to discuss:
 - Costs
 - Access to apartments during the work
 - Noise if staying in the apartment
 - Timeframes
 - Etc
- There should be only one point of contact between the BC and the engineer.

Involving the QS



- Obtain costings from quantity surveyors.
- This only happens once the DSA has been accepted and then a concept design has been carried out by an experienced engineer in conjunction with the body corporate and an experienced architect.



**Thank you for your
time**

- Peter Johnstone -



Council Processes

WCC Presenters

- **Vanessa Tanner**
Senior Heritage Advisor
- **Peter Daly**
Senior Consent Planner
- **Steve Cody**
Manager building Resilience

Earthquake Resilience Seminar 1 Notes: Wellington City Council presentation 2.

PLANNING AND HERITAGE

The implications of resource consent (and associated heritage) process is largely site dependent, and will be influenced by the site location, its zoning (as stipulated in the District Plan), and the characteristics of the building. Not all strengthening works will require a resource consent – it will largely depend on its District Plan status (i.e. whether it's heritage listed in the District Plan) and whether the works are visible from the exterior of the building. In most cases it is central city apartment buildings being strengthened, the land will be zoned Central Area and Council's main area of control will relate to the external appearance of the building.

Given each building will be different, it is worth seeking advice from Council as soon as possible. Council offer two levels of service: the planning helpdesk and the pre-application process.

The planning helpdesk (sometimes referred to as SR enquiries) provides general assistance to applicants on zoning, whether consents will be required, and general District Plan information relevant to your site). This is a free process, and is an ideal starting point to gather information on the likely consent requirements early in the process. You can call the planning helpdesk on (04)801-3590 or email: planning@wcc.govt.nz.

The pre-application meeting process is a formalised meeting with a council planner and other relevant advisors and the purpose to identify any issues prior to a resource consent application being made. For this reason, it is worth instigating the pre-application meeting process once you have identified strengthening and design options, but have not settled on any particular proposal. Pre-application meetings are charged to applicants at an hourly rate (per officer hour involved), and a fee estimate can be provided if required. Pre-application meetings can be booked online here:

<http://wellington.govt.nz/services/consents-and-licences/resource-consents/pre-application-meetings>

For more detailed information, the Central Area chapter of the Wellington District Plan is included here:

<http://wellington.govt.nz/~media/your-council/plans-policies-and-bylaws/district-plan/volume01/files/v1chap13.pdf?la=en>

For heritage buildings, the heritage chapter of the District Plan is of relevance:

<http://wellington.govt.nz/~media/your-council/plans-policies-and-bylaws/district-plan/volume01/files/v1chap21.pdf?la=en>

HERITAGE

The Council has a range of incentives to seismically strengthen buildings on Council's Earthquake Prone Building List:

- First pre-application meeting for seismic strengthening proposals free
- Building consent fee rebates
- Rates remission when a building is empty for strengthening and on completion of the works for its removal from the EQP Building List. If the building is listed on the District Plan Heritage List, the rates remission period following removal from the EQP Building List, is 5 years. (Non-heritage buildings is 3 years.) This is extended to 10 years if the building is also identified by Heritage New Zealand as a Category I on the New Zealand Heritage List or 8 years if it is identified as a Category II.

Further information on Council's incentives and how to apply can be found at:

<http://wellington.govt.nz/services/rates-and-property/earthquake-prone-buildings/earthquake-prone-buildings/incentives-to-strengthen-earthquake-prone-buildings#buildingRemoved>

If your building is on the District Plan Heritage List you may also be eligible for:

- Resource Consent fee rebates
- The Built Heritage Incentive Fund (BHIF)

The fund was set up to provide a contribution to assist owners with the costs of work related to the conservation of heritage buildings. The present priority of the BHIF is seismic strengthening buildings. The fund currently has \$2 million over two years to assist owners with seismic strengthening projects.

The closing dates for this year's funding rounds are as follows:

- 6 July 2016 with a Committee date of 11 August 2016
- 28 October 2016 with a Committee date to be set in December

The important thing to note about these dates is that Council only funds work that is to be undertaken following the Committee's decision on the allocation of funds. Council will not fund retrospectively.

Allocations are paid out following completion of the proposed works and in accordance with any conditions of the funding agreement.

Council requires applicants to work with conservation architects to minimise the impact of seismic strengthening proposals on heritage values. The costs of professional services can be included in funding applications.

You can apply to the BHIF on more than one occasion and we advise phasing applications to maximise funding opportunities. If you are planning a funding application contact the Heritage Team on (04) 499 4444.

