

External Facades to Tall Buildings – Routes to Compliance

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External Facades to Tall Buildings – Routes to Compliance

Programme

- Requirements of the building regulations
- Development of BCA understanding
- Risks to industry
- Overview of BCA Guidance Note 18
- Our experience to date

Building Regulations

- Health and Safety not property protection
 - Part B – Life safety
- Responsibility for compliance
 - Person carry out the work
 - BCB – help builder to achieve compliance
- Final certificate does not guarantee compliance

Building Regulations

- For buildings with a floor over 18m guidance in ADB2 (Para 12.7) and BS9991 (Section 18.2) both require –
 - All major components (including cladding finishes) within wall construction to be “materials of limited combustibility”, or
 - The proposed wall build up should meet the performance criteria of BRE Report BR135 for cladding systems using full scale test data from BS 8414-1 or BS 8414-2
 - Fire testing of curtain walling systems can follow the recommendations in BS EN 13830:2015 Curtain Walling – Product Standard.
 - BS EN 13830:2015 directly requires testing of all curtain walling to BS EN1364-4:2014 for fire Compartmentation

Building Regulations

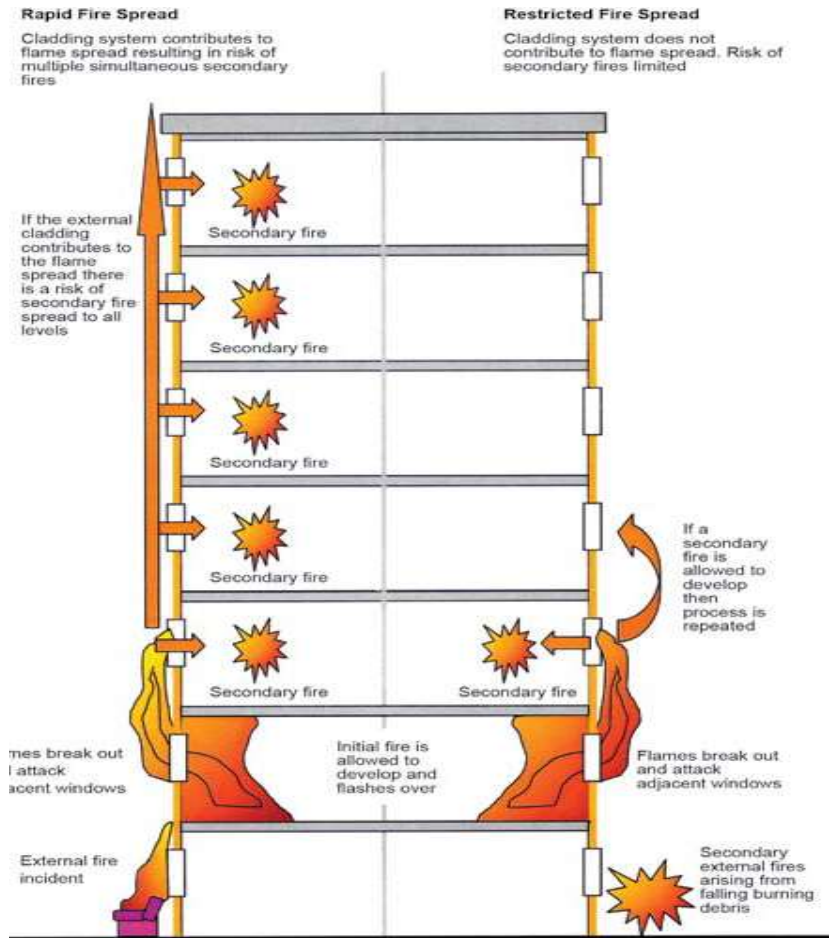
BS 8414-1 (masonry backing) or BS 8414-2 (LWSF backing) full size tests



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Building Regulations

- BR135 – Performance criteria
 - An assessment of the BS8414 – 1/2 test



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Development of BCA Understanding

- Questions raised by Building Control Bodies involved in high rise projects about suitability of some insulation types
 - PIR and PUR insulation boards
- Preferred by the industry due to their exemplary thermal performance relative to their thickness, lightweight and reasonable cost.
- Change in BBA certificate in late 2013 for most common product seen on site restricted its use on buildings with a floor over 18m
- BCA recognised a need for further industry guidance

Risks to Industry



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Risks to Industry

- Prosecution under building control legislation
 - Fines and imprisonment
 - Loss of licence (Approved Inspectors)
- Prosecution under health and safety legislation
 - Corporate manslaughter
 - Fines and imprisonment
- Civil Claims
 - From people or relatives of injured or killed
- Claims on builders for delays or costs
- Reputational damage
 - Industry problem

BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Originally issued in June 2014
 - 3 methods to demonstrate compliance
- Re-issued in June 2015 (Issue 1)
 - Revised to cover all buildings
 - 4 methods to demonstrate compliance
- Free to download from BCA website

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BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Option 1
 - Use Materials of Limited Combustibility
 - Cladding in accordance with Diagram 40
- Option 2
 - Testing to BS 8414-1/2 and meeting BR 135 criteria

BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Option 3
 - Fire engineered assessment of cladding based on test data
 - Carried out by suitably qualified fire engineer
 - Based on reasoned arguments/facts not opinion
 - Demonstrate equivalence of performance of a BR135 compliant system

BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Option 3
 - Should use test data which is specific to the product(s) which are proposed.
 - Should justify any discrepancies between the tested and proposed build-ups
 - Avoid leaps of faith! Applying data from very dissimilar materials can lead to inaccurate conclusions.

BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Option 4
 - Holistic fire engineered assessment of whole building
 - Carried out by suitably qualified fire engineer
 - Take into account all building factors
 - Demonstrate that building provides reasonable provision for life safety
 - May be necessary to adapt the building

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BCA Guidance Note 18

Use of Combustible Cladding Materials on Buildings Exceeding 18m in height

- Option 4
 - Equivalence with BR135 parameters of fire spread (600°C at 5m above the opening after 15 minutes)
 - Needs to consider external fire risks and risks from ancillary accommodation
 - Sprinklers alone aren't the complete answer!
 - Inform Responsible Person under Regulation 38

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Glazed Systems

- Complete glazed systems would meet guidance as MOLC
- Difficulties arise with spandrel panels using combustible insulation, especially where running full height of building.
- No testing (that we are aware of) which demonstrates how this configuration will react.
 - Fire testing of curtain walling systems can follow the recommendations in BS EN 13830:2015 Curtain Walling – Product Standard.
 - BS EN 13830:2015 directly requires testing of all curtain walling to BS EN1364-4:2014 for fire Compartmentation

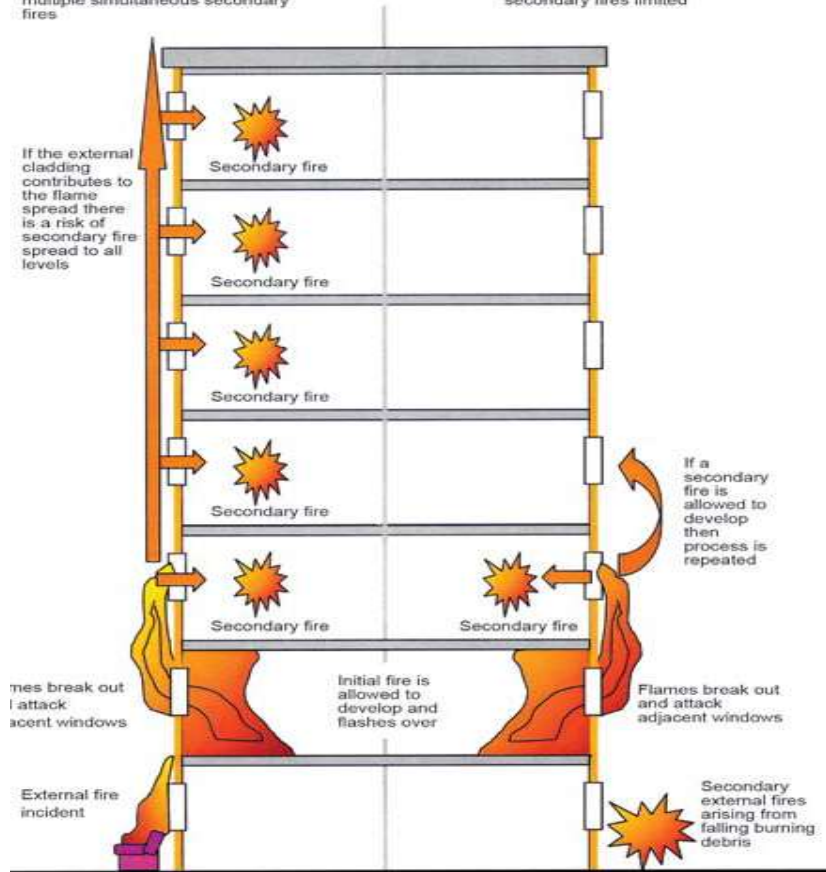
Glazed Systems

Rapid Fire Spread

Cladding system contributes to flame spread resulting in risk of multiple simultaneous secondary fires

Restricted Fire Spread

Cladding system does not contribute to flame spread. Risk of secondary fires limited



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Glazed Systems

- At present no evidence to prove Option 1 or Option 2 compliance
- Option 3 Assessments
 - Build up of spandrels/type of insulation
- Option 4 Assessments
 - Location of spandrels/isolation/compartimentation

BCA Experience

Positives

- Adoption of BCA GN 18 as industry best practice by BCB's and Warranty bodies
- Experience and understanding of builders is becoming more common
- Pre-design discussions with builders about facades are becoming more common

BCA Experience

Not so Positives

- Reports from some fire engineers still based on opinion not fact
- Cavity closers to all openings
- Limited number of published tests available
- No tests using lightweight metal claddings
- Lack of Curtain walling tests being provided to NHBC as justification.
- Substitution of materials

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