



# Building Code Technical Risk Advisory Group

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29 August 2019





Item	Agenda Item	In the hands of	Time
	Welcome Coffee		9:15 - 9:30
1.	Follow-up from the last meeting	Mike Kerr	9.30 - 9.45
2.	Business Update	Dave Robson	9.45 – 9.55
3.	Higher Density Housing Five year plan	Dave Robson	9.55 - 10.15
4	Climate Change	Judy Zhang Adrian Bennett	10.15 - 10.45
5.	Prioritising risk submissions: feedback on the revised process	Mike Kerr	10.45 - 10.55



Item	Agenda Item	In the hands of	Time
5.	Open Forum: Discuss Risks: Risk 1 - Non Compliance for passive fire protection Risk 2 – Disconnect between structural and fire engineering	Mike Kerr	10.55 - 12.00
	LUNCH		12.00 - 12.30
6.	Open Forum: Discuss Risks: Risk 3 – Building Code training and education Risk 4 – Aluminium composite panels	Mike Kerr	12.30 - 2.00
7.	Open Forum: General issues	Mike Kerr	2.00 - 2.20
8.	Next Steps	Mike Kerr	2.20 - 2.30
9.	Close	Mike Kerr	2.30



# 1. Follow-up from the last meeting

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## 2. Business Update

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## **3. Higher Density (HD) Housing Five Year Plan**

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# 3. HD Five Year Plan – Why it was developed

- In 2018 MBIE developed a programme to review and improve compliance pathways to support the government strategy regarding densified housing. The programme goals were to:
  - Support the governments goal of improved building regulations to support developing HD housing.
  - Respond to an increasing demand for densified housing due to the population growth expectations, densification projections and an anticipated housing shortage.
  - Continue to providing safe, healthy and resilient homes for New Zealanders.
- As part of this programme, analysis with the sector was undertaken, resulting in 8 code clauses identified that closest aligned with achieving the programme goals.

The BPE team subsequently formed a sub-programme called HD8 to review how amending these code clauses could support the broader strategy.

# 3. HD Five Year Plan – The Code Clauses

- The 8 identified code clauses are:



Structure



Durability



Fire



External moisture



Internal moisture



Ventilation



Airborne and impact sound



Natural light



Energy efficiency

Each code clause is managed by a member of the BPE team who is a expert in the code clause.



# 3. HD8 Five Year Plan – Developing the plan



- For the identified Code Clause the BPE Code Clause expert:
  - Assessed ‘the documents\*’ and with selected sector discussion, identified potential changes to support the HD housing strategy and programme.
  - Identified strategic changes or items not in ‘the documents’ to be considered for inclusion.
  - Developed a list of amendment that will optimally support HD housing.
- The lists were summarised into the Code Clause Priority List based on their impact on the:
  - Code clause residual risk from the Risk Framework.
  - Support lent to achieving the strategic goals.
  - Timelines to research and implement.
  - Anticipated impact and support of impacted sectors and industries.
- Each priority list was then discussed BPE and BSP leadership team for agreement with the plan, prioritisation and research.

\* ‘the document’ refers to the Code Clause, referenced Acceptable Solution, Verification Methods, standards or other documents



- Obtain the BCTRAG and BAPs insights.
- Finalise a work programme showing all Code Clauses and how a number of sequencing complexities will be accommodated including:
  - Dependencies between work plan items and the impact of one item not completing on time on other areas.
  - Timing, and duration, of research and the impact of its timelines and conclusions on work being executed.
  - Dependency on Standards NZ for new or revised standards taking on average of 2 years
  - Expected consultation periods and the potential for multiple consultations for a change.
- Draft a research plan to support the sequencing within and between code clauses.
- Seek feedback from the Minister on the overall plan.
- Publish a communication document for public information.
- Commence a pilot program to develop and deploy in 2 years a new compliance pathway supporting compliance across a combination of performance criteria and multiple code clauses.



- For each of the one page priority documents:
  - Will the proposals on the priority list support HD
  - Are there any high level proposals missing that would support HD.
- For the communication document:
  - Is the purpose well defined
  - Are the goals clear
- Do you have any other feedback or guidance for MBIE?

