## It's time to end – and put into reverse – the regulatory carpet bombing of the construction industry

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## My Background

- Chemistry & Physics
  - BSc(Hons) Physical Chemistry
  - Studied Atmospheric Physics & Chemistry
  - Research into CO<sub>2</sub> (and its atmospheric effects)
- Masters in Fire Engineering
  - New Zealand consulting
  - UK Investigation, research, advising UK government
- UAE
  - Built a team of 7 fire engineers across Middle East
  - Managed fire side of projects up to \$USD20 Billion
- Australia
  - Started own business
  - CPEng (Australia), Registered Professional Engineer (QLD)



### My Background

- Economics degree majoring in microeconomics
  - Economic analysis of the law
  - Risk and insurance
  - Public economics
- Doing a PhD in regulatory & market failure in fire engineering
- Publications & Presentations to date:
  - Review of all fire incidents across Australasia (500,000+ fires) & 5,000+ coroners' reports
  - Issues with NZ Fire Verification Method & legal risks
  - Identification of Building Act clauses which are economically obstructive
  - Better ways to free up land by redrafting our spread of fire laws
  - Why Australia has the combustible cladding crisis it does

## <u>Disclaimer!!!</u>

- Many of the issues I raise are detailed subjects in their own right
- Could spend many hours on just one issue raised on one slide
- I have left a handout of references & reading material with Darryl August (if you want to follow up yourself)

### **Subordinate Legislation Failures**

- Construction Industry is not a 'free market'; it is heavily regulated by law
  - So, the law is important!
- Introduction to the importance of Subordinate Legislation and problems it can create
- Start by introducing structure of government (building law context)
- Give three examples of Subordinate Legislation failures:
  - Australia & combustible cladding
  - New Zealand and leaky buildings
  - UK & combustible cladding
  - Solutions
  - Summary

#### Starting Point: New Zealand the Westminster System, and the Building Act

- Three Co-Equal Arms of Government
  - Legislature
  - Executive
  - Judiciary



#### New Zealand Government: Legislature & Building Act

- Legislature:
  - 120 MPs
  - Pass Building Act 2004
  - Building Act is Supreme Law in NZ



#### New Zealand Government: Executive & Building Act

- Executive:
  - Government Departments with Minister as the Head of Ministry
  - Councils
  - Pass **Subordinate Legislation** (Secondary Legislation): Statutory Regulations, Rules, Orders, etc.
  - Building Regulation 1992, Building Code, etc
  - Administer statutes, e.g. Determinations



#### New Zealand Government: Judiciary & Building Act

- Judiciary: Rule on the law
  - Statutory law, common law, contracts, torts
  - Rules on the decisions of the Executive known as Judicial Review
  - Senior Courts: High Court, Court of Appeal, Supreme Court



#### Building Act 2004

- Building Act is Supreme Law: All other subordinate laws must be "consistent" with them. E.g., Building Regulations, Acceptable Solutions & Verification Methods, Standards, etc
- Must be "intra vires": within the powers
- "Ultra vires": Beyond the powers
- Parliamentary Council Office (PCO) drafts Acts, Parliament passes them





#### **Acceptable Solution/Verification Method**

- <u>Building Act S22(2)</u>: A person who complies with an Acceptable Solution or a Verification Method must, for the purposes of this Act, be <u>treated as</u> having complied with the provisions of the building code to which that Acceptable Solution or Verification Method relates.
- <u>Aust. Building Code:</u> A solution that complies with the Deemed-to-Satisfy provisions is <u>deemed</u> to have met the Performance Requirements.
- Deeming = "Treated as" (NZ Law Dictionary)
- <u>Deeming</u>. "Deeming" is a statutory technique used to extend the meaning of a word or definition beyond its ordinary or primary meaning, or to make clear something which might otherwise be debateable. (Far North District Council v Local Government Commission [1994] 3 NZLR 78, 86)

#### <u>Recap on NZ Law and Subordinate Legislation</u>



CDs (s 22): Acceptable Solutions & Verification Methods Materials by Reference (s 405): Codes & Standards in CDs Determinations (s 176): MBIE Chief Exec. dispute resolution, usually over building consent refusals LEGISLATURE Statutory Acts Supreme Law

