

Overview of New Zealand Hospital Buildings

Dave Brunsdon

Dion Marriott

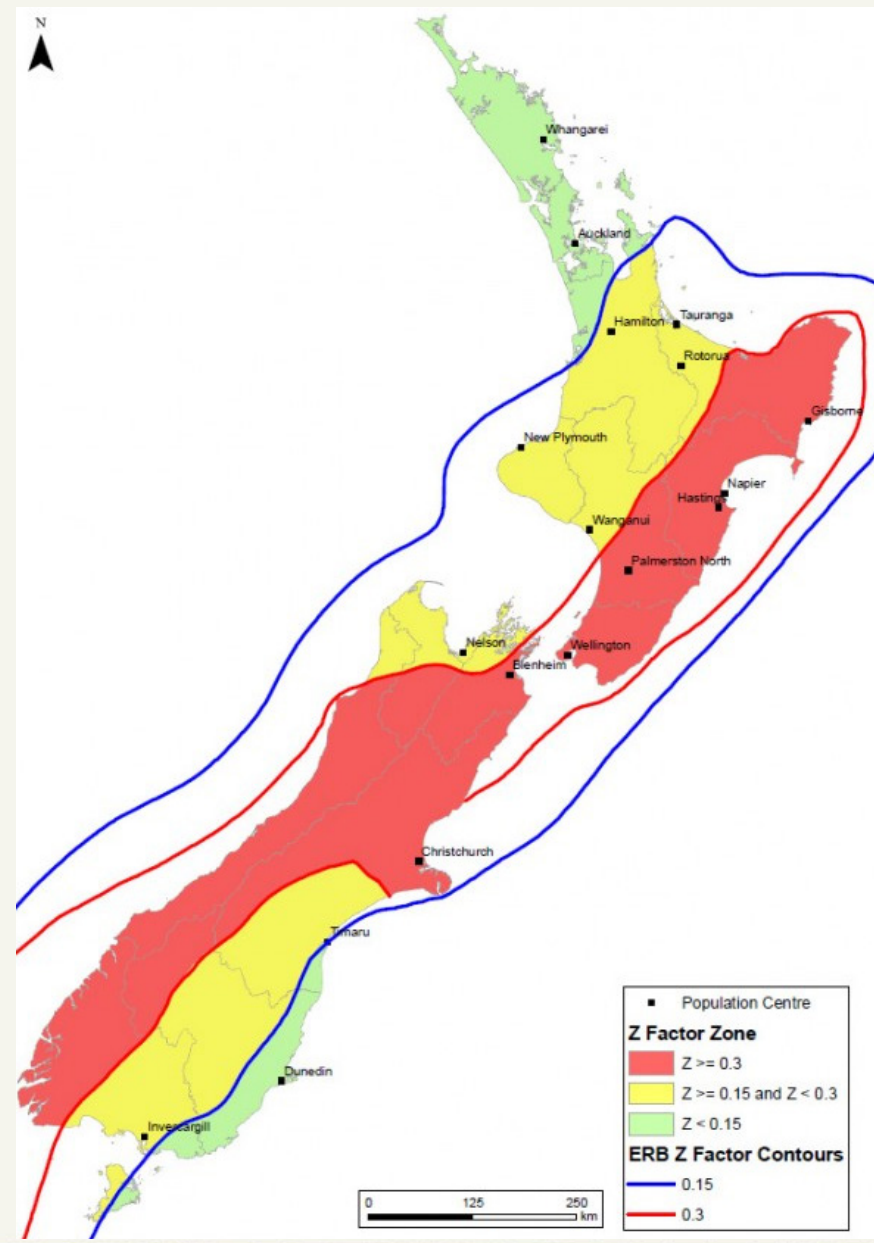
