



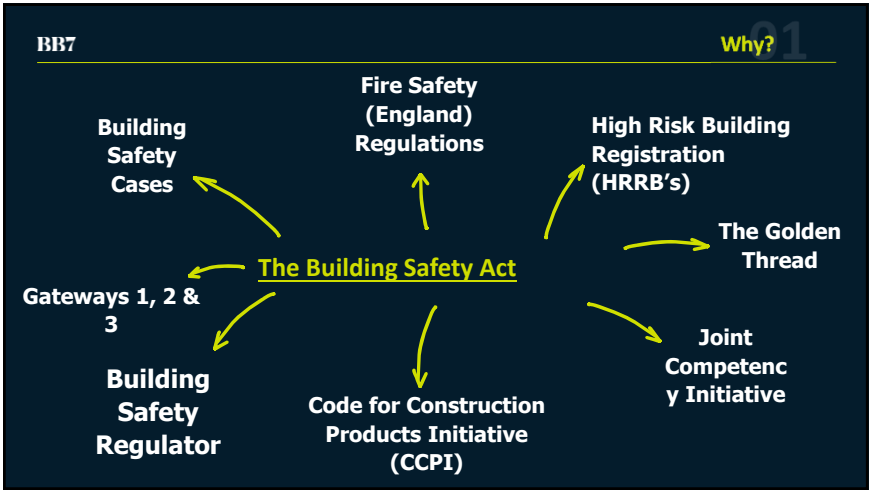
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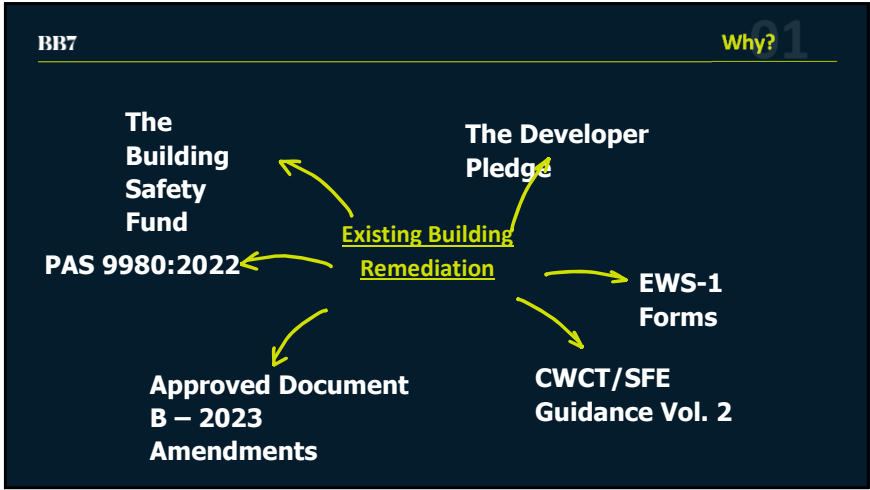
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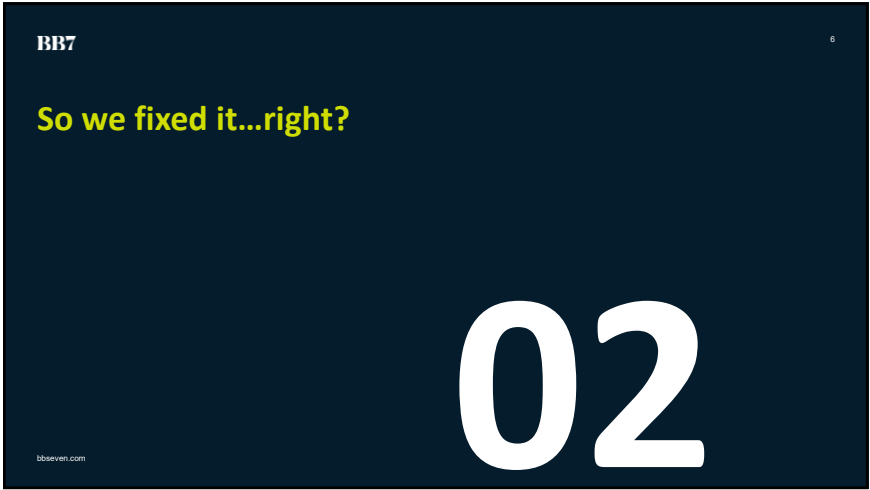
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BB7

Fixed?

Clear Guidance (?)

**Fictional Project Example:** Sixth Form Education Centre.

Building height: 22m  
Boundary Distance: 2m

The structure is proposed as a loadbearing Light Gauge Steel Frame.

