

Directive for visual assessment of the surface quality of treated wooden windows and doors

The directive has been issued in September 2000, VFF, Frankfurt 2000 (HO.05)

This directive applies for visual assessment of the surface quality of wooden windows and windows-doors, when the surface is finished with covering and non-covering paint.

In case of new wooden windows the surface quality means the condition after final finishing. The structure of the covering layers shall meet the instructions provided by the manufacturer. With the finishing layer the required layer thickness must be achieved.

Wood properties are assessed pursuant to DIN EN 942 "Timber in joinery – General classification according to the type of timber".

Assessment of the surface quality is made at a distance of approximately 1 m to the observation surface, at an observation angle that corresponds to generally usual room usage and under diffuse daylight.

Surfaces for quality assessment of wooden windows	
●●●	visible surfaces after installation when the frame is closed
●●	visible surfaces after installation and visible joints after installation when the frame is open
●	non-visible surfaces after installation

4. Requirements

Feature		Requirements
4.1	Surfacing signs	<ul style="list-style-type: none"> ●●● ≤ 2.0 mm when the frame is open ●● ≤ 2.0 mm when the frame is open ● > 2.0–4.0 mm when the frame is open
4.2	Sanding signs	●●● Sanding signs transversal to the wood fibre are not permitted in the area. Longitudinal and diagonal sanding signs, which are not visible, are allowed in all areas.
4.3.1	Longitudinal cracks	After treating the surface longitudinal cracks shall not obtain clear outlines. Max. 0.5 mm cracks with a length of 100 mm and max. 12.5% of the thickness of the element are permitted only in the outer edge of the jamb and frame. Generally such cracks are not filled.
4.3.2	Transversal cracks	Not permitted.
4.4	Tears	Tearing of the edges in the joints with a length of ≤ 3 mm to 30 mm is permitted, except on contact surfaces of gaskets.

4.5	Wood fibres	The covering paint shall fully cover wood fibres.
4.6	Adhesive residue	Adhesive residue may be present close to the joints in the max. width of 3 mm. No adhesive residue is permitted on the surface.
4.7	Fixtures of glass bars	Fixtures shall not be corroded. Fixtures shall be installed sufficiently deep (> 1 mm). Holes of secret fixtures shall be covered with a suitable material, whereas visibility of exact fastening points cannot be avoided. If according to the technical solution fastening shall be performed with screws or bar nails with heads, these can be visible.
4.8	Joints	Joints between a glass bar and frame shall not be wider than 0.5 mm. Screw fastenings, if these are specified in the technical solution, may remain visible. Screws shall not be corroded.
4.9	Damages caused by pests / bark beetles	Damages caused by pests are not permitted, except single filled damages of fresh timber caused by pests / bark beetles the diameter of which does not exceed 2 mm, provided these do not have an impact on the technical functions of a window and influence only the aesthetic general appearance.
4.10	Butt surface	●● In this area the butt surface must not be sanded. Round edges and frame joints are also permitted here. Torn areas of butt surfaces caused by treatment shall be filled with suitable material.
4.11	Screw fastenings	If screw fastening is specified, it may remain visible. Screws on the external surface shall not be corroded.
4.12	Layered structure	Visible colour runs are not permitted. Differences in layer thicknesses shall remain within the permitted tolerances. In ●●● area these shall not be visible as thickened paint.
4.13	Impressions	Impressions with the area of $\leq 2.0 \text{ m}^2$ or depth of $\leq 1.5 \text{ mm}$ are permitted in areas, which are not visible any more when the windows are closed.
4.14	Pores	Pores shall be entirely and sufficiently coated. Depending on the wood type, they may remain visible.
4.15	Annual rings	As different wood behaves differently, raised annual rings are permitted.
4.16	Finger joints, areas, knots	As different wood behaves differently, raised areas are permitted. These areas shall be glued along the entire edge.
4.17	Resin exudation	Regardless of the paint of the surface, resin exudation cannot be avoided when resin-rich wood (for instance pine) is used. Resin exudation in small quantities is normal and is not to be considered as a fault.
4.18	Colour deviations and gloss level	Very visible colour deviations that cannot be smoothed with the final finishing layer are not permitted. ●●● Deviations in the gloss level are not permitted. ●● Gloss level deviations are permitted, provided the deviation is not optically disturbing, when the frame is closed. Shades caused by the wood type shall not be considered with in the assessment of colour deviations of wood (see also DIN EN 942).
4.19	Roughness	●●● In this area and visible area the roughness shall not affect cleaning when the frame is closed. ●● In this area a sanding paper with a minimum roughness of 280 may be used as a subjective comparison, whereas 10% of the surface may correspond to the sanding paper roughness of 220. ●● In joints functioning and durability shall be ensured. In this area a sanding paper with a minimum roughness of

