



Thermally Modified Timber Guide

Exterior Cladding | Interior Panelling | Battens & Screens



Park Road Queenstown NZ | JCY Architects
TMT Taiga Lunawood Vertical Shiplap Exterior
Cladding



Jennian Showhomes,
Wanaka New Zealand

The background of the entire page is a wall of vertical wooden planks. The wood has a warm, golden-brown tone with visible grain and knots. A brass bull head is mounted on the wall, facing right. The wall is illuminated from above, creating a soft glow. The text is contained within a white rectangular box on the right side of the image.

THERMALLY MODIFIED TIMBER

Thermal modification of timber is now globally recognised as a low environmental impact method of preserving timber for use in outdoor environments. Despite being proven over many years in contemporary European homes and commercial buildings, it is a relatively new process to New Zealand.

The concept dates back to the Vikings who discovered that when building defensive fencing for their fortifications, poles made from wood with a burnt surface were more durable than those which had not been treated in any way. Over the past century, Europeans have perfected the thermal modification process.

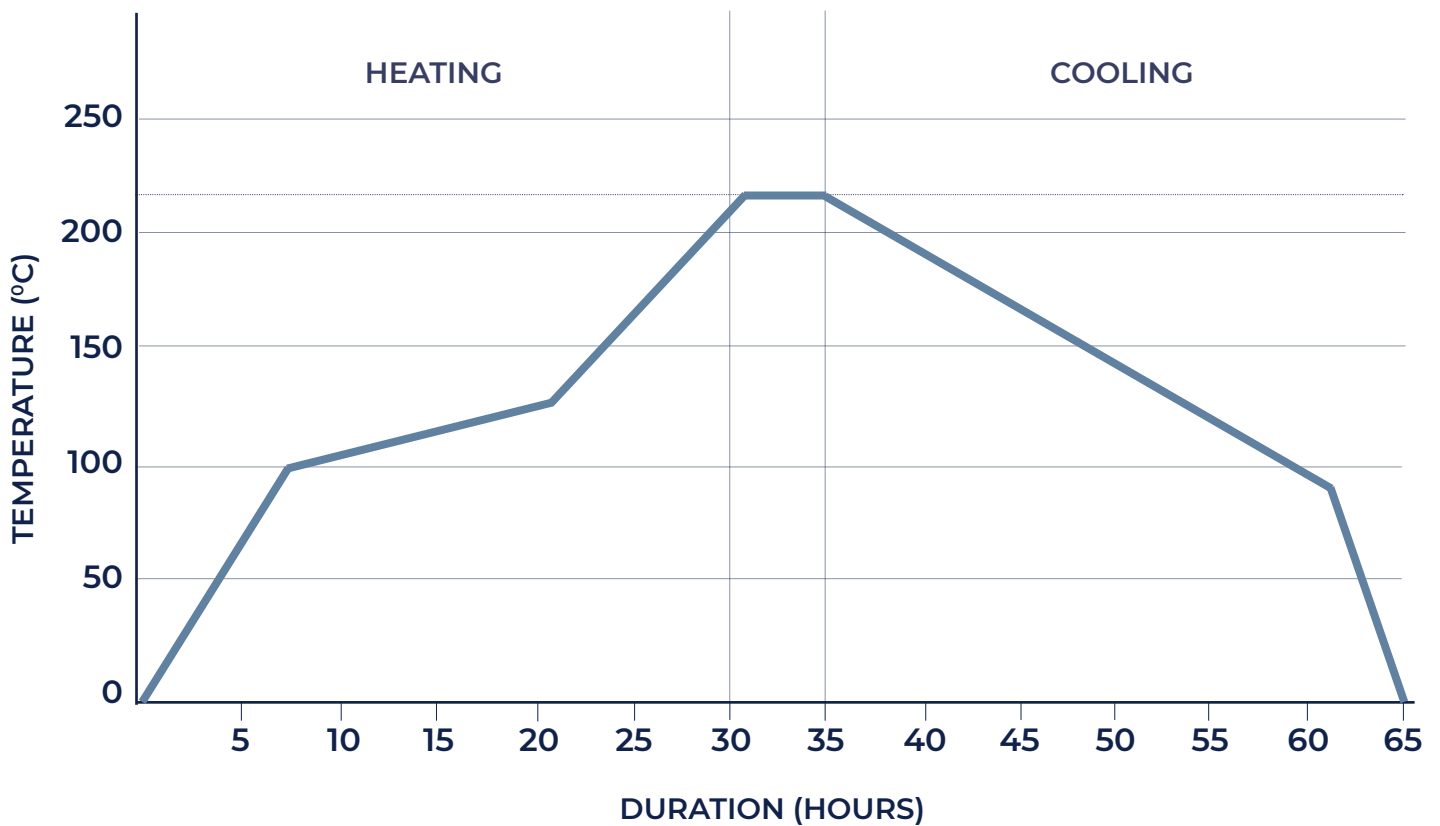
They began by using steam to gradually heat the wood to extremely high core temperatures over a threshold where the chemical and physical properties undergo permanent structural change.

Thermal modification is an environmentally friendly process resulting in an exceptionally stable, highly durable, and aesthetically pleasing timber – all desirable properties for bespoke cladding profiles.

THERMAL MODIFICATION PROCESS

Thermal modification is a conceptually simple process - suitable timbers are subjected to high temperatures using heat and steam in a controlled environment without the use of any chemicals. The heat inside the thermal modification chamber is slowly raised to 212°C and the entire process can last up to 110 hours. Once the process is complete, the equilibrium moisture percentage of the modified product is around 4-7%.