Façade is proposed to be clad in handset brick at ground floor level for robustness, before transitioning to an adhesive applied brickslip system from Level 1 with 12mm timber cladding adjacent to timber composite windows.

The feature curtain wall has a bonded Rockwool core spandrel at floor levels.

Do we feel this would be a compliant building to the Regulations/ Guidance?

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Fixed?

More Details

- **Handset Masonry:** Cavity Trays are tested to BS EN 13501-1, achieves Class E
- **Bricksip:** Tested to BS EN 13501-1, achieves B-s3,d0 with the adhesive.
- **Timber:** Class D-s3,d0
- **Spandrels:** Tested to BS EN 13501-1, achieves B-s3,d0 with the adhesive.
- **Insulation:** Rockwool – A1 to BS EN 13501-1
- **Windows:** Class D-s3,d0 frame members
- **Interface Sealing Membrane:** Membrane tested to BS EN 13501-1, achieves Class E
- **Compartmentation:** Horizontal Open State Cavity Barriers at all levels

Still feeling confident?

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Fixed?

Lets start with Reaction to Fire

ADB, Volume 2, Section 12 – Table 12.1

Building type	Building height	Less than 1000mm from the relevant boundary	1000mm or more from the relevant boundary
Relevant buildings* as defined in regulation 7(6) (see paragraph 12.15)		Class A2-s1, d0 <sup>1</sup> or better	Class A2-s1, d0 <sup>1</sup> or better
All 'residential' purpose groups (purpose groups 1 and 2)	More than 18m	Class A2-s1, d0 <sup>1</sup> or better	Class A2-s1, d0 <sup>1</sup> or better
	18m or less	Class B-s3, d2 <sup>1</sup> or better	No provisions
Assembly and recreation	More than 18m	Class B-s3, d2 <sup>1</sup> or better	From ground level to 18m: class C-s3, d2 <sup>1</sup> or better From 18m in height and above: class B-s3, d2 <sup>1</sup> or better
	18m or less	Class B-s3, d2 <sup>1</sup> or better	Up to 10m above ground level: class C-s3, d2 <sup>1</sup> or better Up to 10m above a roof or any part of the building to which the public have access: class C-s3, d2 <sup>1</sup> or better <sup>4</sup> From 10m in height and above: no minimum performance
Any other building	More than 18m	Class B-s3, d2 <sup>1</sup> or better	From ground level to 18m: class C-s3, d2 <sup>1</sup> or better From 18m in height and above: class B-s3, d2 <sup>1</sup> or better
	18m or less	Class B-s3, d2 <sup>1</sup> or better	No provisions

Compliant?

- Masonry Cavity Trays: **Class E**
- Brickslip: **B-s3,d0**
- Timber: **D-s3,d0**
- Spandrels: **B-s3,d0**
- Insulation: **A1**
- Windows: **D-s3,d0**
- Interface Sealing Membrane: **E**

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Fixed?

ADB, Volume 2, Section 12 – Table 12.1

Assembly and recreation	More than 18m	Class B-s3, d2 <sup>1</sup> or better	From ground level to 18m: class C-s3, d2 <sup>1</sup> or better From 18m in height and above: class B-s3, d2 <sup>1</sup> or better
In addition to the provisions within this table, buildings with a storey 18m or more above ground level should also meet the provisions of paragraph 12.6. In addition to the provisions within this table, buildings with a storey 17m or more above ground level should also meet the provisions of paragraph 12.7. 1. The restrictions for these buildings apply to all the materials used in the external wall and specified attachments (see paragraphs 12.6 to 12.7 for further guidance). 2. Profiled or flat steel sheet at least 0.5 mm thick with an organic coating of no more than 0.2mm thickness is also acceptable. 3. Timber cladding at least 9mm thick is also acceptable. 4. 10m is measured from the top surface of the roof.			

DLUHC Circular Letter 02/2022

The Secretary of State makes the following direction, in relation to buildings in England, in exercise of the powers conferred by section 11(1) of the Building Act 1984 (type relaxation of building regulations).

Dispensation for cavity trays

1. The requirements of regulations 6(3) and 7(2) of the Building Regulations 2010 are dispensed with in relation to cavity trays (e)(d).

Compliant?

- Masonry Cavity Trays: **Class E** – Maybe?
- Brickslip: **B-s3,d0**
- Timber: **D-s3,d0**
- Spandrels: **B-s3,d0**
- Insulation: **A1**
- Windows: **D-s3,d0**
- Interface Sealing Membrane: **E**

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Fixed?

