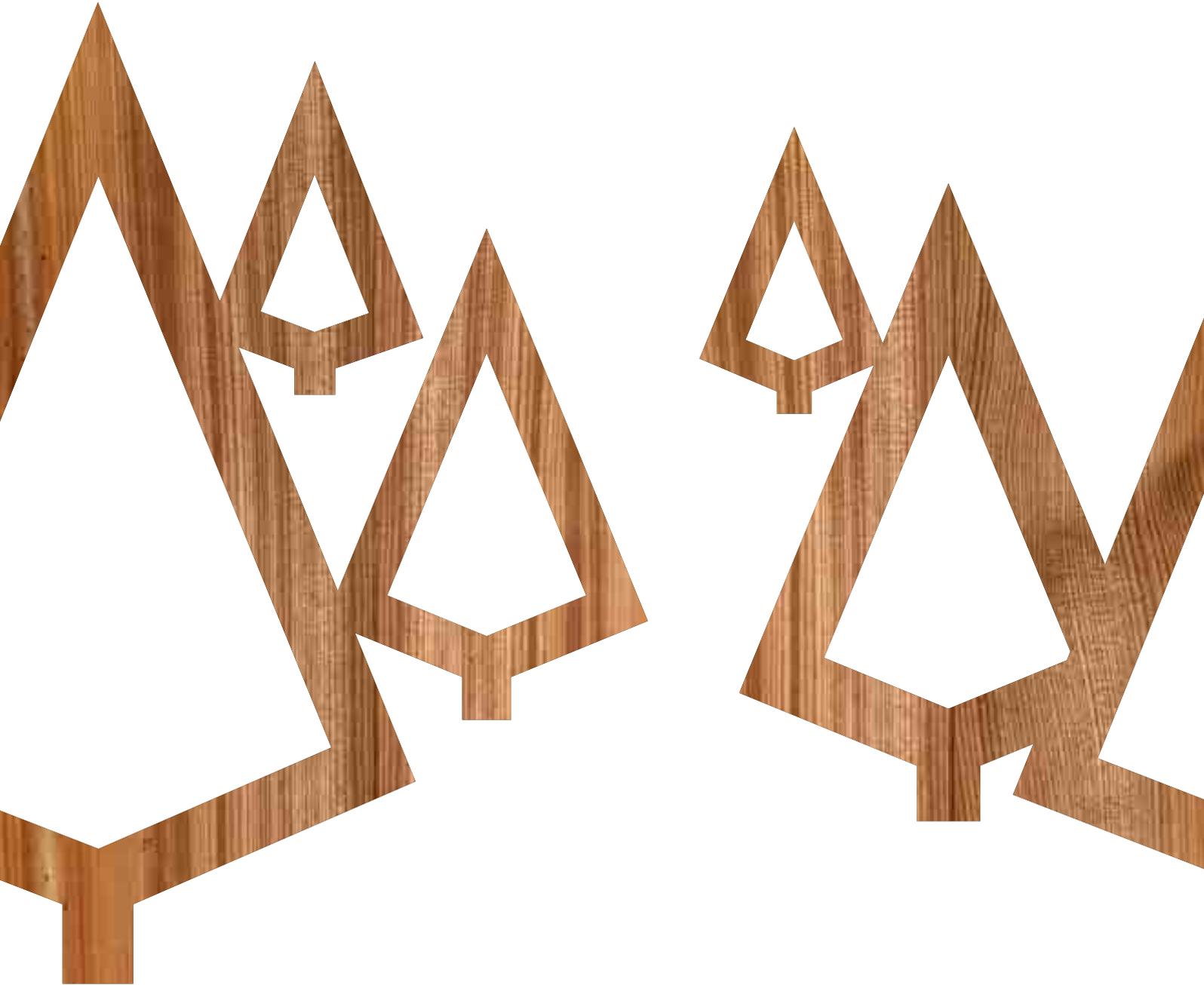




LUNAWOOD



LUNAWOOD.COM



Love for the Forest

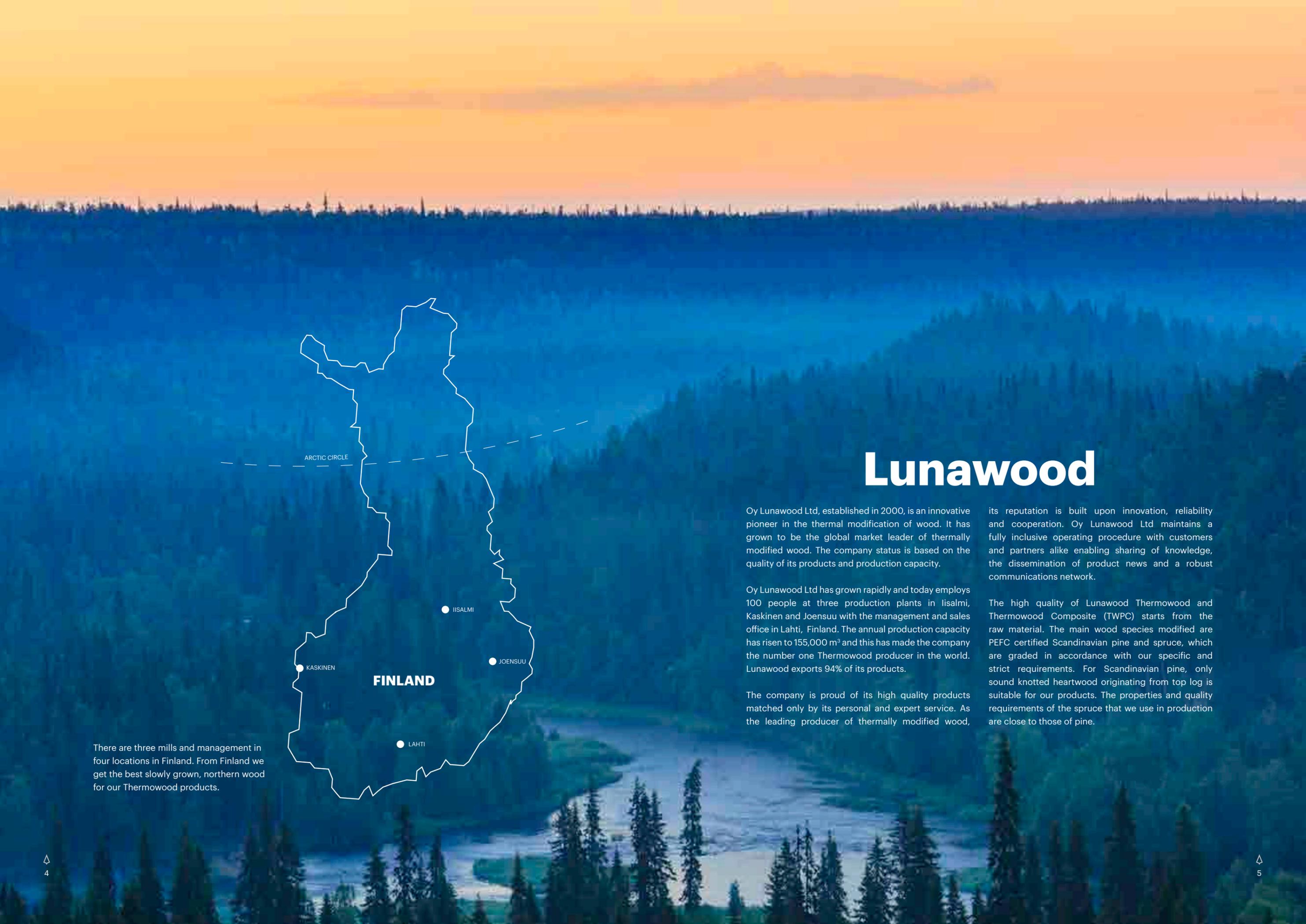
Lunawood is a pioneer and global market leader of Thermowood. We love the forest, its untamed freedom and its incomparable strength. Our mission is to reconnect nature with people in urban environments. We make the soothing effect of the forest available to all.