*Note: The programme will primarily be delivered through the bi-annual building code update programme.*



## 4. Climate Change

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## **5. Prioritising the risk submissions – feedback on the revised process**

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## 6. Open Forum: Risk Submissions

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## Passive Fire protection system failures

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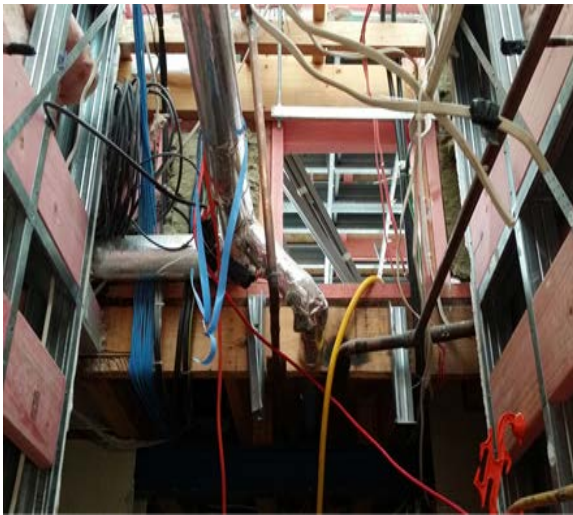
### Submitters

SFPE – Michael James

NZIA – Bruce Curtain

# What is the issue?

- Non-compliance of passive fire protection in buildings
- Passive fire protection requires coordination of multiple trades with services penetrations and seismic joints driving both complexity and poor compliance.



Put a fire wall through this please



Not my job to fire rate this!





- Anecdotal evidence (I.e. Waikato DHB, Etc) indicates widespread issues across a range of building typologies and around NZ.
- Practical experience in Auckland suggests that most if not all buildings suffer from passive fire defects. Testimony to this is that in all recent weathertightness litigation cases passive fire defects have been included



The tube said up to 4 hours  
fire rating!!!



Job well done

# Potential Impact or Harm?

- Non compliance can facilitate rapid spread of fire and smoke between fire cells endangering occupants and escape.
- Inspection and proof of compliance can be difficult as fire separation is often hidden in service risers, floor and ceiling voids. This makes identification and quantification of the scale of the problem difficult to assess.
- Loss of credibility from designers, building consent authorities and installers.
- Rectification costs are disproportionate, expensive and disruptive.

# What role does the building code play?

Building Code clauses C3.5 and C3.7, C4.3

- C3.5 horizontal spread of fire to other property
- C3.7 Vertical spread of fire of facades
- C4.3 Evacuation occupants to a place of safety

Acceptable solutions show some passive fire detailing that can not be justified through testing.



1. Change the C clauses to be more specific around passive fire protection similar to the pre 2012 building code changes.
2. Role for a specific licensed passive fire trade.
3. Qualifications, training and QA processes
4. Review current CCC and producer statement acceptance criteria



## BUILDING PERFORMANCE

# Disconnect between structural and fire engineering

- **Submitters**
- SFPE – Michael James
- SESOC – Paul Campbell
- Engineering New Zealand – Eleanor Laban
- **Supporters**
- Institution of Fire Engineers – Ed Claridge





# What is the issue?

Building Structures are sometimes designed incorrectly, have inadequate or missing protection from fire

This could lead to premature building collapse during a fire, leading to loss of life and damage of other property





## What role does the Building Code play?

Protection of structure in fire is covered in Building Code Clauses B1 and C6

- Clause B1 concerns structure
- Clause C6 is part of the fire suite of clauses but also concerns structure

This leads to confusion over which discipline. **Who is responsible?**





# B1 and C6

## B1 Structure

B1.1 The objective of this provision is to:

- (a) Safeguard people from injury caused by structural failure,
- (b) Safeguard people from loss of amenity caused by structural behaviour, and
- (c) Protect other property from physical damage caused by structural failure.

B1.2 Buildings, building elements and sitework shall withstand the combination of loads that they are likely to experience during construction or alteration and throughout their lives.

## C6 Structural stability

C6.1 Structural systems in buildings must be constructed to maintain structural stability during fire so that there is:

- (a) a low probability of injury or illness to occupants,
- (b) a low probability of injury or illness to fire service personnel during rescue and firefighting operations, and
- (c) a low probability of direct or consequential damage to adjacent household units or other property.







# Consequences?

- The identification of structure that needs to be protected from fire is not properly identified
- Regardless of whether it is identified properly there is confusion as to whose responsibility it is to document the design approach or fire protection systems (Architect, structural engineer or fire engineer)
- Regardless of whether there is adequate documentation the application and construction monitoring of fire protection systems for structural steel is often poorly carried out
- Who demonstrates compliance with each code clause and to what extent is unclear and may depend on the type of approach, structural system and expertise of either party
- There is a lack of clarity in the industry about the difference between during and post fire stability and the implications on certain design approaches for life safety, protection of other property protection, durability and overall resilience





## Possible remedies

1. Continue work on harmonising B1 and C6, which was left out of the last round of Building Code reviews.
2. Complete the roles and responsibilities work that was halted at 50% complete in 2015.
3. Provide guidance on documentation, installation and quality assurance of structural fire protection systems (FPANZ is currently preparing a code of practice on this for coating systems).





