THE FLAMMABILITY OF GREEN FACADES: BEAUTIFUL, SUSTAINABLE — BUT ARE THEY FIRE SAFE?

Green façades are rapidly transforming modern architecture.
From urban offices to residential towers, living walls and vegetated façades are increasingly used to create greener, healthier, and more sustainable cities.
Their advantages are undeniable:

- improved biodiversity
- natural cooling
- water retention
- enhanced aesthetics
- reduced urban heat effects
- better environmental performance

But as green façade systems become more popular, one critical question is receiving increasing attention: **How fire-safe are green façades?**

Vegetation can become a fire risk

Although green façades contribute positively to sustainability, vegetation itself remains combustible material.
Under normal conditions, moist plants are relatively difficult to ignite.
However, during a fire situation, temperatures rise rapidly and vegetation can dry out very quickly — making ignition far more likely.
Fire tests conducted by ITB demonstrated that many green façade systems can burn significantly under fire conditions.
One surprising finding was that not only did the plants themselves became combustible, but even the soil and growing medium contributed to fire development due to the presence of organic material.

The mounting system is often the biggest fire risk

Perhaps the most important conclusion from fire research is this:
The greatest fire risk often does not come from the vegetation itself — but from the construction system behind it.
Many green façade systems use mounting components such as:

- plastic trays
- synthetic felt pockets
- polymer support systems
- combustible backing materials

These elements can significantly increase fire propagation.
In addition, ventilated cavities behind the green façade may allow:

- heat accumulation
- rapid vertical flame spread
- hidden fire development behind the vegetation layer

Fire risk can increase even further when combustible insulation materials are present within the façade construction.

Fire-safe façade engineering is essential

Green façades can absolutely be part of safe and sustainable architecture — but only when properly engineered.

A fire-safe green façade requires careful evaluation of:

- mounting system materials
- cavity detailing
- insulation selection
- ventilation behavior
- fire barriers
- structural support systems
- overall façade composition

This means that green façade projects should never focus solely on aesthetics or sustainability goals alone.

Fire safety must be integrated from the very beginning of the design process.

Sustainable façades require intelligent material choices

As technology evolves, architects and engineers are increasingly searching for solutions that combine:

- sustainability
- design freedom
- durability
- and fire safety

At TWEHA®, we understand that modern façade engineering requires a balanced and intelligent system approach.

Every component within the façade system matters — especially when integrating innovative concepts such as green façades and living walls.

Properly engineered bonding systems and façade detailing can help support:

- safer façade constructions
- durable system performance
- optimized structural behavior
- and improved long-term reliability

The future of green façades

The demand for sustainable building envelopes will continue to grow rapidly in the coming years.

Green façades will remain an important part of:

- climate-adaptive architecture
- urban greening
- sustainable city development
- energy-efficient buildings

But successful projects will depend on more than visual impact alone.

They will require:

- technical expertise
- fire-safe engineering
- intelligent system integration
- and responsible material selection

Because the future of façade design is not only about creating greener buildings — it is about creating greener buildings safely.