Our mills in Finland transform the very best Nordic pine and spruce into beautiful and long-lasting Thermowood. It is the ideal foundation and the perfect material for an ecological and healthy way of designing, building and living.

Every Lunawood product is an authentic piece of Nordic forest and is the result of years of dedication

to sustainability. Non-toxic Thermowood is suitable for all climates and types of weather. It is dimensionally stable and resin-free. These unique properties inspire architects and builders to create amazing and versatile projects around the world.

Lunawood Thermowood production started in 2002. Today company employs 100 professionals in Finland, at its production units in Iisalmi, Kaskinen and Joensuu, as well as at its head office in Lahti and in its main export markets. In 2019 Lunawood's turnover was EUR 49 million.



Lunawood

Oy Lunawood Ltd, established in 2000, is an innovative pioneer in the thermal modification of wood. It has grown to be the global market leader of thermally modified wood. The company status is based on the quality of its products and production capacity.

Oy Lunawood Ltd has grown rapidly and today employs 100 people at three production plants in Iisalmi, Kaskinen and Joensuu with the management and sales office in Lahti, Finland. The annual production capacity has risen to 155,000 m³ and this has made the company the number one Thermowood producer in the world. Lunawood exports 94% of its products.

The company is proud of its high quality products matched only by its personal and expert service. As the leading producer of thermally modified wood,

its reputation is built upon innovation, reliability and cooperation. Oy Lunawood Ltd maintains a fully inclusive operating procedure with customers and partners alike enabling sharing of knowledge, the dissemination of product news and a robust communications network.

The high quality of Lunawood Thermowood and Thermowood Composite (TWPC) starts from the raw material. The main wood species modified are PEFC certified Scandinavian pine and spruce, which are graded in accordance with our specific and strict requirements. For Scandinavian pine, only sound knotted heartwood originating from top log is suitable for our products. The properties and quality requirements of the spruce that we use in production are close to those of pine.

There are three mills and management in four locations in Finland. From Finland we get the best slowly grown, northern wood for our Thermowood products.



Premium Material

Finland – the land of thousands of lakes and forests. For countless years, the northern climate has created unique, slowly grown, natural wood. At Lunawood we thermally modify this high-quality raw material into Thermowood. We enhance the wood's natural properties and, at the same time, respect and preserve the environment.

Everything starts from sustainable Finnish forests. Northern wood grows under cold, harsh weather conditions that make the trees grow slowly. Lunawood has a profound knowledge of the wood and high respect for the material. Only the best raw material – carefully chosen timber – is used. Our premium quality Thermowood is manufactured from the heartwood of PEFC certified Scandinavian pine and spruce.

Proficiency for premium quality

Lunawood is a pioneer in modern thermal modification processes and products. Our experts work continuously

to develop the best practices and the best product quality for the favor of our clients. The Thermowood manufacturing process is highly advanced and proficient and it respects the natural properties of the wood. The patented production process is based on the gradual thermal modification of the wood, wherein the chemical and physical properties undergo a permanent change. Details of every single board are quality controlled for the thermal modification. The process itself uses only water vapor and heat; no chemicals are used.

Natural premium

By combining knowledge of nature, wood materials and sustainability, Lunawood has become an expert in modern wood modification. Thermally modified timber by Lunawood is an excellent product for building projects of all sizes, for covering different surfaces in both interior and exterior, for fitting with different styles and to complement building with other materials, such as glass, cement, steel or stone.



SOUND KNOTTED

Scandinavian pine has many butterfly shaped knots, which give a strong impression of natural material. Lunawood uses only sound knotted wood to ensure the high quality of our final products. We call it natural luxury.

WARM TONE

The wood material of Thermowood is consistently the same color. Quality control ensures that the hue stays inside certain color values. When the beautiful brown shade is desired to maintain, Thermowood products need to be surface treated with wood oil or similar. Without the surface treatment, Thermowood turns grey due to UV-radiation.

SMOOTH SURFACE

Thermowood is an excellent material for industrial planing. The surface of the planed wood is particularly smooth. The wooden surface has an elegant finish and it's pleasant to touch.

