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Title: **Debating Tall: Do Cladding Fire Codes & Tests Need Changing?**

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Subjects: Building Materials/Products
Fire & Safety

Publication Date: 2016

Original Publication: CTBUH Journal, 2016 Issue II

Paper Type:

1. Book chapter/Part chapter
2. **Journal paper**
3. Conference proceeding
4. Unpublished conference paper
5. Magazine article
6. Unpublished

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Do Cladding Fire Codes & Tests Need Changing?

A series of high-profile fires in tall buildings in the Middle East has raised concerns about standards for fire protection in exterior cladding on these buildings. Two fire safety experts weigh in on both sides of the question, "Do cladding fire codes and tests need changing?"

YES

Phil Barry

Managing Director, CWB Fire Safety Consultants Ltd.

Various codes are published to support compliance with building regulations, but unfortunately innovation is often more focused on design than safety.

All the codes are similar in relation to high-rise buildings: they require exterior walls to restrict fire spread. The purpose is two-fold; first, effective external fire service intervention is impracticable above ladder heights, and second, there is a need to reduce the risk of external fires entering the building through unprotected areas such as windows. Those involved in the process must understand not only the contents of the codes, but also the reasoning behind the various recommendations that they make.

While it is not practicable or necessary to have one universal code, I believe that building regulations worldwide should set common functional requirements that must be achieved and demonstrated irrespective of which code- or performance-based solution is used.

Several fire tests, including British, European Standards and NFPA, are used to demonstrate that a product or system achieves a required standard. The tests must be standardized among themselves to assist designers and approving authorities with specifying appropriate materials. More important is the use of the correct test to demonstrate the required performance in the appropriate circumstances.

There are examples where systems have been subjected to tests demonstrating fire resistance, in which a critical factor – the rate of flame propagation across the external surface – has not been considered. The tests must also be valid for the particular circumstances in which the materials are to be utilized (i.e., raised ambient temperatures, tall buildings with increased wind speeds or façades incorporating balconies, etc.). Large-scale testing may be required.

There needs to be a strict "chain of custody" rule that governs the testing of products to ensure that the item being tested is of the exact same type as the one that is eventually used on the building.

Recent examples of high-rise fires involving cladding systems, particularly in, but not restricted to, Dubai, rate that action is required, or lives may be lost.

NO

Simon Lay

Director, Olsson Fire & Risk UK

A focus on codes is not the answer. Most codes already have the mechanisms within them to tackle these problems, so long as designers and reviewers use them as intended. Virtually every code includes text along the lines of "the solutions in this code are not the only answer; solutions can and should be considered" and "designers should check when applying code solutions that the code is appropriate."

An over-reliance on new codes creates complacency with designers, contractors and building owners. The view that a building

must be safe because it matches code is an illusion. All it takes is a manufacturing error, maintenance fault, or for someone to use the building in a way which was not intended, and the façade could become a risk factor.

It is the responsibility of the designers to ask whether the building façade is safe within the context of the individual building design. The designers should think about what fire risks could develop, how the façade might contribute to those risks, and how those risks might have an impact on life. This requires designers to have the right brief and to take responsibility – and it's also the only way to ensure safety.

Façade innovation will always outstrip codes and standard tests. The building skin has to respond to many demands while remaining as light as possible, and represents a huge proportion (up to 25%) of the cost of a tall building. These challenges drive innovation; façade solutions will continue to slip between code clauses, even if those codes or tests change.

The façade of a tall building is fundamental to its character and function. The façade is complex, vital and individual to each project. Codes provide a useful starting point, but refining and amending them will not deliver safety. Instead owners, designers, contractors and operators need to look at the façade from a fire safety perspective and engage with specialists to understand the fire safety risks to validate solutions for each project.