



sikkens
WOOD COATINGS

Passion for wood

Sealing of Weather bars

Problematic:

Windows for (listed) historic buildings require a weather bar which usually is mounted directly in front of the bottom bead of the moving part of the window. The mounting is done with some glue (usually the same which is used for the edges) plus some additional nails or screws. If the gluing would be done over the full area, there would some glue come out of the joint which could close it. As this looks differently in practice we are regularly asked about some sealer which can be used in this area.

Terms and definitions:

An end-grain sealing protects a construction against penetrating substances as liquid water or condense water. The use of Kodrin seals the endgrain of wood by application of a substance which is similar to paint. This substance contains certain elasticity and protects the timber against the penetrating of liquids.

Building sealants (Acrylics, Silicones, MS-Polymers, etc.) have to be proofed according to **DIN 18540 Sealing of exterior wall joints in building using joint sealants** and **DIN 18545-E (Group E) Sealing of glazings with sealants**. These sealants are used between two connecting areas which need to have adhesion on each side only once = two-edge-adhesion ! Due to the norm the expansion coefficient has to be tested and documented. It is very important that the sealant has only one connection to each side to equalize the different movements of the two parts against another

It is often stated, that both, building sealants and end-grain sealants are „over-coatable“ according to DIN 52452 Testing of building sealants for compatibility with construction materials – **part 4: Compatibility with other protection coatings, (A1 and A2).**

This does not mean that these sealants are overcoatable on the whole surface area !

„Over-coatable“ does only mean that the coating will not be etched or discolored. In the (German) painters guideline it is clearly defined, that such sealers can be over-coated max 2mm at the corners. It is also said that a full-faced coating can lead to adhesion problems or crack issues on the surface due to movement in the joint.

Testing:

The test of various sealing compounds was carried out on different types of weather bars and doubled beads. Some beads had a bevel-edge (Fase), others a sharp 90° angle wich gets a slope after 5mm from the vertical.

After priming of the samples the sealing compounds were applied in the „joint“ between the parts. After 30 minutes respectively 2 hours the finish coats were applied.

The adhesion of the finish coating on the sealant was except one sealer very good.



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One week after the finish coating the stress tests were started. One part was tested in Cold-Check-Test (storage in liquid water at room temperature / freezing at -18°C / drying in the oven 50°C) the other part in the Condensation-Tank-Test (24h water vapor at 60°C in alteration to 24h room climate).

Result:

Less filling sealants as e.g. Fugensiegel cannot fill a bevel-edge "joint". With filling sealant this joint can be optically filled and sealed. But as soon as movement between the parallel glued pieces of timber come up none of the tested sealants can avoid that blisters appear, the coating cracks on the sealant or a gap arises between weather bar and the solid wood behind.

Fazit:

The filling sealants seem to be appropriate for the sealing of the gluing-joint between the parallel wooden parts. But in case of stress due to weathering damages cannot be excluded.

There is no sealant compound existing which is over-coatable on the whole surface area and can close the joint between parallel mounted wooden parts without problems.

Solution:

After finish coating the joint is sealed with a silicone. For this issue the product **OttoSeal S 120** is suitable. This silicone from company Otto-Chemie is available in many different colors – this gives the opportunity to find a compatible color to the color of the coating.

Alternatives:

To avoid this question the construction of the weather bar has to be changed. The weather bar must not be connected in front of the window bar, but the bottom window bar has to be made out of one piece of timber or at least the weather bar has to be machined out of one piece.

In case of impossible change of the construction (e.g. because of tools) the joint has to be sealed after coating with an elastic joint sealant (e.g. silicone) to protect it from weather. But be aware that in this situation the sealant gets a three-edge-adhesion which can cause breakaway from the substrate at correspondent movements.



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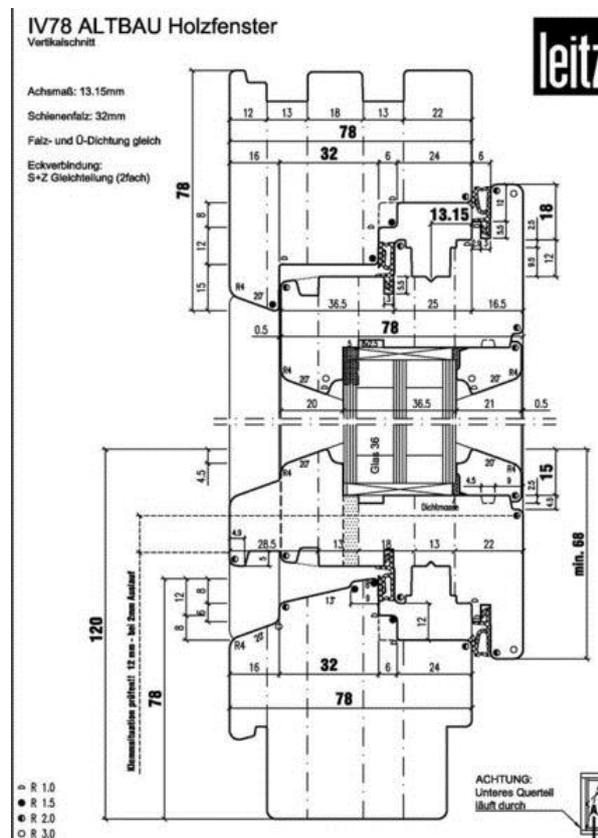
Possible constructions are:

Picture 1:

(photo from Fa. Schoofs Fensterbau, Goch)

Picture 2:

(drawing from Fa. Leitz, Oberkochen)



The weather bar on the Picture 1 (bottom bead + weather bead = 2 parts) is wider = better protection; whereas the construction on Picture 2 is made from one piece of wood. This one is probably not wide enough and can cause entry of water when there is strong wind on the window.