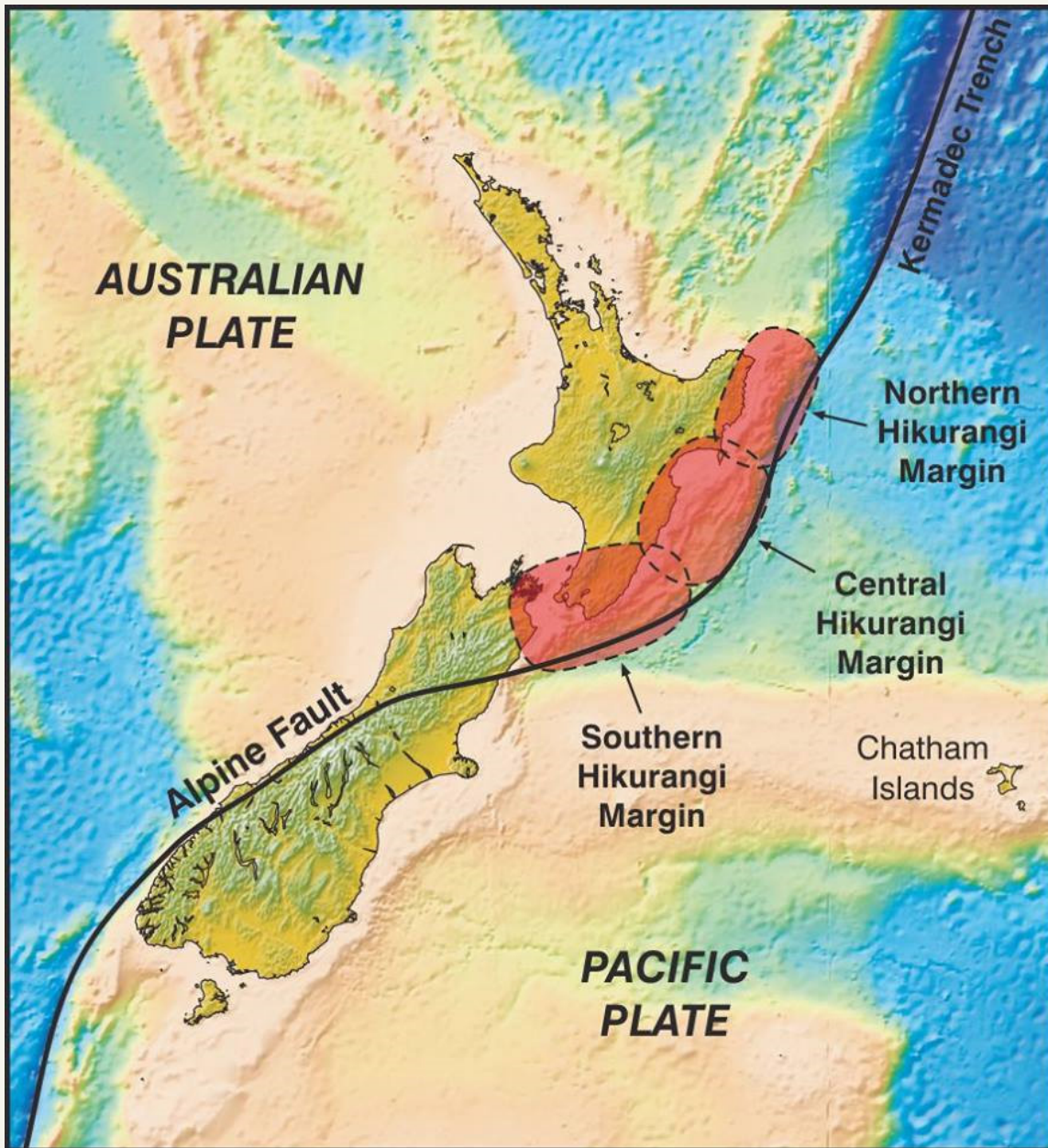
Chile - NZ Workshop
Christchurch
29 July 2024



