BUILDING PERFORMANCE

AGENDA

Building Code Technical Risk Advisory Group (BCTRAG)

Location: MBIE – 15 Stout Street. Room G.16. Wellington

Meeting Date and Time: Tuesday March 5th. 9.30am – 2.30pm

Chair: Mike Kerr

Attendee list: See final page of this document

Agenda.

Item	Agenda Item	In the hands of	Time
	Welcome coffee		**9:15 - 9:30**
1.	**Introductions** **Endorse:** • Function of the Group • Definition of Technical Risk	Mike Kerr	**9.30 - 9.45**
2.	**Business Update**	Dave Robson	**9.45 - 10.15**
3.	**Update on the Risk & Liability and Legal Reform Programmes**	Katrina Quickenden	**10.15 – 10.45**
4.	**Open Forum: Discuss Risk Submissions** Risk 1: 10.45-10.55 - Use of Cross Laminated Timber (CLT) in buildings. Risk 2: 10.55-11.05 – Compliance pathway for Buckling Resistance Bracing use of which is becoming more prevalent in construction Risk 3: 11.05-11.15 - Raised Access Floors (RAFs) with no Seismic Bracing Risk 4: 11.15-12.15 – 1170.5 Structural seismic design	Mike Kerr	**10:45 - 12.15**

Lunch			
Item	**Agenda Item**	**In the hands of**	**Time**
4.	**Open Forum: Discuss Risk Submissions** Risk 5: 12.45-1.15 - Post-event Business Continuity Planning, functionality, damage control, and building reparability. Risk 6: 1.15-1.45 – Data is not being collected regarding performance to allow compliance assessments and identify areas of best practice and concern.	Mike Kerr	**12.45 - 1.45**
5.	**Open Forum: General issues**	Mike Kerr	**1.45 - 2.15**
6.	**Next Steps**	Mike Kerr	**2.15 – 2.30**
8.	**Close**	Mike Kerr	**2.30**

Attendees

Organisation	Attendee
NZ Society for Earthquake Engineering	David Whittaker
Structural Engineering Society	Paul Campbell
NZ Geotechnical Society	Ross Roberts
Society for Fire Protection Engineers	Michael James
Building Officials Institute NZ	Jayson Ellis
GNS Science	Matt Gerstenberger
BRANZ	Lynda Amitrano
NZCIC	Paul O'Brien
Fire and Emergency NZ	Simon Davis
NZIA	Bruce Curtain
Engineering New Zealand	Tania Williams
Engineering New Zealand	Helen Davidson
MBIE	Dave Robson
MBIE	Mike Kerr (Chair)
MBIE	Jenni Tipler
MBIE	Helen McGregor

Risk Details

Risk to be discussed	MBIE summary interpretation/reframing of the risk submission
1. Use of Cross Laminated Timber (CLT) in buildings.	Buildings incorporating Cross Laminated Timber (CLT) may not meet the performance requirements of the building code and may be unsafe with regard to fire spread and structural stability in fire. Recent CLT fire performance research indicates it does not burn in the same way as traditional timber and is prone to delamination which exposes fresh timber, increasing fire load and potential spread compromising occupant's safety and exposing other property to potential fire damage. **Supporting file included as separate attachment**
2. Compliance pathway for Buckling Resistance Bracing use of which is becoming more prevalent in construction	Buckling restrained braces (BRB)s, typically used as seismic bracing in multi-storey buildings, may perform poorly during an Earthquake. There is no clear compliance pathway for BRBs. Testing requirements for BRBs used in New Zealand may are not clearly defined and current testing practice (even if undertaken in accordance with International guidelines) is likely to be insufficient to demonstrate acceptable performance
3. Raised Access Floors (RAFs) with no Seismic Bracing	Raised access floors (RAF)s, which are elevated above base floor level to allow for access underneath, may collapse during an earthquake due to a lack of seismic bracing. The bracing requirements for RAFs are unclear and often ignored in practice. Failure of these floor types may cause injury to persons underneath and/or block access/egress from the building.

Risk to be discussed	MBIE summary interpretation/reframing of the risk submission
4. 1170.5 Structural seismic design	Buildings may perform poorly during an earthquake, due to the current Standard cited in the code compliance pathway **(NZS 1170.5)** being out of date.
	There is a risk that - building owners will not make informed, objective risk decisions regarding earthquake performance of buildings, and - seismic hazard estimates will fluctuate unnecessarily because the Standard cited in the current code compliance pathway **(NZS 1170.5)** does not convey the uncertainty of seismic hazard estimates
	Buildings may perform poorly during an earthquake, due to the site-specific ground shaking amplification effects that are not included in the Standard cited in the current code compliance pathway **(NZS 1170.5)**. Site-specific ground shaking amplification is a well-known effect that impacts most urban centres in New Zealand
	Building performance during large, infrequent earthquakes, may be different to what is expected, because the Standard cited in the current code compliance pathway **(NZS 1170.5)** unnecessarily restricts the type of ground motions that can be used (by restricting the scale factors that can be used).
	Buildings may perform poorly during an earthquake, due to the current Standard cited in the code compliance pathway **(NZS 1170.5)** using out of date (2002) seismic hazard estimates. Current estimates of seismic hazard are generally greater than what is presented in the Standard, significantly so in some areas such as Wellington.
	a) There is a risk that the public expects a building assessed as 100% NBS to perform in the same way as a brand new building during an earthquake. b) There is a risk that new buildings may perform poorly in a large, infrequent earthquake because the Standard cited in the current code compliance pathway **(NZS 1170.5)** does not explicitly require designers to verify performance beyond the Ultimate Limit State (design level) earthquake.
5. Post-event Business Continuity Planning, functionality, damage control, and building reparability.	Building performance settings in the B1 Acceptable Solutions and Verification methods do not meet the performance objective of Clause B1 to provide a low probability of loss of amenity. This is because buildings are allowed to be designed to sustain significant damage during earthquakes that may be uneconomic to repair. Building demolition is costly to repair, causes significant business interruption, generates large quantities of waste and is environmentally unsustainable.

Title of risks to be discussed.	MBIE summary interpretation/reframing of the risk submission
6. Data is not being collected regarding performance to allow compliance assessments and identify areas of best practice and concern.	There is an opportunity to increase our understanding of building performance, improve building code settings (by relaxing requirements for buildings found to over-perform and increase requirements for buildings found to under-perform) and learn from events such as earthquakes, by collecting and monitoring quantitative data on building performance.

Other risks received that will not be discussed at this meeting

MBIE summary interpretation/reframing of the risk submission	Note
The risk of unreinforced masonry (URM) parapets and facades collapsing during an earthquake and injuring people is increased because there is no clear compliance pathway for the strengthening/retrofit of parapets and facades.	
There is a risk that the performance of earth retaining structures may be variable and/or poor. This is because the current compliance pathway (B1/VM4) is out of date.	BPE have an ongoing project and propose presenting at the June 2019 BCTRAG on this risk. Note - the 'risk' has been significantly rewritten/ reframed.
There is a risk of poor building/foundation performance during an earthquake, due to the lack of a clear compliance pathway to address geotechnical hazards such as ground deformation, liquefaction and rock fall.	
There is a risk of poor performance of buildings and of economic consequences, due to the lack of clarity in building code compliance documents that make it difficult to comply with the Building Code.	Manager BPE will discuss in Business update session

MBIE summary interpretation/reframing of the risk submission	Note
There is a risk of poor performance of buildings and of economic consequences, due to the lack of understanding of the building code system by sector participants.	Manager BPE will discuss in Business update session