THERMAL MODIFICATION PROCESS EXAMPLE:



The thermal modification process permanently alters the cell structure which enhances the physical properties of the timber. The result of this is that the timber has a greatly reduced capacity to absorb moisture. With the reduction of moisture absorption, the timber is much less susceptible to cupping, expansion, contraction or distortion caused by seasonal changes in the environment.

Due to the thermally modified process that the timbers undergo, all the sugars and tannins in the wood are baked, removing the food source from fungi and insects as well as hardening and darkening the wood. You will see all TMT options come in rich brown tones and are suitable for a variety of interior and exterior applications such as exterior claddings, interior linings, battens and more depending on the species you choose.

THERMAL MODIFICATION PROCESS EXPLAINED:

Phase 1 - Water is removed from the timber

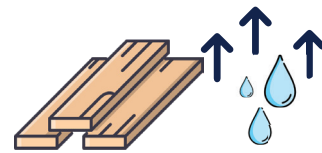
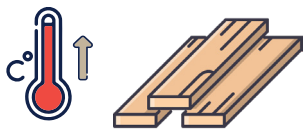
High temperature drying

100 - 212°C

Moisture Level

20% → 0%

The kiln is heated to 100°C and then gradually increased to 130°C, after about 18 hours the temperature is gradually brought up to 212°C and during this time the moisture is reduced to zero.



Phase 2 - All extractives are removed from the timber

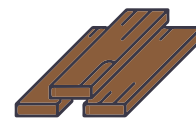
Thermal modification

212°C

Moisture Level

0%

As the temperature reaches 212°C the heating process is applied for a few hours and this begins to bake the sugars and tannins in the wood removing the food source from fungi and insects the wood darkens and hardens.



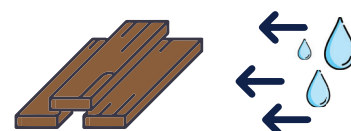
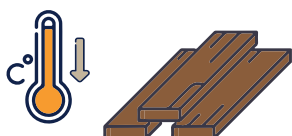
Phase 3 - Moisture is reintroduced with steam and water


Conditioning & cooling

Moisture Level

0% → 4-7%

Temperatures are slowly lowered to 80°C-90°C and water and steam are reintroduced to stabilise the wood and prevent it from drying out completely. This continues until the humidity of the wood reaches 4-7%. The timber is cooled slowly to minimise the stresses on the wood as it cools





Private Residence
New Zealand
TMT Taiga Lunawood

WHAT IS JSC TMT®?

Increasing environmental awareness and demand for sustainable, natural and chemical-free building products initiated JSC's research into thermal timber treatment methods, recognising that Thermally Modified Timber opens up a truly sustainable resource.

JSC TMT® offers a selection of Thermally Modified Timbers that have been specifically sourced for the New Zealand market based on their versatility, durability, aesthetic properties, and environmental credentials to suit the New Zealand weather conditions.

Due to the thermally modified process that the timbers undergo they are suitable for a variety of interior and exterior applications such as exterior cladding, interior panelling, battens and more depending on the product you choose.

KEY BENEFITS OF THE JSC TMT® PRODUCT RANGE

 <p>Dimensional Stability</p>	<p>Durability gained from excellent dimensional stability and reduced moisture absorption. Able to accept darker coatings with significant reduction in dimensional movement.</p>
 <p>Easy Maintenance</p>	<p>Easily workable and easy to maintain. Food source is removed in the TMT process ensuring low susceptibility to fungal decay.</p>
 <p>Responsibly Sourced and Non-Toxic</p>	<p>Premium quality that is responsibly sourced. The patented non-toxic production method for producing ThermoWood®.</p>
 <p>For All Climates</p>	<p>Proven to work well, even in the most challenging climates. Does not react to changes in humidity.</p>
 <p>Certified Premium Quality</p>	<p>Truly natural product with no chemicals. Certified quality as all JSC TMT products are sourced from reliable and world-renowned suppliers that are leaders in the thermal modification process of timbers.</p>
 <p>Aesthetically Beautiful and Suitable For Darker Coating Options</p>	<p>Whether you choose a feature or clearer grade you will see all TMT options come in beautiful rich brown tones. The TMT range takes oil and water-based coatings well including dark colours.</p>

ABOUT OUR TMT PRODUCT RANGE

JSC has a selection of thermally modified timbers available ranging from interesting feature grades to clearer grades:

- TMT Taiga Range - Feature Grade Thermally Modified Timber**

Is a selection of unique feature grade thermally modified timber options that have beautiful natural rustic characteristics. The product offerings range from smaller, more scattered knots to more oval-shaped knots showing up at regular intervals that give cladding and interiors a unique personality
- TMT Taxon Range - Clearer Grade Thermally Modified Timber**

Is the clearer grade thermally modified timber offering from JSC. With minimal natural rustic characteristics making it a great choice for a range of applications such as external cladding, interior lining and other demanding applications

Like any natural timber, the thermally modified timbers will eventually weather to shades of grey when subjected to the environmental elements of temperature, moisture, and UV rays. Therefore, to help maintain your fresh, new colour, the use of a premium grade oil stain with a UV protectant as the first step to a long and beautiful life. The JSC TMT® products take both oil and water-based coatings well.

For more information on all the JSC TMT® options or a free sample please contact the JSC team who are always happy to assist.

Private Residence | Breckon Builders Ltd
Clayton Architects
TMT Taxon Vertical Shiplap Exterior

Note: Imagery in this brochure are for illustration purposes only. For specification and installation information please visit jsctimber.co.nz



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