Overview

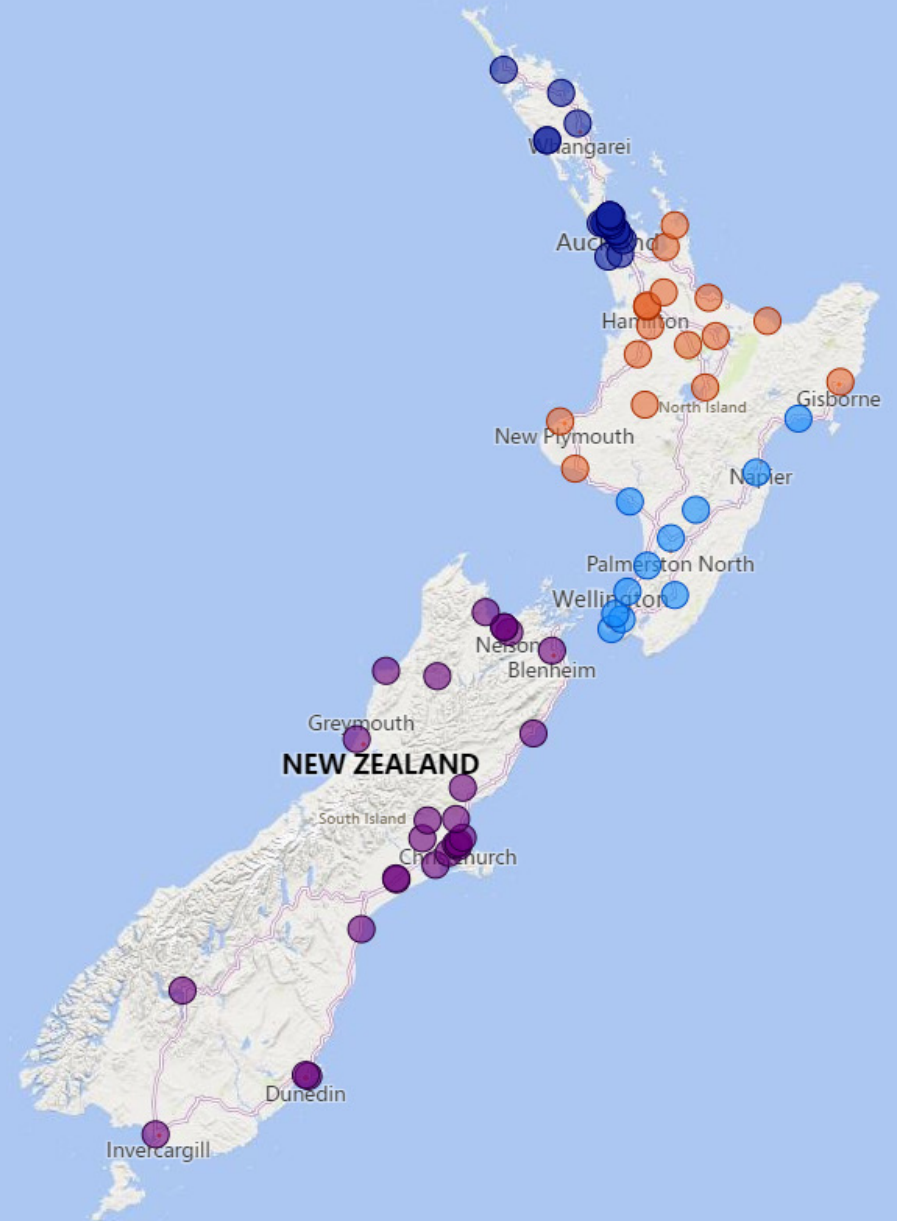
1. Information on NZ hospital buildings
2. The Health New Zealand Seismic Work Programme
3. Case study: Existing 12 storey hospital building





NZ Hospitals

- 83 Campuses/Facilities
– more than 1,200 buildings
- Estimated replacement value circa NZD38 billion
- 34 key campuses



Characterising NZ Buildings by Typology

Typology	Description	Date of Construction	No. of Storeys
A	Unreinforced Masonry	Pre- 1935	Any
B	Early multi- storey	Pre- 1976	3 or more
C	Pre- code concrete and steel low- rise	Pre- 1935	1 or 2
D	Early concrete and steel low- rise	Pre- 1976	1 or 2
E	Modern multi- storey	Post- 1976	3 or more
F	Modern concrete and steel low- rise	Post- 1976	1 or 2
T	Timber framed	Any	Any

NZ Hospital Buildings

Typology		No.	%age
A	Unreinforced Masonry	3	0.2%
B	Pre- 1976 multi- storey	86	7%
C	Pre- code concrete and steel low- rise	33	3%
D	Early concrete and steel low- rise	512	40%
E	Modern multi- storey	85	7%
F	Modern concrete and steel low- rise	558	43%
Total		1,277	

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4 base isolated

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5 base isolated

Base Isolated Hospital Buildings

Hospital	Building	Date of Construction	No. of Storeys
Wellington	Emergency Dept	1999	2
	Main Building	2008	7
	New Childrens	2022	4
Hutt	IC U/ Orthopaedics	1996	2
	Emergency Dept	2010	3
Christchurch	Chch Womens	2005	9
	Acute Services	2020	10
Whanganui	Theatres	2008	1
	Acute Services	2008	1

