

Working guideline for coating non-dimensionally stable and limited dimensionally stable components Balconies – Canopies – Timber cladding – Wooden houses

Maintenance and renovation

1. Durability

The durability of solvent-based and water-thinnable wood glazings on wooden structural elements such as facades, balconies, canopies, wood cladding and wooden houses depends on several factors:

- **Direction of installation**
- **Constructional protection**
- **Wood pre-treatment**
- **Wood moisture protection**
- **Glaze quality**
- **Colour and quantity applied**

Wooden structural elements that are directly exposed to the prevailing weather direction and those exposed to the longest sunshine due to facing south, together with their coating system, are exposed to very harsh conditions.

The high changes in temperature and moisture lead to a much shorter service life of the paint compared to similarly coated but fitted components with protection.

The same applies to horizontally fitted components such as balcony canopies, on which a lack of slanting drainage leads to rain water having a longer effect. The associated higher level of wood moisture on average over the year leads to a shorter life span of the wood and coating system.

Constructional wood protection means all on-site measures that prevent or slow down the penetration of water into the wood, such as roofed-over areas, sloping roofs etc. Constructionally protected wood has, together with its coat of paint, a much longer life span compared to unprotected wood.

The type of pretreatment plays a critical role for the service life of the glazing system. An even, lightly absorbent substrate, as is achieved on softwood by sanding with grit size 120, is ideal.

This creates a very good in-depth effect of the impregnation (transporting biocides into the wood) and anchors the top coats of glaze very well. A slight film formation on the wood, which can be seen from the sheen on the surface, is necessary to achieve long-lasting weather protection. Coats that are too thick lead to later peeling, whilst those that are too thin cause early greying.

Planed wood, if the tools are in a perfect condition, is equally well suited for the coating system as sanded wood. If blunt plane irons are used, high contact pressure produces a very smooth wood surface on which the topmost cells are damaged, resulting in a very low absorption capacity for glazes. The life span of glaze systems on this substrate is very low. There are cases where the wood has started greying even after one year.

As it is very difficult to spot these mistakes in the pretreatment of the wood by the customer, sanding down planed wood with grit size 120 would be highly recommended. In practice this is only done rarely, however.

Rough sawn wood generally has a very high absorption capacity. The result is that the impregnation, but also the top coats of glaze, are absorbed excellently, meaning that a slight film formation on the surface can only be achieved with high quantities applied.

With new wood, the wood moisture depends on the drying conditions stipulated by the manufacturer and also on the prevailing humidity, as wood is in balance with its surroundings. At 60 % relative humidity, an equilibrium moisture content of approx. 11 % sets in, at 80 % relative humidity an equilibrium moisture content of approx. 17 %. As the wood moisture content should not be above 16 % when painting, a sufficient drying spell is necessary after damp periods of weather. In case of doubt, have this measured by an ADLER sales representative.

The glaze quality depends on the quality of the binding agents used in terms of degradation caused by weathering, elasticity and adhesion to wood.

Protection against damaging UV radiation is extremely important. It depends on the concentration and fineness of the transparent iron oxide, which is used to make wood colours.

Sufficient UV protection cannot be achieved with conventional colourless glazes in principle, which is why we generally refuse to use them in the outdoor sector.

The best durability is achieved with medium wood colours (larch to nut). Reduced durability must be anticipated with lighter colours (meadow and oak) due to the lower UV protection, and with dark colours (rosewood and ebony) due to the excessive heating of the wood substrate.

The question is often posed about the time in years until the first maintenance or refurbishing coat. This is difficult to answer because of the large number of influencing factors. The following values gained from experience relate to vertical, south-facing facade elements outside the protection of the canopy with our coating cycle of 1 x Pullex-Imprägniergrund and 2 x Pullex plus on perfectly planed, good quality spruce casing boards.

Colour, meadow and oak:	2 to 3 years
Colour, larch up to and including nut:	3 to 4 years
Colour, rosewood and ebony:	3 years
Trendy colours:	2 to 3 years

In the case of horizontal components such as balcony top boards, the durability is approx. 1 year less in each case.

Please also pay attention to the "Working guideline for coating non-dimensionally stable and limited dimensionally stable components, balconies – canopies – wooden sheds – wooden houses – General part"

2. Maintenance and renovation

Due to the effect of UV radiation from sunshine acting together with the constantly changing moisture level in the wood substrate, which is associated with swelling and shrinking (change in volume), transparent and opaque coats of wood preservative degrade slowly and must therefore be regularly maintained or renovated.

It is particularly important to choose the right time for this work, as this can save both working time and material.

The ideal time is frequently significantly exceeded, however, and the weathering of the glaze is already highly advanced.

3 stages of weathering of the paint and wood substrate, together with the necessary maintenance and renovation measures in each case, are described below in somewhat simple terms:

a) Weathering stage 1 can be seen when, although the surfaces are intact, they look dull matt from the loss of sheen and water no longer drips off but distributes itself evenly.

Pretreatment:

Brush off the surfaces with a soft brass-wire brush. This cleans off dust and dirt down to the pores but in a gentle manner.

Transparent preservation coat:

1 x Pullex Plus-Lasur farbig or Pullex Aqua-Plus farbig

The aim is to restore the full protective function and the original film thickness without making the colour darker.

For this purpose we recommend using the two lightest colours of meadow and oak as supplied and, from the colour larch, to brighten up 1:1 with colourless.

Opaque preservation coat:

1 x Pullex Aqua-Color in the original colour

b) Weathering stage 2 can be seen when there are slight signs of blistering (peeling) or, when sanding and/or brushing with a brass-wire brush, bare wood partly appears, but there is no greying yet.

Pretreatment:

same as Stage 1

Transparent refurbishing coat:

1 x Pullex Imprägnier-Grund Farblos or Pullex Aqua-Imprägnierung W30

on the bare parts of wood

Mixing with approx. 10 % Pullex Plus-Lasur (Pullex Aqua-Plus in the chosen colour) increases the UV protection and achieves a better appearance.

2 x Pullex Plus-Lasur farbig or Pullex Aqua-Plus farbig

Colour selection see Stage 1.

Opaque refurbishing coat:

1 x Pullex Renovier-Grund

on the bare parts of wood

2 x Pullex Aqua-Color

or

2 x Pullex Color

c) Weathering stage 3 exists if the paint is severely weathered and blistered (peeling) and the bare parts of wood show considerable greying. The wood already shows signs of cracking and is very absorbent.

Pretreatment:

Brush off the loose, greyed wood fibres and the paint residue with a soft brass-wire brush, followed by sanding with coarse sandpaper, grit size 60. This rounds off the hard annual rings revealed on the old wood substrate from brushing.