EXECUTIVE Subordinate Legislation Drafted by PCO

EXECUTIVE Subordinate Legislation NOT drafted by PCO

#### <u>Recap</u>

#### • Subordinate Legislation

- Laws below that of a Statutory Act
- Statutory Regulations e.g., Building Regulation 1992, 2005, 2006
- Acceptable Solutions & Verification Methods
- New Zealand Standards
- Must be "within the powers" of the Act ("intra vires")
- Otherwise "ultra vires" beyond the powers

#### So Where Is the Problem?

- In Subordinate Legislation!
- Three Examples of Subordinate Legislation Failures
  - Australia & Combustible Cladding
  - New Zealand and Leaky Buildings
  - UK & Combustible Cladding

#### Case Study: Australia & Failed Subordinate Legislation Lacrosse Tower Fire (2014)

- Fire started on balcony by guest of unit owner (cigarette)
- Liability of \$5.7 Million (up to \$12 Million, remaining likely settled out of court)
- Apportionment
  - Fire Engineer 39% (\$2.4 M)
  - Building Certifier 33% (\$1.9 M)
  - Architect 25% (\$1.4 M)
  - 3% Occupant



#### Lacrosse Tower Fire: BCA 2006

#### C1.12 Non-combustible materials The following materials, though *combustible* or containing *combustible* fibres, may be used wherever a *non-combustible* material is *required*: INTERNAL Plasterboard. (a) Perforated gypsum lath with a normal paper finish. (b) Fibrous-plaster sheet. (c) Fibre-reinforced cement sheeting. (d) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm (e) thickness and where the Spread-of-Flame Index of the product is not greater than 0. Bonded laminated materials where— (f) each laminate is non-combustible; and (i) each adhesive layer does not exceed 1 mm in thickness; and (ii) the total thickness of the adhesive layers does not exceed 2 mm; and (iii) (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the laminated material as a whole does not exceed 0 and 3 respectively.

#### Lacrosse Tower Fire

#### **BCA 2006**

Spread-of-Flame Index means the index number for spread of flame as determined by AS/NZS 1530.3

#### AS1530.3:

"This test provides data for assessing the potential hazard of wall linings during the early growth of fire <u>in a compartment</u>"

#### Lacrosse Tower Fire: BCA 2016Amd 1 (2018)

#### C1.9 Non-combustible building elements

- (a) In a building *required* to be of Type A or B construction, the following building elements and their components must be *non-combustible*:
  - (i) *External walls* and *common walls*, including all components incorporated in them including the facade covering, framing and insulation.
- (e) The following materials may be used wherever a *non-combustible* material is *required*:
  - (i) Plasterboard.
  - (ii) Perforated gypsum lath with a normal paper finish.
  - (iii) Fibrous-plaster sheet.
  - (iv) Fibre-reinforced cement sheeting.
  - (v) Pre-finished metal sheeting having a *combustible* surface finish not exceeding 1 mm thickness and where the *Spread-of-Flame Index* of the product is not greater than 0.
  - (vi) Bonded laminated materials where-
    - (A) each lamina, including any core, is *non-combustible*; and
    - (B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and
    - (C) the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the bonded laminated material as a whole do not exceed 0 and 3 respectively.

#### <u>Outcomes</u>



#### Berkley Insurance Australia are no longer writing Fire Engineers

#### **Building Certifier insurance Crisis in Australia**

The insurance market for Building Certifiers in Australia is currently in massive turmoil and upheaval in relation to Professional Indemnity insurance. The number of insurers offering coverage is minimal, with costs skyrocketing, excesses increasing greatly, and blanket exclusions being applied for Combustible Cladding.