Examples of Older Multi-storey Buildings



Examples of Older Multi-storey Buildings



Examples of Base Isolated Buildings



Seismic Work Programme 2022- 2024

- Put in place a seismic policy and risk management strategy
- Develop technical guidance for new and existing buildings
- Undertaking seismic assessments of acute services buildings that have not yet been assessed
- Putting in place enhanced procedures and arrangements for post- earthquake response



Lessons from the Turkiye Earthquake

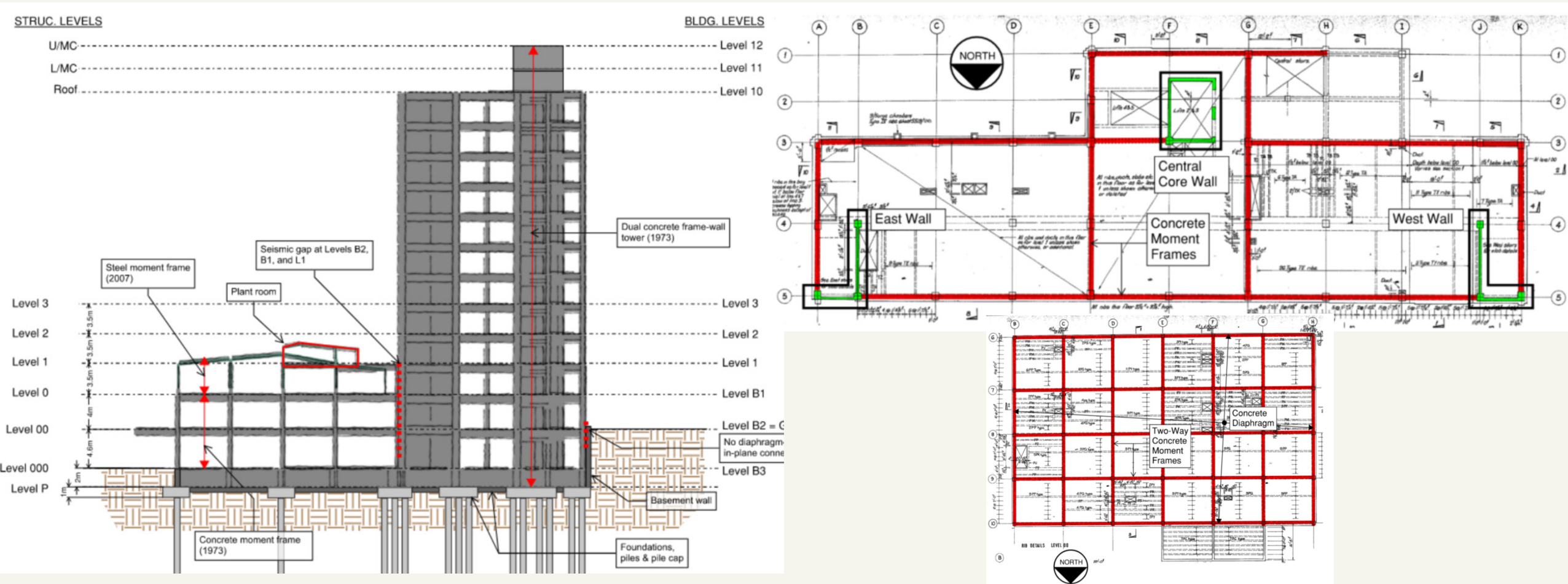


Elizabeth Rothwell Building (Waikato) Seismic Assessment

- 12- storey concrete building
 - Main tower: Concrete Wall- Frame Dual System
 - Podium: 3- storey concrete two- way moment frame (+ 1- storey extension)
- Built circa 1973 (predates Capacity Design in NZ Standards, NZS4203: 1976)
- Located in “Medium” Seismic Risk – designated a “Priority Building” in accordance with Earthquake Prone Legislation.