## Positive benefits

- Increase in safety
- More certainty for industry
- Less rework
- Potential for streamlined, pre-approved solutions – particularly for low rise and residential dwellings
- Reduced costs



# BUILDING PERFORMANCE



## Lunch

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# ACP Cladding consequences and implications

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## Submitters

SFPE – Michael James

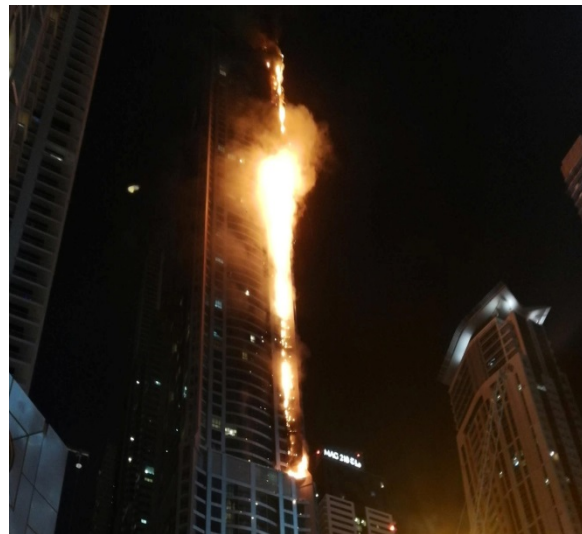
NZIA – Bruce Curtain

# What is the issue?

- Consequential implications for buildings clad in ACP where insurance is withdrawn to landlords and tenants.
- H&S at Work Act may drive mass building evacuation.
- Australian Case law has implicated many subsidiary parties with liability.
- Australian withdrawal of insurance on cladding related issues.



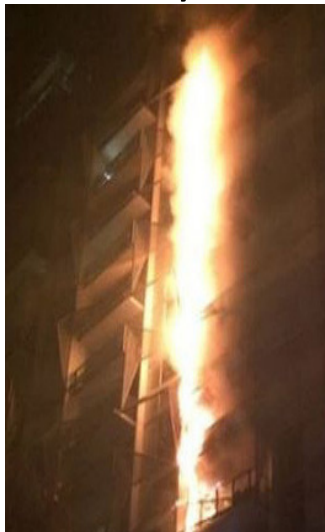
Grenfell Tower  
London



The Torch  
Dubai

# Potential Impact or Harm?

- Auckland and Wellington Councils have identified lists of buildings (116 and 113 respectively) typically within the CBD with potential ACP cladding. Other centres no covered.
- These buildings will be primarily commercial, multi-unit residential, retail, hospitals and other major public buildings. Cost and disruption implications for a major recladding programme would be significant to the NZ economy.



Lacrosse Tower Melbourne



Grozny Chechnya

Its not just about fixing the ACP

- E2 recladding issues.
- Passive fire issues
- Repairs are driven by insurance and litigation rather than what is in the best interest of the country based on building performance.



# What role does the building code play?

Building Code clauses C3.5 and C3.7, E2 and other consequential clauses

- C3.5 horizontal spread of fire to other property
- C3.7 Vertical spread of fire of facades

These two clauses are not necessarily aligned with the objectives of E2 leading to competing requirements.



1. Update MBIE Guidance on cladding and fire safety.
2. Review the interrelationship between the C clauses for cladding and E2.
3. Carry out some system testing covering both the C clauses and E2 to have a suite of acceptable designs or a base body of knowledge on performance of different systems.