Building Regulations -Section 7(2) and 7(3)

[(12)(c) Subject to paragraph (2), building work must be carried out so that materials which become part of an external wall, or specified attachment, of a relevant building are of a minimum (European Classification A2-s1, d0 or A1, classified in accordance with BS EN 13501-1:2018 entitled 'Fire classification of construction products and building elements. Classification using test data from reaction to fire tests' (BSI 0539 589 95726 0) published by the British Standards Institution on 14<sup>th</sup> January 2019) ]

[(12)(d) Paragraph (2) does not apply to—

(a) cavity trays when used between two leaves of masonry;

(b) any part of a roof (other than any part of a roof which falls within paragraph (iv) of regulation 2(6)) if that part is connected to an external wall;

(c) door frames and doors;

(d) electrical installations;

[(12)(e) fire optic cables ]

(f) insulation and water proofing materials used below ground level [(12)(g) up to 200mm above that level]

(g) intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;

(h) membranes;

(i) seals, gaskets, fixings, sealants and backer rods;

[(12)(h) components associated with a solar shading device excluding components whose primary function is to provide shade or deflect sunlight such as the awning curtain or slats ]

(j) thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1 [(12)(i) ]

(k) window frames and glass [(12)(j) or

(l) materials which form the top horizontal floor layer of a balcony which are of European Classification [(12)(k) A1 or A2-s1] (classified in accordance with the reaction to fire classification) provided that the entire layer has an impermeable substrate under it ]

Compliant?

- Masonry Cavity Trays: **Class E** – Maybe?
- Brickslip: **B-s3,d0**
- Timber: **D-s3,d0**
- Spandrels: **B-s3,d0**
- Insulation: **A1**
- Windows: **D-s3,d0**
- Interface Sealing Membrane: **E**

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Fixed?

ADB, Volume 2, Section 12 – Table 12.1

Assembly and recreation	More than 18m	Class B-s3, d2 <sup>1</sup> or better	From ground level to 18m: class C-s3, d2 <sup>1</sup> or better From 18m in height and above: class B-s3, d2 <sup>1</sup> or better
In addition to the provisions within this table, buildings with a storey 18m or more above ground level should also meet the provisions of paragraph 12.6. In addition to the provisions within this table, buildings with a storey 17m or more above ground level should also meet the provisions of paragraph 12.7. 1. The restrictions for these buildings apply to all the materials used in the external wall and specified attachments (see paragraphs 12.6 to 12.7 for further guidance). 2. Profiled or flat steel sheet at least 0.5 mm thick with an organic coating of no more than 0.2mm thickness is also acceptable. 3. Timber cladding at least 9mm thick is also acceptable. 4. 10m is measured from the top surface of the roof.			

12.6 In a building with a storey 18m or more in height (see Diagram D6 in Appendix D) any insulation product, filler material (such as the core materials of metal composite panels, sandwich panels and window spandrel panels) but not including gaskets, sealants and similar etc. used in the construction of an external wall should be class A2-s1, d0 or better (see Appendix B). This restriction does not apply to masonry cavity wall construction which complies with Diagram 9.2 in Section 9. Where regulation 7(2) applies, that regulation prevails over all the provisions in this paragraph.

ADB, Volume 2, Section 12.22

12.22 Particular attention is drawn to the following points.

a. Membranes used as part of the external wall construction above ground level should achieve a minimum of class B-s3, d0. Roofing membranes do not need to achieve a minimum of class A2-s1, d0 when used as part of a roof connecting to an external wall.

CWCT/SFE Guidance, Section 6.5.1

Based on the function described above, a membrane material at such interfaces is considered as a 'seal' and is exempt from regulation 7(2). A limit of 250mm should be applied to the width of material used. The basis for this value is simply to provide an upper limit that is practical and should allow for a reasonable seal to be formed in many typical situations, whilst at the same time minimising the amount of material used. Beyond this it should be classed as a membrane and the guidance in section 6.4 applies.

Compliant?

- Masonry Cavity Trays: **Class E** – Maybe?
- Brickslip: **B-s3,d0**
- Timber: **D-s3,d0**
- Spandrels: **B-s3,d0**
- Insulation: **A1**
- Windows: **D-s3,d0**
- Interface Sealing Membrane: **E** – maybe?

Very few Fire Engineers are aware of this guidance

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Fixed?

Regulation vs Guidance

Building Regulations 2010 (+ Amendments) – SCHEDULE 1

External Fire Spread

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.

Complying with the guidance in the approved documents does not guarantee that building work complies with the requirements of the regulations – the approved documents cannot cover all circumstances. Those responsible for building work must consider whether following the guidance in the approved documents is likely to meet the requirements in the particular circumstances of their case.

Do we feel that this will adequately resist the spread of fire?