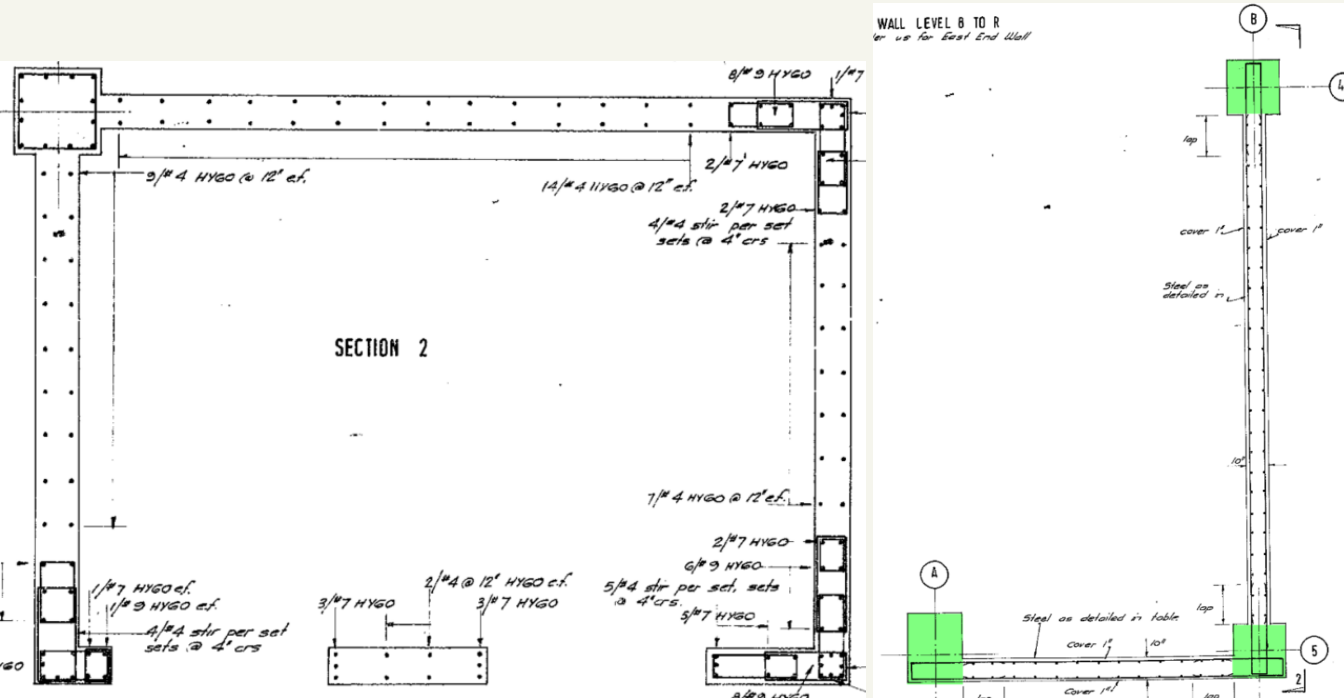
ERB – Structural Systems



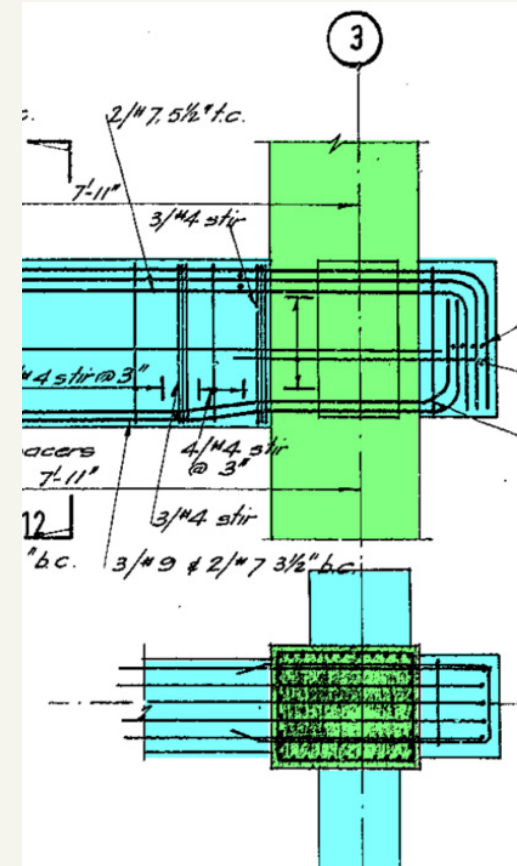
a). Building Section

b). Building Plan, Tower (Top), Podium (Bot.)

