

# Cladding design & installation - factory finished cladding

Good joinery practice

Modern coating systems for cladding provide a water repellent, flexible and durable decorative finish which, on well designed and correctly installed cladding, will give many years of service.

To ensure the coating can perform as designed, it is important the following design and installation practices are specified.

## Timber quality

Timber grade used in manufacturing must be selected to take into account its natural durability and use classification for the proposed exposure conditions. See: BS EN 350; BS EN 335

The dimensional stability of the timber is a key factor to the long term performance of both the cladding and the applied coating system. The use of the 'heartwood' of a species will give significantly more stability than 'sapwood' which generally has poor dimensional stability.

The 'in service' quality of the cladding profile will also affect the performance of the coating system. 'Shelling' of the timber surface will stress the applied coating system, leading to premature breakdown and increased maintenance intervals.

## Timber quality

- The most common timber species used for cladding are European Redwood, spruce, larch, Western Red Cedar and oak.
- Some tropical hardwoods are also used but their suitability for use as cladding must be confirmed before use.
- Modified timber species such as Accoya are becoming increasingly popular for use as cladding profiles due to their increased service life and dimensional stability.

## Timber quality

- Where the natural durability of the timber does not meet the class requirements as determined by BS EN 335-2 it must be treated with a preservative in conformance with BS EN 599-1.
- If the timber is preservative treated using double vacuum impregnation and particularly with solvent

based materials, the manufacturer's recommended drying times must be followed before coating. Typically, under good ventilation conditions, these can vary from 2 to 14 days.

- If a water-based surface applied preservative, such as **TEKNOL AQUA 1410**, is used as part of the coating finishing process, joinery must be factory coated to a minimum dry film thickness of 80µ before site exposure in compliance with BS EN 599-1.

- Accoya has a durability of Class 1 through the entire timber section but the coating system must provide effective performance against the non destructive blue stain fungi.

## Profile design

- All non vertical surfaces must show efficient water shedding characteristics, with a minimum slope angle of not less than 9°.
- Surface tension causes wet paint to flow away from sharp edges including chamfers, leaving them relatively unprotected. A minimum radius of no less than 3mm is required to avoid thinning of the coating system.
- The design must preclude obvious water traps. Any gaps or recesses in the cladding should be sufficiently wide to prevent the capillary draw of water into holding areas. We typically recommend a 3mm gap.
- The thickness of the board is critical with regard to both fixing strength and stability. Although in certain circumstances thinner boards can be used, TRADA guidance of 22mm for tongue and grooved boards and 19mm for rebated boards should be followed.
- The width of the individual boards should ideally not exceed 125mm. However, for some species and board orientation, a width of up to 150mm is acceptable.
- For modified timber species such as Accoya, increased widths of up to 300mm may be used but advice must be sought from Teknos UK in these cases.
- The orientation of the grain should be aligned to ensure that any cupping of the board profile will be on the external face to ensure the surface coating is compressed across the section of the profile.

- Ideally, the profile design should allow for individual boards to be removed and replaced from the façade without disturbing or damaging adjacent boards or incurring significant maintenance costs.

## Fixings

- Fixings should be suitable for external use and preferably be stainless steel. Coated nails can be damaged during installation and will corrode on exposure.
- For Accoya, all fixings must be stainless steel.
- Large headed nails are more suitable for fixing cladding to prevent the fixing pulling through the board in service. Nail heads should be flush with the surface of the fixed board. If driven below the surface of the board, they must be filled to prevent moisture ingress.
- Secret fixing detail should be incorporated into the design wherever possible.
- Moisture ingress through surface fixings will cause discolouration of the timber substrate which are visible through translucent finishes.

## Factory finishing

- The moisture content of the timber at the time of coating should be between 12% - 16%.
- All application methods must ensure even and homogenous application of the coating system across all parts of the cladding profile.
- The use of vacuum coaters and brushing machines significantly increases throughput but the risk of inconsistent coating thickness is increased. Failure to ensure even application of the coating across all weathered surfaces will result in reduced service life to first and subsequent maintenance for the coating system.

- All end grain must be sealed with TEKNOSEAL 4000, or equivalent. This is especially important on any boards cut during the installation of the factory finished profile.
- After the application of the coating system, the thickness of the dry film on exposed surfaces will be a minimum of 120µm.

## Other areas

Rainwater goods must be in place and working efficiently.

*The quality of site installation and fitting work is crucial in determining the long-term durability of the coating system and the ultimate service life of the joinery. We provide support and training to all our customers to ensure Teknos coatings deliver optimum performance. Further explanation of the features described in this sheet can be obtained from our technical sales team.*