# BUILDING CODE RISK

## SEEKING QUALITY & COMPLIANCE THROUGH EDUCATION & TRAINING

Presented by – Jayson Ellis, BOINZ Representative





## Seeking Quality & Compliance through Education & Training



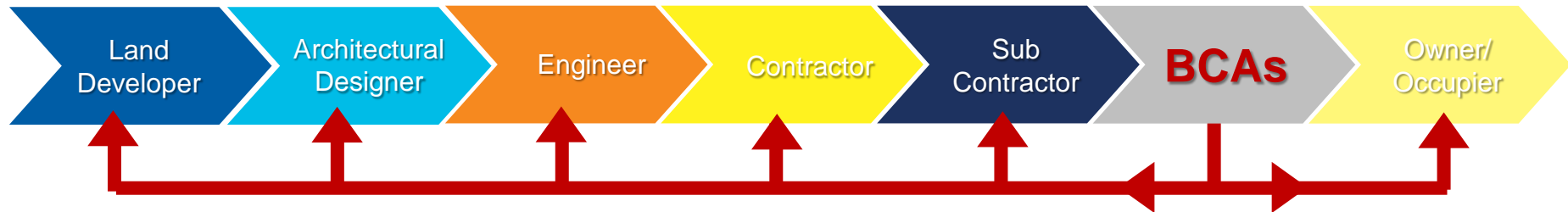
### AWARENESS

The Building Consent System and Building Code Awareness is pivotal to transforming behaviour that will lead to reduced risks and increased productivity.



No-one in the chain is perfect

- all need to be better trained
- one organisation can't do this
- "Partnering organisations" will deliver the cultural and knowledge change required



## What are the sector exposures/risks?

### Land Developer

#### Problems

- Roles
- Responsibilities
- Legislation knowledge

#### Who can assist

- BOINZ
- ENZ
- NZIA
- MBIE

### Architects/ Designers

#### Problems

- Inexperienced
- No “code training” mechanism
- Cost of training
- Understanding roles
- Consistency

#### Who can assist

- BOINZ
- NZIA
- BCA's
- MBIE

### Engineers

#### Problems

- Understanding roles
- Relationships
- Certification

#### Who can assist

- BOINZ
- ENZ
- BCA's
- MBIE

## What are the sector exposures/risks?

Contractor	Sub Contractor	BCAs	Owner/ Occupier
<p><b>Problems</b></p> <ul style="list-style-type: none"> <li>➤ Roles</li> <li>➤ Responsibilities</li> <li>➤ Consistency</li> <li>➤ Approval process</li> <li>➤ Substitution</li> </ul>	<p><b>Problems</b></p> <ul style="list-style-type: none"> <li>➤ Roles</li> <li>➤ Responsibilities</li> <li>➤ Approval process</li> <li>➤ Substitution</li> </ul>	<p><b>Problems</b></p> <ul style="list-style-type: none"> <li>➤ Consistency</li> <li>➤ Knowledge</li> <li>➤ Training Budget</li> <li>➤ Legislation limits</li> <li>➤ Us &amp; Them</li> </ul>	<p><b>Problems</b></p> <ul style="list-style-type: none"> <li>➤ Knowledge</li> <li>➤ Legislation</li> <li>➤ Relationships</li> <li>➤ Approval process</li> </ul>
<p><b>Who can assist</b></p> <ul style="list-style-type: none"> <li>➤ BOINZ</li> <li>➤ BPB/MBIE</li> <li>➤ BCA</li> <li>➤ CIC</li> <li>➤ Industry Orgs</li> </ul>	<p><b>Who can assist</b></p> <ul style="list-style-type: none"> <li>➤ BOINZ</li> <li>➤ BPB/MBIE</li> <li>➤ BCA</li> <li>➤ CIC</li> <li>➤ Industry Orgs</li> </ul>	<p><b>Who can assist</b></p> <ul style="list-style-type: none"> <li>➤ BOINZ</li> <li>➤ MBIE</li> <li>➤ CIC</li> <li>➤ Industry Orgs</li> </ul>	<p><b>Who can assist</b></p> <ul style="list-style-type: none"> <li>➤ MBIE</li> <li>➤ BCA</li> <li>➤ Industry Orgs</li> <li>➤ BOINZ</li> </ul>

We develop qualifications and training material for Building Surveyors

Building Surveyors (Building Control Officials) – get to see the issues daily

BOINZ can link key issues awareness with code awareness and training to improve efficiencies and effectiveness

BOINZ already partners successfully with Industry peak bodies



# Why are other organisations important

ENG and NZIA are obviously key partners

- Often their members core/primary work focus obscures the awareness that “core code knowledge” can deliver risk mitigation, efficiency & productivity - \$\$\$ bottom line results for members and their customers

Partnering brings collective awareness of issues and common goal targets

Establishes pathways to training that works for all partners







# THANK YOU



BUSINESS,  
& EMPLOYMENT  
TATUKI



New Zealand Government



## 7. Open Forum: General issues

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- Next meeting will be on Wednesday 27 November, 2019 at MBIE.
- Proposed 2020 meeting dates will be circulated by Sept 20 for the identification of any clashes.
- Questions



# BUILDING PERFORMANCE



## Thank You

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# BUILDING PERFORMANCE