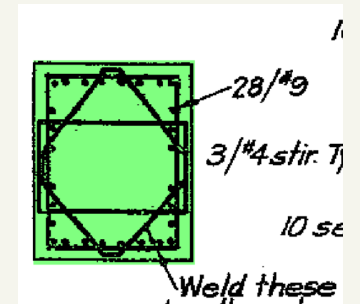
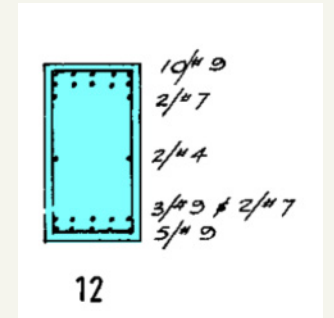
ERB – Primary Lateral System



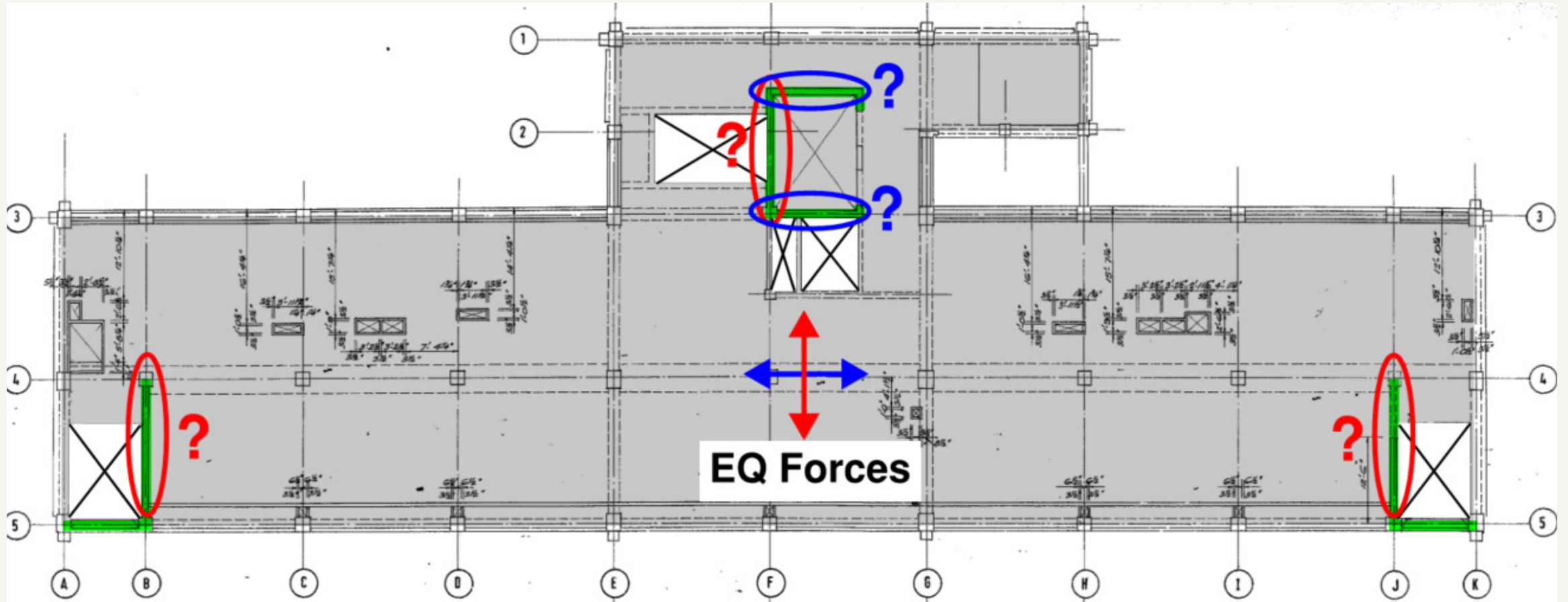
a). Shear Walls, elevator core (Left), stair cores (Right)



b). Moment Frame



ERB – Dia phra gm



How is the Hospital responding?

- No legal requirement to do anything (>34% Building Code)
- Currently undertaking costing exercises to address high-risk, low-cost items:
 - Plant room structure
 - Precast façade panel connections
 - Stairs

Ngā mihi nui
Thank you!