DURABILITY CLASS 2

LunaThermo-D belonging to durability class 2 has a projected service life of 30+ years when resistance to decay is considered (BRE). Due to the breakdown of hemicellulose (sugar chains), the wood no longer contains sufficient nutrients to support fungi. Lunawood is suitable for above ground solutions and not for continuous soil or water contact.

HEART WOOD

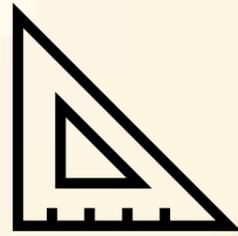
Lunawood planed products are made of heartwood of eco certified Scandinavian pine. Only the best raw material, carefully chosen hard core of top log is used.

LUNAWOOD THERMOWOOD

The popularity of building with wood has increased and continues to grow. Lunawood serves the needs of architects and builders around the globe. Our products can be bought as sawn timber and planed, profiled premium products. The Lunawood collection offers various alternatives for creating modern wooden surfaces. All of the products can be used indoors or outdoors, in any climate.

Lunawood's thermal modification respects the natural properties of wood. The raw material is processed using only heat and steam. Heat inside the thermal modification chamber is slowly raised up to a temperature of 212°C. The whole process can last as long as 110 hours. When the process is complete, the moisture percentage of the material is around 4-7%. Lowered equilibrium moisture content remarkably enhances the wood's dimensional stability. Thermowood is weather and rot resistant, but also non-toxic and resin free. This is why the thermal modification makes northern wood an optimal building material in many ways.

WHY TO USE LUNAWOOD



DIMENSIONAL STABILITY

Lowered equilibrium moisture content of Thermowood makes it dimensionally stable and the material retains its shape far better than untreated wood.



RESIN FREE

Resin is removed from the wood during the thermal modification process. As a result, the wood does not secrete resin even in high temperatures.



NON TOXIC

Thermowood is produced using only natural methods, heat and steam. Lunawood products are completely natural and free from chemical additives



SUSTAINABLE FORESTRY

Raw material is grown in sustainable and certified Nordic forests



ALL CLIMATES

Thermowood does not react to changes in temperature or humidity as drastically as untreated wood. The material is proven to work well in different climates.



WEATHER ENDURANCE

As a result of thermal modification, Finnish types of woods are transformed into durable, weather-enduring building material. LunaThermo-D has decay resistance class 2.



THERMAL INSULATION

Tests have shown that the thermal conductivity of Thermowood is reduced by around 20-25% compared to untreated coniferous wood.



CERTIFIED QUALITY

Trademarked product produced by patented and annually audited process.

+40°C

-40°C



LUNAWOOD FACADE

Thermowood is an outstanding choice for exterior claddings and facades. Our product range also provides wide cladding boards produced by utilizing glue lamination technology. Thanks to the thermal modification and gluing, we are able to offer 210 mm wide sound knotted, durable cladding boards with outstanding dimensional stability. Thermowood allows Scandinavian softwood to be successfully used in hot and humid weather conditions. In addition, all of our cladding products have the European conformity CE mark.

bre

BRE [the trading name of Building Research Establishment Limited] is a British independent and impartial, research-based consultancy, testing and training organization, which offers expertise in every aspect of the built environment and associated industries.

BRE is able to conclude that the expected service life for LunaThermo-D used in the UK for exterior cladding and decking will be **30 years** when following manufacturer's guidance and best practice construction principles.

Visual quality

Due to the high temperature of Thermowood treatment process, resin is removed from the wood. This ensures a high visual quality for both uncoated and coated LunaThermo-D claddings. The color of the wood is affected by the treatment-temperature and time – the higher the temperature, the darker the appearance. As with all softwoods, variances occur and are due to varying densities. When LunaThermo-D is exposed to UV-light, it will turn beautifully silver grey unless protected by a pigmented surface protection.

