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What is ThermoWood?

And why should I consider using Thermally Modified Timber (ThermoWood) in the UK?

This is a valid question and one that we will give you a summary overview of here with further in-depth information available on our website QTDgroup.com.

ThermoWood is the name given to the process of putting timber in its sawn state, through a special high-temperature kilning process, developed many years ago in Finland. Thermally modifying the timber not only protects the timber with a high heat and steam process but also brings about chemical changes to the cell structure.

The ThermoWood process removes the natural resins, sugars, and impurities present in all timbers, and the sugars caramelize which changes the colour of the timber to honey or dark brown colour depending on the timber species being processed. Natural timbers are prone to expanding, contracting and distorting across their width, however, this process minimises that problem. This is very important given the high and variable moisture levels we experience in the UK.

We can divide the process into three main phases:

Phase 1. Temperature increase and high temperature kilning:

We raise the kiln temperature at a rapid speed using heat and steam to a level of around 100 degrees. Thereafter, the temperature increases steadily to 130 degrees during which the high-temperature drying takes place and the moisture content in the wood reduces zero.

Phase 2: Intensive heat treatment:

Once the high-temperature kiln drying takes place, we increase the temperature inside the kiln to a level between 190 degrees and 212 degrees, and on reaching its target, it remains constant for 2 – 3 hours.

Phase 3: Cooling and Moisture Conditioning:

The final stage is to lower the temperature by using water spray systems. When the temperature reaches 80 – 90 degrees, re-moisturising, and conditioning takes place to bring the wood moisture down to a level between 4 – 7%. This modification process is right through to the core of the timber. It's only after this process is complete, that we machine the timber into the various cladding and decking profiles or laminate into larger sections.

Benefits to you the customer:

- 1. Dimensionally Stable** – Eliminating bending, twisting and cupping characteristics.
- 2. Durability** – 30+ yrs because of the very low water absorption which prevents decay and fungal growth and the absence of resins and sugars that insects like which contributes to natural wood decay.
- 3. 100% Recyclable** – Produced from renewable FSC certified forests. ThermoWood has no chemicals and does not go into landfill sites. Offcuts can generate heat that has a higher output than conventional timber and does not spit and crackle because of the lack of air trapped inside the timber.
- 4. Uniform Colour:** This is because of the caramelising of the sugars, and because the timber is dry and free from resins it takes Gluing, Oiling, Painting and Varnishing far better.
- 5. Heat and Sound Insulation:** This improves performance by as much as 25% compared to regular timber.
- 6. Fire Resistant:** This is improved because of the absence of resins and sugars and ThermoWood in its natural state is 30% more fire resistant than regular wood and carries a Class B certification.

Finally, the ThermoWood process allows the use of certain species of timber that would normally perish in an external environment, to achieve an outdoor lifespan over 25 – 30+ yrs. This reduces the pressure on using tropical or Amazonian hardwoods.