176 Minutes of a meeting of State and Territory Administrations of the ABCB held in Canberra on 12 October 2010<sup>322</sup> reveal that the ABCB was by then actively considering whether ACPs complied with the DTS provisions of the BCA, including in relation to combustibility. Under the heading "Information on Alucobond – ACT", those minutes record that: <sup>323</sup>

## Lacrosse Tower Case

#### Report Commissioned by Executive

- 24 Recommendations in the 'Building Confidence Report'
  - "We have not been asked to make recommendations about the BCA itself."
  - "Our Terms of Reference do not specifically refer to the concerns regarding combustible cladding. "
  - "However, this issue has been a dominant underlying theme of the consultations we have held."
  - "As we have developed the recommendations we have asked ourselves a simple question: "would our recommendations significantly reduce the likelihood of the misuse of cladding occurring in the future?"."
  - "We believe we can answer in the affirmative."
- Not a single example of damage and establishing causation
- Carpet bombing the private sector & death by regulation

#### <u>Combustible Cladding and the VIC Building Act 1993</u>



#### **Recap: Australia & Subordinate Legislation Failure**

- Failure in Deemed-to-Satisfy (DtS)
  - Did not have any specific criteria against vertical spread of fire
- Thousands of buildings clad with plastic
- Executive study did not investigate DtS
  - Recommendations include considerable bureaucracy
- Countless amount of remedial works across country

#### Case Study: New Zealand's Leaky Buildings

- New Building Act came into force in 1992
- Soon after, buildings began to 'leak'
- One of the biggest collective building failures anywhere



• Court of Appeal: *Attorney-General v Body Corporate 200200* (2005), William-Young J:

[28] Prior to the mid-1990s, radiata pine used for framing was usually treated to protect against insect attack. This treatment also provided a measure of resistance to fungal decay. In 1995, the Standards Association of New Zealand published NZS 3602:1995 which permitted the use of untreated timber for framing. Para 105.5 of this document is in these terms:

Radiata pine framing members that have been kiln dried at 74 °C or above, to 18% moisture content or less and have been planer gauged do not require preservative treatment, provided they are not exposed to ground atmosphere or in any position where the timber moisture content will exceed 18%.

• Cont.

[29] In February 1998, the BIA issued "Acceptable Solution B2/AS1" which
recorded:
3.2 Timber
3.2.1 NZS 3602: Part I is an acceptable solution for meeting the durability requirements of timber building elements.
[30] Primarily (although not exclusively) implicated in leaky building syndrome is
the use of face fixed monolithic cladding systems directly over untreated
pinus radiata timber. It is now clear that where such systems are used over untreated
pinus radiata, careful design and workmanship are required to limit water ingress and
particular provision must be made for ventilation and general water management.

- NZS3602A1 (1998) (Amendment)
- (b) Timber framing (including boundary joists) in exterior walls clad with masonry veneer complying to SNZ HB 4236 on a single-storeyed building with no restriction on size but including the following conditions (see figure 3):
  - (i) Eaves all around of not less than 450 mm, and
  - (ii) Not more than 10 % of other type of cladding complying with E2/AS1 at recessed porches, panels above windows, or gable ends built out to the face of the brick
  - (iii) Hipped roof or gable end roof with masonry veneer gable
  - (iv) No habitable space below the floor;

- Single storey
- 450 mm eaves
- Brick/block veneer, etc



• NZS3602 (1995):

#### 105.5

Radiata pine framing members that have been kiln dried at 74 °C or above, to 18 % moisture content or less and have been planer gauged do not require preservative treatment, provided they are not exposed to ground atmosphere or in any position where the timber moisture content will exceed 18 %.

#### Building Act 2004

- Performance Criteria, in relation to a building, means qualitative or quantitative criteria that the building is required to satisfy in performing its functional requirements
- NZS3602 Clause 105.5 is not an Acceptable Solution, as it did not give a prescriptive answer
- It is *Performance Criteria*, as it set thresholds

- Government Response of the day:
  - Systematically review all subordinate legislation for errors?
  - No
- Repeal the 1991 Building Act for 2004 Building Act
- Effectively destroy ability to do performance-based design
- CoA: Attorney-General v Body Corporate 200200 at [31]:
  - "Insurance for building certifiers became impossible (or practically impossible) to arrange"

#### Leaky Buildings & Building Act



#### **Recap: New Zealand's Leaky Buildings**

- Politicians blamed each other
- Cost \$20+ Billion
- Laissez-faire economic principles of Building Act 1991 blamed
- B2/AS1 identified by the Courts as a big part of the problem
- Introduced an entire new Building Act without reviewing evidence

## Case Study: UK Combustible Cladding Crisis

- 10,000+ buildings clad with combustible cladding
- Numerous 'warning fires' occurring nearly 10 years before Grenfell
- Many buildings designed to Approved Document B ('ADB')
- (V.N.S)