	220 may be used as a subjective comparison, whereas 10% of the surface may correspond to the sanding paper roughness of 180. For the assessment of smoothness (roughness) an ordinary sanding paper with the same layer structure is used as a reference.
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VISUAL ASSESSMENT OF A TREATED SURFACE

+	Permitted	o	Conditionally permitted	-	Not permitted
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Visual assessment of a treated surface				Requirements depending on an area to be assessed		
	Impact on the top surface	Influencing factors		●	●●	●●●
		Roundings shall be evaluated as in the ●● area	Area to be treated	4.0	Unsurfaced	+
4.1	Surfacing sign			+	o	o
4.2	Sanding signs			+	+	-
4.3.1	Longitudinal cracks			o	o	-
4.3.2	Transversal cracks			-	-	-
4.4	Tears			+	o	-
4.5	Wood fibres			+	-	-
4.6	Adhesive residue			+	o	-
4.7.1	Nails, secret				+	+
4.7.2	Nails, not secret				+	o
4.9	Damages caused by pests / bark beetles			+	+	+
4.10	Butt surface			+	+	o
4.12	Layer structure		+	o	-	
Damages	4.3.1		Longitudinal cracks	+	-	-
	4.3.2	Transversal cracks	-	-	-	
	4.4	Tears	+	o	-	
	4.13	Impressions	+	o	-	
Structures of the	4.14	Pores differentiating different wood species	+	+	+	

	top surface of wood	4.15	Annual rings	-	-	+
		4.16	Finger joints, areas, knots	+	+	○
		4.17	Resin exudation	+	+	+
		4.18	Colour and gloss deviations	+	○	-
		4.19	Roughness	+	○	-

REQUIREMENTS FOR SANDING

OBJECTIVES

1.	To remove wood fibres raised up because of humidity or finishing material.
2.	To remove scratches, dents, pencil marks and other defects present on the wood surface.
3.	To increase bonding strength of the finishing layer to a substrate and other layers.

WORK OPERATIONS

Work operations in execution sequence	INITIAL SANDING (after impregnation)			SECOND SANDING (after priming)		
	Surface to be treated	Work method	Sand paper	Surface to be treated	Work method	Sand paper
1. To inspect smoothness of the surface	●●● / ●●	Visual, manual	-	●●● / ●●	Visual, manual	-
2. To improve faults (see section 4 REQUIREMENTS)	●●● / ●●	Improvement with a filler, a patch	Not less than 180	●●● / ●●	Improvement with wax	Not less than 220
3. To sand visible surfaces along the fibre	●●● / glass bars	With a block	Not less than 180	●●● / glass bars	With a block	Not less than 220
4. To sand the handle side of an opened frame; other sides as required	●●	With a block	Not less than 180	●●	With a block	Not less than 220
5. To sand all interior surfaces of an	●●	With a block	Not less	●●	With a block	Not less

opening jamb			than 180			than 220
6. To clean sanded surfaces	●●● / ●●	With a brush	-	●●● / ●●	With a brush	-
7. To fill joints with a joint protection product	-	-	-	Joints	Silicone gun	-

- ✓ **A sanding machine MAY ONLY BE USED during initial priming for making improvements, sanding of fillers and in case of especially raised defects.**
- ✓ Sanding shall be done without applying heavy pressure, since sanding with lighter force gives better sanding quality and results in optimum consumption of finishing material and it also prolongs durability of the sanding block and machine.
- ✓ **Impregnation and priming layer SHOULD NOT be taken down!**