

## MESH-BACKED FAÇADE PANELS: SAFETY REQUIRES MORE THAN A STRONG ADHESIVE

Mesh backing is increasingly used on ceramic and natural stone façade panels to improve safety. In the event of panel breakage, the reinforcing mesh can help retain fragments and reduce the risk of pieces falling from the façade.

That is a clear advantage.

But when a mesh-backed panel is **adhesively bonded**, there is another important consideration: the mesh backing is no longer only a safety feature. It becomes part of the complete bonded connection.

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### More Than Just Adhesion to the Mesh

A façade adhesive does not bond directly to the ceramic or stone surface when a mesh backing is present. Instead, it bonds to the resin layer used to attach the mesh to the panel. The composition and quality of this resin can vary considerably.

Depending on the resin formulation, its surface properties may negatively influence adhesive wetting and adhesion. A surface with low surface energy, for example, can make it difficult for an adhesive to establish a strong and durable bond.

But achieving good adhesion to the visible mesh-backed surface is only part of the story.

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### The Mesh Back Becomes Part of the Load Path

In a structurally bonded façade, loads acting on the panel must ultimately be transferred to the supporting substructure.

This includes:

- wind loads;
- self-weight;
- thermal expansion and contraction;
- movement and deformation within the façade.

With a mesh-backed panel, these forces are transferred: **from the façade panel → through the mesh/resin layer → into the adhesive bead → and finally into the supporting structure.**

This means that every layer in this connection matters.

Even when the façade adhesive itself performs perfectly, the complete system can still fail if the resin attaching the mesh to the panel has insufficient cohesive strength or insufficient long-term resistance to moisture, temperature fluctuations and ageing.

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### A Strong Adhesive Cannot Compensate for a Weak Intermediate Layer

This is an important distinction.

If failure occurs within the mesh resin or between the resin and the façade panel, increasing the adhesive strength will not solve the problem.

The weakest layer determines the performance of the complete connection.

For this reason, mesh-backed panels should never be assessed solely by carrying out an adhesion test on the outer surface of the mesh. The complete build-up must be considered.

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### **Test the Combination – Not Just the Adhesive**

At TWEHA®, we believe that reliable façade bonding starts with understanding the complete substrate.

For mesh-backed ceramic and natural stone panels, this means evaluating not only the adhesion of the TWEHA® bonding system to the mesh-backed surface, but also the strength and durability of the mesh/resin connection itself.

Where required, representative samples can be tested with the proposed TWEHA® bonding system to determine the most reliable surface preparation and bonding solution.

This provides architects, façade engineers, contractors and distributors with something far more valuable than simply selecting a strong adhesive: **confidence that the complete connection has been considered.**

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### **The Safest Solution Starts With Verification**

Mesh backing can provide an important additional safety function, but in an adhesively bonded façade it also becomes an integral part of the structural load transfer.

That is why its compatibility, strength and long-term durability should always be verified as part of the complete bonding system.

**With TWEHA®, we do not look at the adhesive in isolation. We look at the complete bond — because a façade connection is only as reliable as its weakest layer.**

TWEHA®, 2026