#### **UK's Combustible Cladding Crisis**



#### **UK's Combustible Cladding Crisis: Executive Response**

- Did not look at subordinate legislation, let alone ADB
- Information collected by voluntary submissions only
- Death by regulation
- Performance-based design collapsing
- Different findings after Grenfell Tower Inquiry under Discovery and Judicial Oath

HACKITT REPORT (2018)

# **Building a Safer Future**

Independent Review of Building Regulations and Fire Safety: **Final Report** 

#### **UK's Combustible Cladding Crisis**

• B4(1): The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building.

#### **Compliance with the Building Regulations**

2.16 It was not my original intention to include in Phase 1 of the Inquiry an investigation into the extent to which the building complied with the requirements of the Building Regulations. However, as I have explained in **Chapter 26**, there was compelling evidence that the external walls of the building failed to comply with Requirement B4(1) of Schedule 1 to the Building Regulations 2010, in that they did not adequately resist the spread of fire having regard to the height, use and position of the building. On the contrary, they actively promoted it. It will be necessary in Phase 2 to examine why those who were responsible for the design of the refurbishment considered that the tower would meet that essential requirement.

#### **UK Response**

- Not just fix ADB, but carpet bomb with regulations as per Hackitt report
- Require more stairs in high rises + sprinklers:
  - Estimated cost £2,000,000,000 where feasible
  - Some projects being cancelled

'Virtually impossible' for engineers to get insured for fire safety, industry warns



Since the Grenfell Tower tragedy in 2017, insurers have become more reluctant to cover for potential fire safety issues in Ireland.

#### **UK and their Building Act**



#### <u>Common Links Between Three Cases</u>

- Errors in Subordinate Legislation!
- Errors not immediately obvious
- Errors sometimes only a few sentences
- Errors below that of Parliamentary Council Office review house
- Delays in acknowledging errors
- Insurers walking out or premiums going up

#### **Building Acts & Subordinate Legislation Failures**



#### Interjection: Fire & Subordinate Legislation Failures

- Building Act 2004: S 25(2)(b) Content of Acceptable Solution or Verification Method:
  - Must not contain a provision that relates to regulatory approvals, dispensations, or waivers
- C/VM2 Fire Safety Design
  - *S*<sub>4.7</sub>: The criteria in NZBC C3.4 shall be applied to lining materials, except in the following cases:
  - This is a waiver to the Building Code!
  - *S*<sub>4</sub>.*8*: b) An internal hydrant designed and installed to NZS 4510 or as approved by the National Commander of the New Zealand Fire Service.
  - This is an approvals role!

### So, What Are the Solutions?

- Wait until another problem with Subordinate Legislation
- Write endless letters to government departments
- There is another.....

### Solution: Judicial Review & The Role of the Courts

- Two types of Executive Decisions can be Challenged:
  - Administrative Decisions: Made by an administrator that affects a person/company
  - Legislative Decisions: Subordinate Legislation e.g., Regulations, by-laws, Acceptable Solutions, Verification Methods, NZ Standards



- Legislative Decisions
  - File for Judicial Review under Judicial Review Procedures Act 2016 (& Section 30 of High Court Rules s30 if necessary)
  - Seek Declaration (opinion of court)
  - Department must fix Subordinate Legislation
- Proactive as fixing a problem before it becomes a major cost



- Legislative Decisions Two Main Categories
  - Ultra Vires Subordinate legislation must not be Beyond the Powers
  - Uncertainty Subordinate legislation must not be uncertain. Has to be clear.

- Legislative Decisions Ultra Vires
  - Ultra Vires Subordinate legislation must not be Beyond the Powers
- Official Assignee v Chief Executive of Ministry of Fisheries (2002)

**Held:** The Act envisaged that principles guiding or rules controlling the allocation of individual catch entitlements would be stipulated in regulations determined at Cabinet level and not determined by the Chief Executive. Regulation 3 had the effect of allowing the selection of stock which had not earlier been gazetted to be regulated by the Chief Executive, rather than the Minister. Matters such as whether previous catch history was to be taken into account and whether different quantities of entitlement were to be allocated for the same stock were not intended to be taken entirely by the Chief Executive in the way reg 3 stipulated. Regulation 3 was therefore ultra vires the Act (see paras [81], [82], [106], [108]).