Further information on the BHIF and how to apply can be found here:

<http://wellington.govt.nz/services/community-and-culture/funding/council-funds/built-heritage-incentive-fund> or email: heritage@wcc.govt.nz.

An Architect's Response to a Body Corporate Brief

a t h f i e l d
a r c h i t e c t s
l i m i t e d

Multi-disciplines
Collaboration
community





Issues

Values

Possibilities/ Opportunities/ Constraints

People

The client

The stakeholders... project contributors, users, tenants, the market, the authorities, public...

The neighbours

Communication

Activities

What activities currently occur within and around the building?

What activities could occur within and around the building?

Where, and why are these constrained?

Building

What is the status of the building?

What are the values?

What are the issues, constraints, opportunities?

What potential could be unlocked in conjunction with seismic upgrade works?

Site

What is the context?

What are the issues, constraints, opportunities relating to context.

How can seismic upgrade integrate or leverage value in relation to context/ neighbourhood.

The Process

Briefing
Concept/ Feasibility
Preliminary Design
Developed Design
Detailed Design
Tendering
Contract Observation
Post Contract

Opportunities

Adding value- economic, functionality, adaptive reuse, yield, address, expression etc


Integration – design and implementation

Heritage and urban design

Implementation

Exoskeletons

Some examples.....



bccg

Body Corporate processes - getting a Detailed Seismic Assessment

Neil Cooper
Chairperson, Dominion Building Body Corporate
National President, Body Corporate Chairs' Group

Content

bccg

- What is a Detailed Seismic Assessment (DSA)?
- Why do you need a DSA?
- Alternative processes
- What do you want from a DSA?
- The Dominion Building process
- The outcome



What is a DSA?

bccg

- DSA = Detailed Seismic Assessment
 - Detailed assessment of a building's structural performance.
- The outcome of the DSA is usually measured as a % of the New Building Standard (NBS).
- If DSA is less than 34%NBS, it will usually include strengthening options
- Costs of those options are not usually included in the DSA.



Getting a DSA

bccg

- Why bother?
 - Probably no option if Council have issued a Section 124 notice
- Options:
 - Look up the Yellow Pages for an engineer
 - Use an engineer you already know
 - Talk to another body corporate chairperson who has already been through the process
 - Go through your own selection process
- It can take a long time!



What do you want from your DSA?

bccg

- A new (better?) %NBS
- A report that you can understand
- Options for strengthening
- Some idea of the benefits associated with each option.






The Dominion Building BC


- Historical building built in 1928
- Not EQ-prone but wanted to improve our %NBS
- Driven by ease of leasing commercial space





Request for Information process

- Identify willing engineers
 - Talk to others who have been through the process
 - Yellow Pages
- Issue Request for Information (RFI)
 - 17 RFIs issued; 11 positive responses received
- Make own assessment of the options
 - Do they sound experienced in your type of building?
 - What is their timeframe for doing the work?



Request for Proposal

The logo for bccg, consisting of the lowercase letters 'bccg' in white on a red square background.

- More detailed proposal from the engineers, outlining their process and costs
- Includes specific work that you want done as part of the project
- 11 RFPs sent out – 7 engineers responded
 - One later withdrew
- Does the BC committee understand what is being proposed?
- What are the costs?
 - Range \$13K - \$120K
 - Not all costs included



Interview short list

The logo for bccg, consisting of the lowercase letters 'bccg' in white on a red square background.

- Six responses – agreed to short list three for interview
- Decide in advance on the common key questions
 - Eg their experience, timeframes, costs, information required, their processes
- Any specific questions for individual engineers
 - Usually around understanding their proposal
- Select one to do the work
- Sign the agreement.



bccg

Issues

- Timeframes
 - How long before they can start? How long to complete?
- Identified and unknown costs
 - Ferro-concrete scanning, geo-tech evaluation, fire access
- Do you understand the final report?
 - Don't accept it (or pay for it) until you can understand it
- Need a peer review?
 - Probably if current %NBS is less than 34%.
 - Not if greater than 34%



Questions?

Future EQ seminars

- Copy of presentation + glossary to attendees
- **April/May** – Body corporate processes – getting ready and getting owners on board
- **September/October** – Managing the project and the new methodology
- **November/December** – Case studies + other matters if you still have queries
- Feedback needed:
 - national.president@bccg.org.nz
 - innercityassociation@gmail.com
 - info@wcc.govt.nz

Further
questions?