

SCREWS: CERTAINLY NOT ALWAYS THE BETTER SOLUTION

Mechanical fixing of façade panels using screws often seems like the most obvious and safest installation method. However, in practice, screw fixing requires far more precision and technical attention than many people realize.

Even small installation mistakes can lead to:

- Stress concentrations;
- Panel deformation;
- Cracking;
- Restricted expansion;
- Long-term façade damage.

At TWEHA®, we regularly see that properly bonded façade systems can offer not only aesthetic advantages, but also important technical and practical benefits compared to traditional screw fixing.

Screw Fixing Requires Extreme Precision

When mechanically fastening façade cladding panels, several critical rules must be followed carefully.

Standard screw dimensions commonly used are:

- 4.8 × 38 mm;
- 4.8 × 25 mm.

However, the positioning and drilling of the screw holes are even more important than the screw itself.

The Fixed-Point Principle

In a mechanically fixed façade panel, one screw hole must function as the:

Fixed Point

This hole is normally positioned:

- In the center of the panel for an odd number of screw lines;
- Or halfway along the greatest panel length for an even number of screw lines.

The diameter of this fixed-point hole is typically: **5 mm**

This fixing point determines:

- The horizontal positioning;
- The vertical positioning;
- The expansion direction of the façade panel.

Expansion Must Be Possible

All remaining screw holes must allow movement caused by:

- Thermal expansion;
- Moisture changes;
- Structural movement.

Therefore, all other holes should have a diameter of: **8 mm**

This creates sufficient space around the screw to allow the panel to expand and contract freely.

The screws must also be:

- Positioned centrally in the hole;
- Installed perfectly perpendicular;
- Not overtightened.

Hand-Tightening Is Sufficient

Overtightening restricts movement and creates internal stress within the panel.

Edge Distances Are Critical

The positioning of screw holes relative to the panel edges is another important factor.

The drill holes should be placed:

- At least 20 mm from the panel edge;
- And no more than 10× the panel thickness from the edge. For example:
- A 6 mm façade panel should have a maximum edge distance of approximately 60 mm.

Incorrect edge distances may increase the risk of:

- Cracking;
- Breakage;
- Stress build-up;
- Reduced panel durability.

Mechanical Fixing Creates Stress Points

Unlike adhesive bonding, screws create concentrated tension points within the façade panel.

This may lead to:

- Local material weakening;
- Deformation around drill holes;
- Higher stress concentrations;
- Visible fixing points;
- Reduced design freedom.

Additionally, drilling holes permanently interrupts the integrity of the façade material itself.

Adhesive Bonding Avoids These Limitations

Professionally bonded façade systems distribute stress evenly across the entire bonded surface.

This provides important advantages:

- Uniform tension distribution;
- No drilled holes;
- No visible fixings;
- Greater design freedom;
- Reduced risk of cracking;
- Better absorption of thermal movement.

In addition to the clean architectural appearance, adhesive bonding often offers a technically superior solution for ventilated façade systems.

Modern Façades Demand Smarter Solutions

Today's façade constructions are larger, thinner, and more technically advanced than ever before.

This requires connection systems that can accommodate:

- Movement;
- Stress distribution;
- Weather exposure;
- Long-term durability.

At TWEHA®, we believe that professional adhesive bonding provides a modern façade solution that combines:

- Technical reliability;
- Aesthetic freedom;
- Long-term durability;
- Simplified installation.

Because in many façade applications, screws are not automatically the better solution — and often not the smartest one either.

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