- Legislative Decisions Uncertainty?
- Verification Method C/VM<sub>2</sub> for Fire Safety:

# 2.2.1 Fire modelling rules for life safety design

The model to be used, and the spaces or volumes to be modelled, shall be established at FEB.

• Don't know what model to use until after contract is signed and have gained opinions/acceptance of `stakeholders'

## Fixing the Building Act 2004

- Identify offending clauses of Building Act 2004
- Collect economic evidence of harm (e.g., inefficiencies)
- Petition to Parliament for amendments or repeal of offending petitions@parliament.govt.nz
- https://www.parliament.nz/en/pb/petitions/

# Petitions

Home » Parliamentary Business » Petitions

Petitions are addressed to the House of Representatives and ask that the House do something about a policy or law, or put right a local or private concern.

This page shows the petitions you can sign as well as petitions that are closed for signatures and have moved on to the next part of the process. You can also start a petition using the 'Create a Petition' button.

Petitions can be created by anyone and must be signed by at least one person.

Find out more about creating and signing petitions.

### <u>Current Problems That Can Be Eliminated Easily</u>

- Construction Industry Councils Guidelines & Evacuation Schemes:
  - All during the design phase:
  - **Preliminary Design:** Fire and Emergency NZ: Meet and discuss with evacuation scheme provider preliminary **evacuation scheme**.
  - **Developed Design:** Meet and confirm with evacuation scheme provider developed **evacuation scheme**. Liaise with design team as to requirements.
  - **Detailed Design:** Finalise **evacuation scheme**. Liaise and verify with design team as to requirements.

### What is an Evacuation Scheme?

- S 76 FENZ Act: A procedure designed to enable evacuation from the scene of a fire to a place of safety.
- S 18 19 FENZ Regulations 18:
  - Contain information in Schedule 4 of Regs
  - Cannot modify the building
  - Cannot require building to meet performance criteria of building code.

## Schedule 4 of FENZ 2018 Regulations

- Name and street address of building
- Record of title
- Owner
- Use
- Max occupancy
- Etc.
- No fire report nor plans and specifications!

#### District Court 2004: FENZ v Marler (DCR CIV 2083/03)

- FENZ Argument: Work needs to be done beyond building consent to ensure appropriate level of safety
- Sought order to close building down
- In Court:
  - FENZ admitted no legislative power to require building work to be done before approving evacuation scheme
  - Judge Wilson ruled in favour of building owner

### Why is the Evacuation Scheme Important?

- CIC Guidelines not consistent with Court rulings
- Fire Acceptable Solutions and Verification Methods have not correctly recognised this law:
- Causing unnecessary delays in some instances
- Clients (owners) not being given full information to make an informed decision

**Safe place** A place, outside of and in the vicinity of a single *building* unit, from which people may safely disperse after escaping the effects of a *fire*. It may be a place such as a street, *open space*, public space or an *adjacent building* unit.

#### Comment:

The Fire Safety and Evacuation of Buildings Regulations 2006 use the term *'place of safety'* and allow the *place of safety* to be within the *building* provided that it is protected with a sprinkler system.

#### A Bit About Insurance Markets

- Not their job to insure you
- Their job is to make a profit for their businesses and shareholders
- Insurers answer to Re-insurers and their shareholders
- Multi-trillion dollar industry
- They know systemic risk when they see it, and often are the first to detect it
- Insurance contracts are annually renewed and so they can walk out if they begin to see systemic risk

#### What Is Insurance?

- Not an Insurance Company's job to insure you
- Their job is to make a profit for their businesses and shareholders
- Insurers answer to Re-insurers and their shareholders
- Multi-trillion dollar industry
- They know systemic failure when they see it, and often are the first to detect it
- Insurance contracts are annually renewed and so they can walk out if they begin to see systemic risk

#### <u>What Is Insurance – An Economic Answer</u>

- The future is never certain
- But we like certainty
- Reduce the effect of bad outcomes, should they happen in the future
- Three ways this is done: Number 1 Purchase Market Insurance
  - Third Party receives premium across population base
  - Some people have bad things happen
  - Insurer pays for restoration for those who have a claim
  - Those who do not have claim get nothing