Luna Pro Coated

Luna Pro Coated is a new exterior product with high-quality surface treatment and hidden nailing profile to ensure a premium result. The surface-treated Luna Pro Coated is installed using a hidden nailing system – no visible nails break the surface of the wood. Luna Pro Coated reduces on-site installation time and the ready facade looks clean-cut. The product is available in three colours that perfectly suit traditional and modern wood constructions. Semi-transparent brown wood stains and intense black, selected by exterior wood treatment professionals, offer long maintenance intervals and an effective weather resistance for facades.

LUNAWOOD DECKING

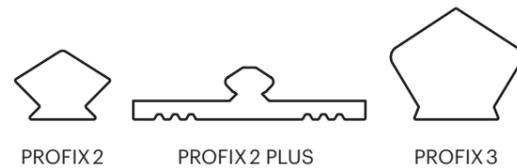
Lunawood is an outstanding decking material due to its stability and durability. Improved insulation properties make Lunawood an excellent choice for decking, since it balances the changes of heat and cold and makes it pleasant to walk on even when barefoot. Lunawood decking is resin- and toxic-free, lightweight, and easy to install. Lunawood's unique PROFIX hidden fixing clip enables quick and easy installation of the deck and creates a clean and elegant appearance without visible screws. It is an ecological and chemical-free solution for creating the finishing touch to any outdoor surrounding.

Beautiful and durable

Our decking products are also available as factory oiled. Two coats of pigmented wood oil are applied in a controlled factory environment creating an even coating and consistent color tone. The product is ready to be installed and does not require immediate coating to secure the color preservation.

In addition, our product range provides wide decking boards produced by using glue lamination technology. We are able to offer 210 mm wide sound knotted deck boards with hidden PROFIX fixing due to thermal modification and gluing. The dimensional stability and bending strength are exceptionally good.