Compliant – but sufficient?

Compliant?

Masonry Cavity Trays: Class E – Maybe?

Brickslip: B-s3,d0

Timber: D-s3,d0

Spandrels: B-s3,d0

Insulation: A1

Windows: D-s3,d0

Interface Sealing Membrane: E – maybe?

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Fixed?

Other issues in the industry which may affect this building or others like it:

If the glazing is full height how do we deal with cavity barriers? Can we combine them?

Open State Cavity Barriers are still not covered by a BS or EN Standard (ASFP TDG 19) – how do we review against this?

Open State Cavity Barriers are being increasingly requested to be changed by LFB due to cold smoke progression hampering fire fighting efforts, is there an alternative?

Loadbearing SFS requires full encapsulation – how do we deal with the window interface through a sheathing board?

How do we deal with rainscreen rail systems running through a cavity barrier or fire stop?

A lot of these issues are complex, and require a solution that doesn't just consider fire engineering but also its implications on façade performance, weathering and longevity BUT...

Façade Industry Poll 2023

38% of those surveyed were either fully or heavily restricted against fire in spite of the high degree of confidence in the industry

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So whats the Solution?

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Solution?

Procurement

Prescriptive vs Specification Approach

Prescriptive (Traditional Contracts) allows for definitive products and performances to be specified early and the design is locked down.

Specification Approach (D&B Contract) allows for more flexibility and requires more knowledge further down the supply chain.

SURELY TRADITIONAL IS THE WAY TO GO THEN?

Traditional relies on tight early control but relies on a smaller team and is client led; requires a high degree of accuracy from the start - higher reliance on individuals being fully competent and responsible.

Specification approach allows the design to be tailored and allows "many heads" to resolve the design and tackle more granular issues.

Both have the potential to solve the issue, but equally both have their risks.

D&B and Specifications aren't going anywhere...

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Solution?

We are on the right road

All the Regulatory changes are forcing us to work in a more transparent and robust way to build better buildings whilst highlighting where gaps are within the realms of our professional competencies.

More Robust Oversight

Safer Building Design

More Experienced & Competent Teams

As has always been the consistent message

**COLLABORATION & KNOWLEDGE SHARING WILL BE KEY**


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Solution?

Procurement

- **Option 1:** Use a specialist who has both disciplines (**BB7???**)
- **Option 2:** Actively engage early with specialists to coordinate on the issues early. Encouraging a crossover workshop in each Stage as may reveal some key issues as the design progresses.
- **Option 3:** Try to find a Fire Specialist has the capacity to review and comment on Façade Details; even a single iteration review can be invaluable in discovering issues **BUT this generally comes at a premium.**




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Solution?

Design

- **Understand & Coordinate** (as much as possible) – coordinate drawings to include fire requirements and incorporate them early. Caveats are fine but the more information the better.
- **Engage & Educate** – discuss direct with the Fire Protection industry (e.g. fire stopping, intumescent specialists, etc.), get CPDs and training early and keep them informed on what you're looking to provide; changing designs may change requirements
- **Junctions and Interfaces** - if compartments and cavity barriers aren't joined up they will not provide protection
- **Joint Risk Assessment of the External Wall** – look at the potential options and get the Fire Consultant to consider the options jointly on a risk basis (this will possibly help them with Building Safety Cases)



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Solution?

Cross Industry Knowledge Sharing

Improving our understanding of items outside our sector:

- Accredited Courses & CPDs
  - ASFP Passive Fire Protection Level 3 (<https://asfp.org.uk/page/FoundationCourseOnlineLevel3>)
  - IFE Training Directory (<https://www.ife.org.uk/Training-Development-Directory>)
  - FPA Fire & Non-Loadbearing External Walls (<https://www.thefpa.co.uk/training/passive-fire-protection-training/fire-and-non-load-bearing-external-walls-online>)
- Don't skip on the project Fire Engineering Workshops
- Read PAS 9980 – this gives a good grounding in the fundamentals
- Get as many CPDs as you can...

Educating those outside our sector:

- Encourage Fire Professionals to gain knowledge of Façades (your CPDs?)
- Pass on the CWCT Guidance Documents (in particular CWCT/SFE document) and discuss

We should read it ourselves as well!

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Solution

New Legislation is a step in the right direction

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Fire Engineering is complex (and so is Facades)

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Collaboration and Education is Key

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Creators of **Safe Spaces**



Iain Gray  
MEng CEng MICE MSFE  
Associate Director - Facades  
Email: [iaingray@bbseven.com](mailto:iaingray@bbseven.com)  
Tel: 0203 603 5535  
Mob: 07880 279915

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