

FIRE SAFETY APPROACH IN FACADES

Fire safety has become one of the most critical aspects of modern building design. And today, special attention is increasingly focused on one specific area of the building envelope: The façade.

Modern façades are expected to deliver far more than aesthetics alone. They must also provide:

- structural reliability
- energy efficiency
- weather resistance
- long-term durability
- and above all, fire safety

But what determines whether a façade is truly fire-safe?

Fire safety goes beyond certification alone

Across Europe, strict fire safety requirements apply to façade constructions. These requirements are based on European EN standards and official fire testing methods. In specialized laboratories, façade systems are tested for:

- fire resistance
- fire spread
- smoke development
- combustibility
- fire propagation behavior

Based on these tests, products and façade constructions receive a fire classification that indicates their performance level.

However, an important question remains:

Does laboratory classification always guarantee real-world fire safety performance?

In practice, façade safety depends on far more than a single fire class alone.

Understanding fire classifications in façades

For many ventilated façade systems, regulations require compliance with specific fire classes depending on building height and façade location.

In general:

- most façades must comply with **Fire Class D**
- façade zones below 2.5 meters and above 13 meters often require stricter **Fire Class B**

But achieving Fire Class B is not simply about choosing non-combustible materials.

The complete façade composition plays a crucial role.

The importance of the full façade system

A façade should not significantly contribute to the spread of fire across the building surface.

To evaluate this, façade systems are tested using the **Single Burning Item test (SBI test)** according to EN 13823.

This test measures:

- heat release
- flame spread
- fire growth speed
- smoke production

Based on predefined threshold values, the façade receives its fire classification.

But real façade safety depends on the interaction between all façade components, including:

- cladding panels
- insulation materials
- support structures
- cavity barriers
- adhesive systems
- subframes and detailing

Fire-safe façade engineering is about system performance

Even when combustible materials are present within the façade construction, Fire Class B can still be achieved if these materials are sufficiently protected by the exterior façade build-up.

This means that:

- shielding of combustible materials is critical
- cavity fire protection is essential
- correct detailing can significantly improve safety
- the façade must function as one integrated fire-safe system

For example, adhesive bonding systems positioned behind nearly non-combustible cladding can remain safely protected within the total façade construction.

This demonstrates that successful fire safety design is not based on individual materials alone, but on the performance of the complete façade assembly.

Preventing hidden fire spread inside the cavity

One of the greatest risks in ventilated façades is uncontrolled fire spread through the ventilation cavity.

Without proper design measures, fire can rapidly travel behind the façade, allowing flames and heat to spread vertically through the building.

That is why modern façade systems increasingly require:

- cavity barriers
- fire stops
- optimized ventilation detailing
- carefully engineered façade compositions

These measures help prevent hidden fire propagation and improve the overall fire performance of the building envelope.

Modern façade safety requires intelligent design

Today's façade engineering demands a balanced approach between:

- architectural freedom
- sustainability
- thermal performance
- structural behavior
- and fire safety

At TWEHA®, we understand that true façade safety is achieved through the correct integration of:

- certified façade systems
- intelligent bonding technologies
- proper detailing
- and complete system engineering

Because fire-safe façades are not created by a single component.

They are created through the intelligent interaction of the entire façade system.

The future of façade fire safety

As regulations become stricter and buildings become more complex, the importance of integrated façade fire engineering will continue to grow.

The future of façade construction will depend on:

- smarter material combinations
- advanced fire-safe detailing
- better cavity protection
- innovative façade technologies
- and fully engineered façade systems

Because modern buildings deserve more than beautiful façades alone.

They deserve façades engineered for safety, durability, and long-term performance.

TWEHA®, 2026