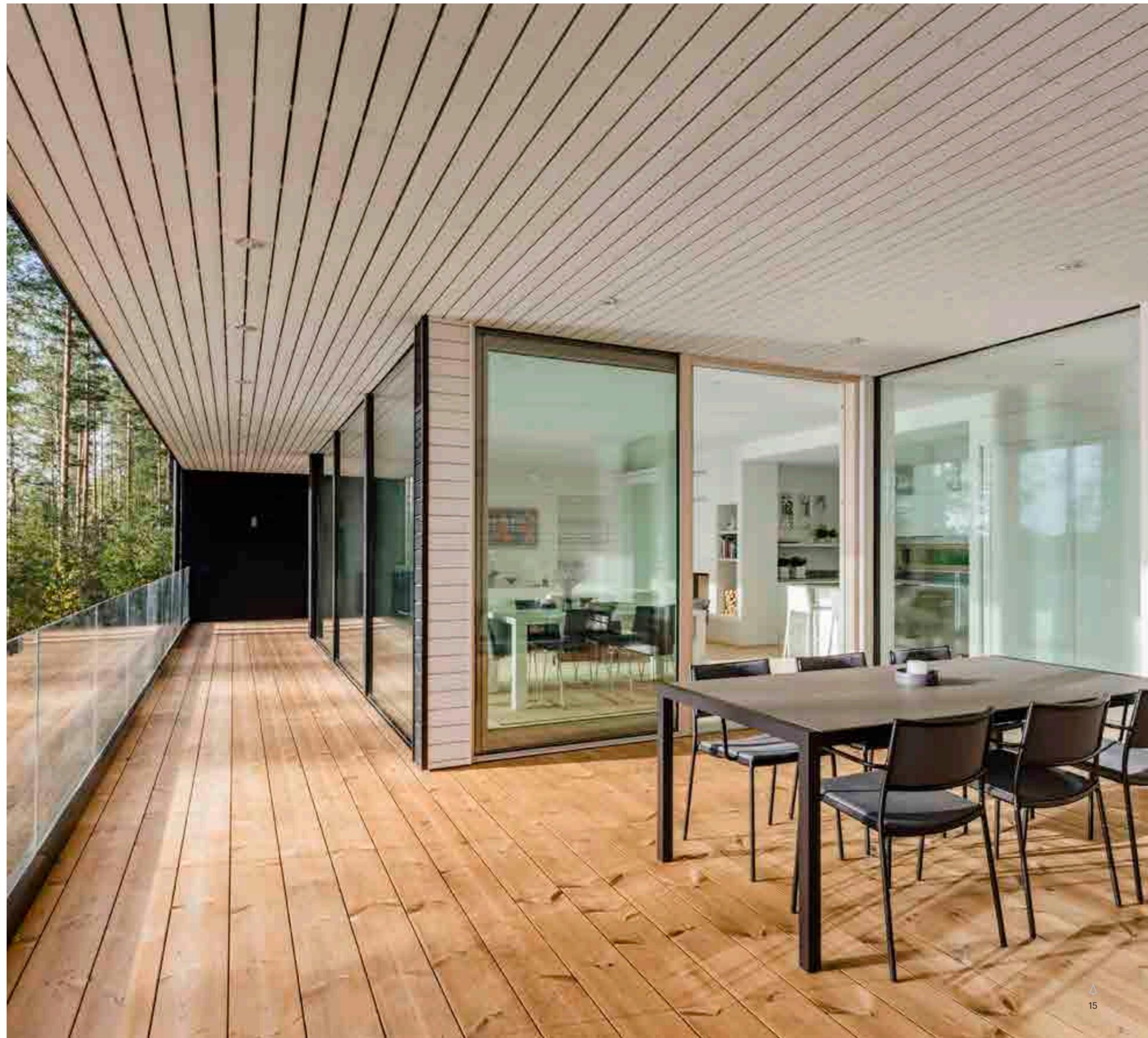
PROFIX hidden fixing system



PROFIX 2

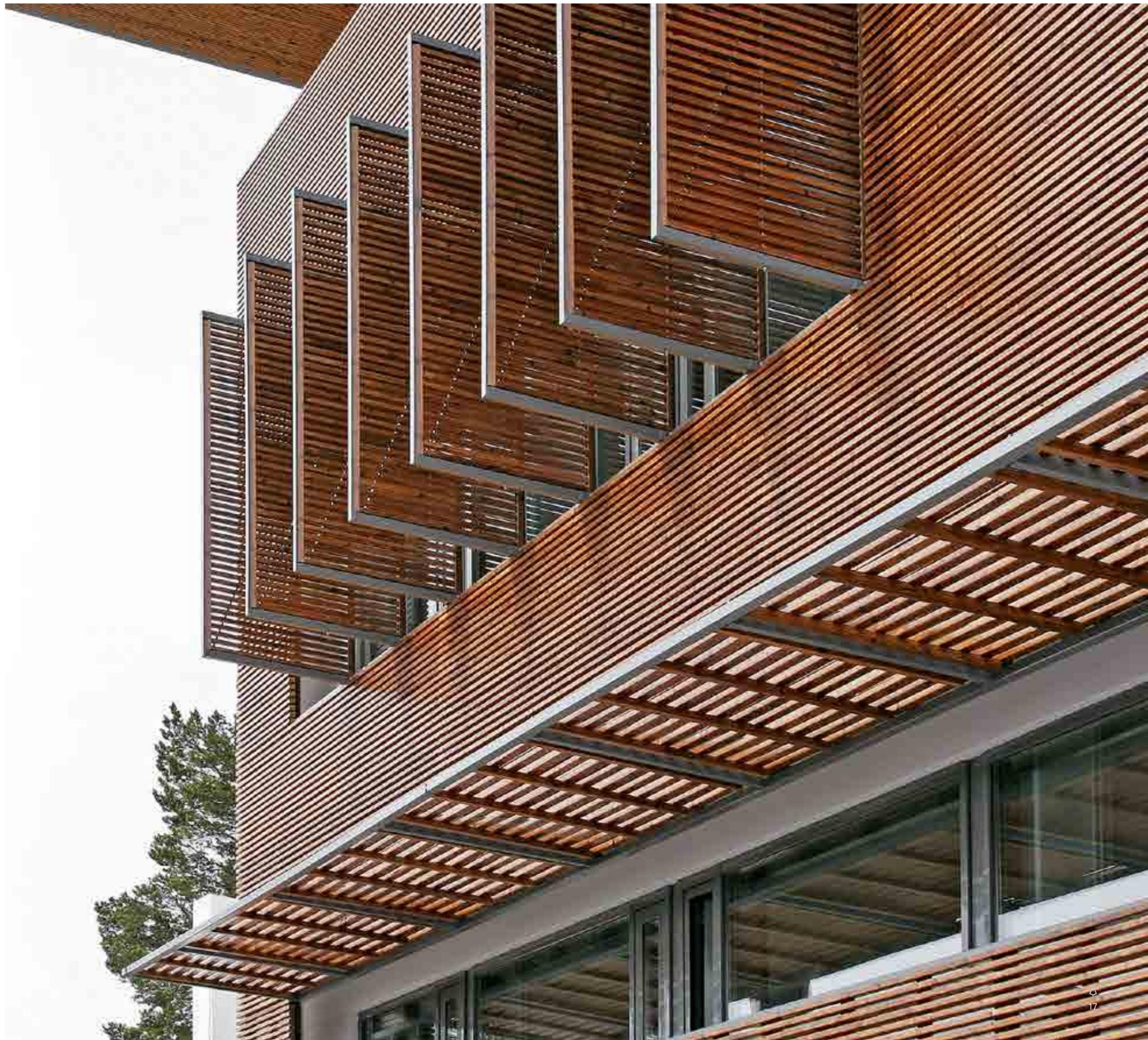
PROFIX 2 PLUS

PROFIX 3



LUNAWOOD SOLAR SHADES

Lunawood Thermowood solar shades are an ecological way of cooling buildings without consuming extra energy. When using Lunawood, you can prevent excessive solar from overheating the interiors with material that binds CO₂ and hence, is lowering the carbon footprint of the building. Further, due to the stability of Lunawood, you can use it in mobile sunscreen systems with opening and closing mechanisms. Solar shade profiles can be used in many ways indoors and outdoors; fences, partitions, effect walls, ceilings, etc. Thermowood is a modern architectural material and the combination with steel, concrete, and glass creates a beautiful contemporary look with a soft, natural finish.