#### <u>What Is Insurance – An Economic Answer</u>

- Three ways this is done: Number 2 Self Insurance
  - Pay for a thing that reduces damage, should it occur, e.g.:
  - Structural reinforcement for seismic activity
  - Sprinklers
  - Dam (for flooding)
- Nothing to do with likelihood of a bad thing happen, but reduce its effect
- If the bad thing does not happen, sunk cost

#### <u>What Is Insurance – An Economic Answer</u>

- Three ways this is done: Number 3 Self Protection
  - Pay for a thing that reduces probability of thing happening:
  - Electrical wiring safety devices
  - Lightning rods
  - Locks on doors
  - Effort (e.g, education)
- Reduces the probability of the bad thing happening
- All three types of insurance interact with each other in the market for the supply of market insurance

- Market Insurance:
- Calculate premium
- Premium based on likely damage (D), and probability (p) of damage per annum
- Known as Expected Damage (ED)
- Now lets apply a bit of very basic math

- Premium = Prob of event X Damage X 'Loading Factor'' ( $\lambda$ )
- Loading factor factors in profit margins, risk to insurers etc.
- *Premium* =  $D \times p \times (1 + \lambda)$
- $Premium = D \times p \times 1.2$  (ish)

- $Premium = D \times p \times 1.2$  (ish)
- Insurance companies need to know Damage (D) and probability (p)
- If they get it wrong, two things can happen:
  - Bankruptcy
  - Walk out before too late

'Virtually impossible' for engineers to get insured for fire safety, industry warns



Since the Grenfell Tower tragedy in 2017, insurers have become more reluctant to cover for potential fire safety issues in Ireland.

# Editorial: AMI's collapse shows up flaw in market



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Finance Minister Bill English. Photo / Mark Mitchell

- $Premium = D \times p \times 1.2$  (ish)
- Where can insurer's forecast be wrong:
  - Underestimate damage (D)
  - Underestimate probability (p)
- If errors in Compliance Documents (AS, DtS, AB D), then this increases probability of bad things happening
- Probability (p) goes up
- Insurer has underinsured
- Insurer has two choices
  - Raise premiums (continually)
  - Walk out

- My Position: Cost of Market Insurance affected by Industry-Wide Damage being too high
- Got to get Damage under control Self-Insurance (Damage mitigation)
- Got to get Probability (of Damage) under control Self-Protection (probability reduction)
- Errors in Compliance Documents (AS, VMs, or AD B's) are a cause
  - E.g., Grenfell: Probability of Error in AD B X Damage = Insurers walking out
- Proactively fixing before it is too late is the best way forward

#### <u>Summary</u>

- Systemic building failures are happening because of deficiencies in subordinate legislation:
  - DEEMING (Compliance Documents) ≠ CORRECT
- The idea that everyone chose to just do the same wrong thing is not a plausible hypothesis
- Insurers willingness to insure is reducing
  - Are you teetering on the edge of insurers withdrawing?
- Your ability to offer innovation/value add services is incompatible with undue regulatory red tape

#### Summary Cont.....

- There have been 14 changes to the Building Code over the last 30 years but no change to the purpose of the Building Act (91/04)
  - Some of these changes are far from trivial
- Your market has ~ 33 Acceptable Solutions & Verification Methods + hundreds of standards
- Impossible for them all to be 100% correct (i.e., not 100% intra vires)
- Reducing damage in this market is the key to an insurable market
- Proportionate vs. Joint and Several Liability is of a distant secondary importance if you cannot obtain/afford insurance due to systemic failure
- I don't accept the character assassination the private sector has received over the decades

#### Summary Cont.....

#### **New Zealand**



- None of these reports forensically examined Damage
- Therefore, none established Causation of Damage
- 'Crisis Reports'
- Crisis Reports result in undue red-tape
- Never Support the Crisis Report

#### Australia

February 2018

## **Building Confidence**

Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia

#### Peter Shergold and Bronwyn Weir

# United Kingdom Building a Safer Future

Independent Review of Building Regulations and Fire Safety: **Final Report** 

#### **Questions?**