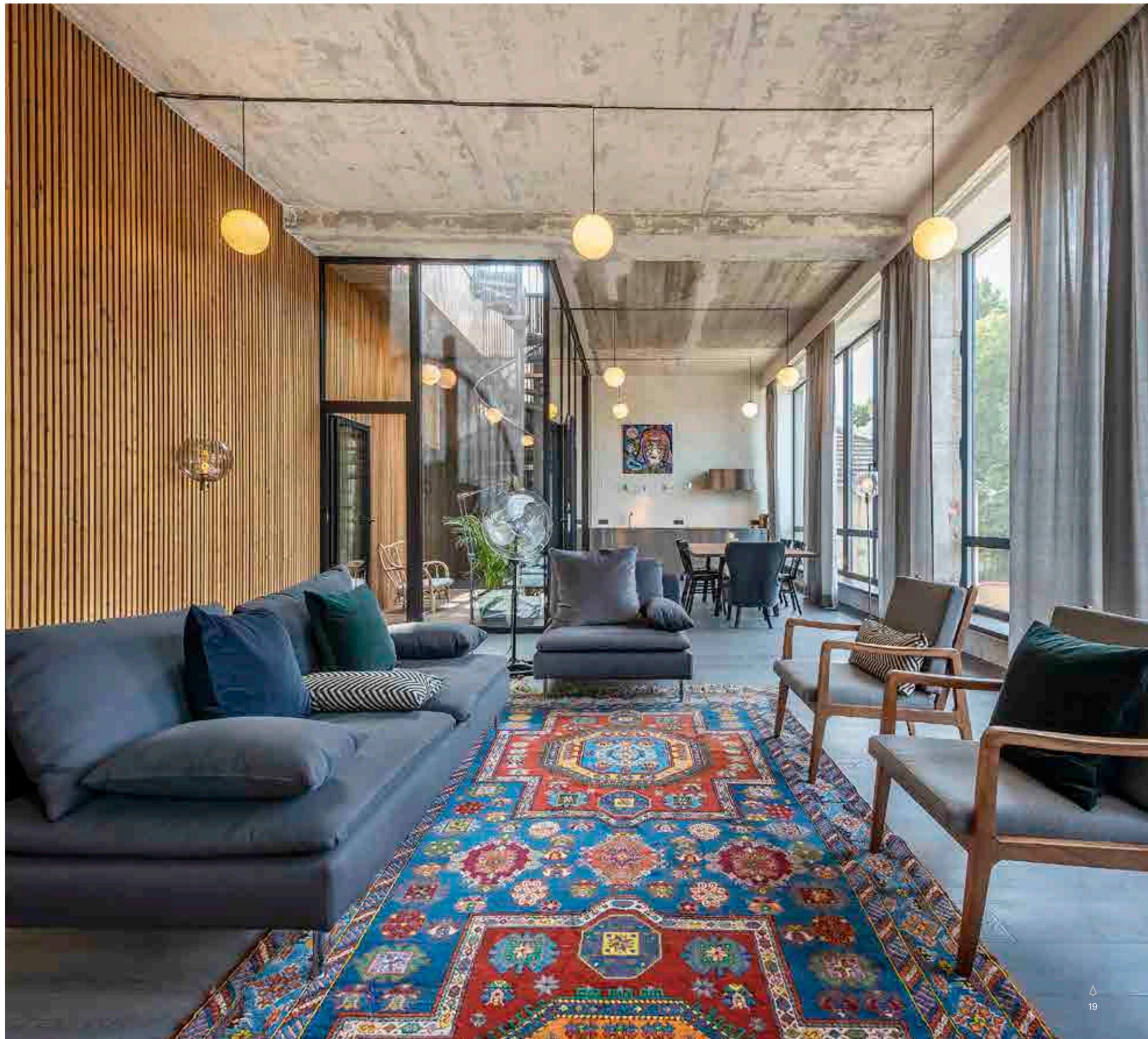


LUNAWOOD INTERIOR

The appearance of Lunawood is pleasant to touch and warm with a rich tone. It is highly suitable for paneling and flooring; creating a cozy atmosphere in any interior. The boards are light, easy to cut, shape and install. In addition to its attractive appearance, the thermal modification of wood eliminates the risk of harmful emissions such as formaldehydes. This makes the wood pure, safe and hygienic for indoor use even for those consumers prone to wood-related reactions. We believe that people feel better and healthier when surrounded by natural materials.

Sauna & Spa

Lower thermal conductivity and an improved stability of thermally modified wood makes Lunawood an excellent product in hot and humid environments. Furthermore, it is a hygienic material without resin and this broadens the variety of end-uses and applications. Thermowood is one of the most used materials in saunas and is excellent for spa interiors.





LUNAWOOD FRAMES AND BEARERS

Thermowood is an enduring, safe material for many kinds of garden and outdoor structures. Out of our planed profiles it's easy to create a dream wooden garden with pergolas and partition walls. It will become a natural eye-catcher as an attractive walkway, ideal for climbing plants with its airy construction. Pergolas provide privacy and give shade to cool off from the heat of the sun. A stylish partition wall defines the borders in gardens or built environment in a natural way.

The profiles for outdoor structures, such as Luna Post and Luna SHP, are made for these kinds of purposes. It is also possible to use Lunawood profiles as a building material for fences, gates and decking structures underneath the deck boards. Please note that Thermowood should not be in direct contact with the ground or in permanently wet situations. The air should be able to circulate between the wood and the ground.

SAWN TIMBER AND INDUSTRIAL END-USE

Lunawood Thermowood is a great raw material for further processing in industrial use. It is an excellent material for interior and exterior doors, windows and furniture. Thanks to its durability and ability to retain original shape and measurements, Lunawood Thermowood can withstand highly demanding conditions. Other improved properties like better insulation capacity or the fact that Lunawood does not contain any chemicals, are certainly advantageous and important from an industrial perspective. You can choose rough-sawn or machined Thermowood in pine and spruce, in several different dimensions.



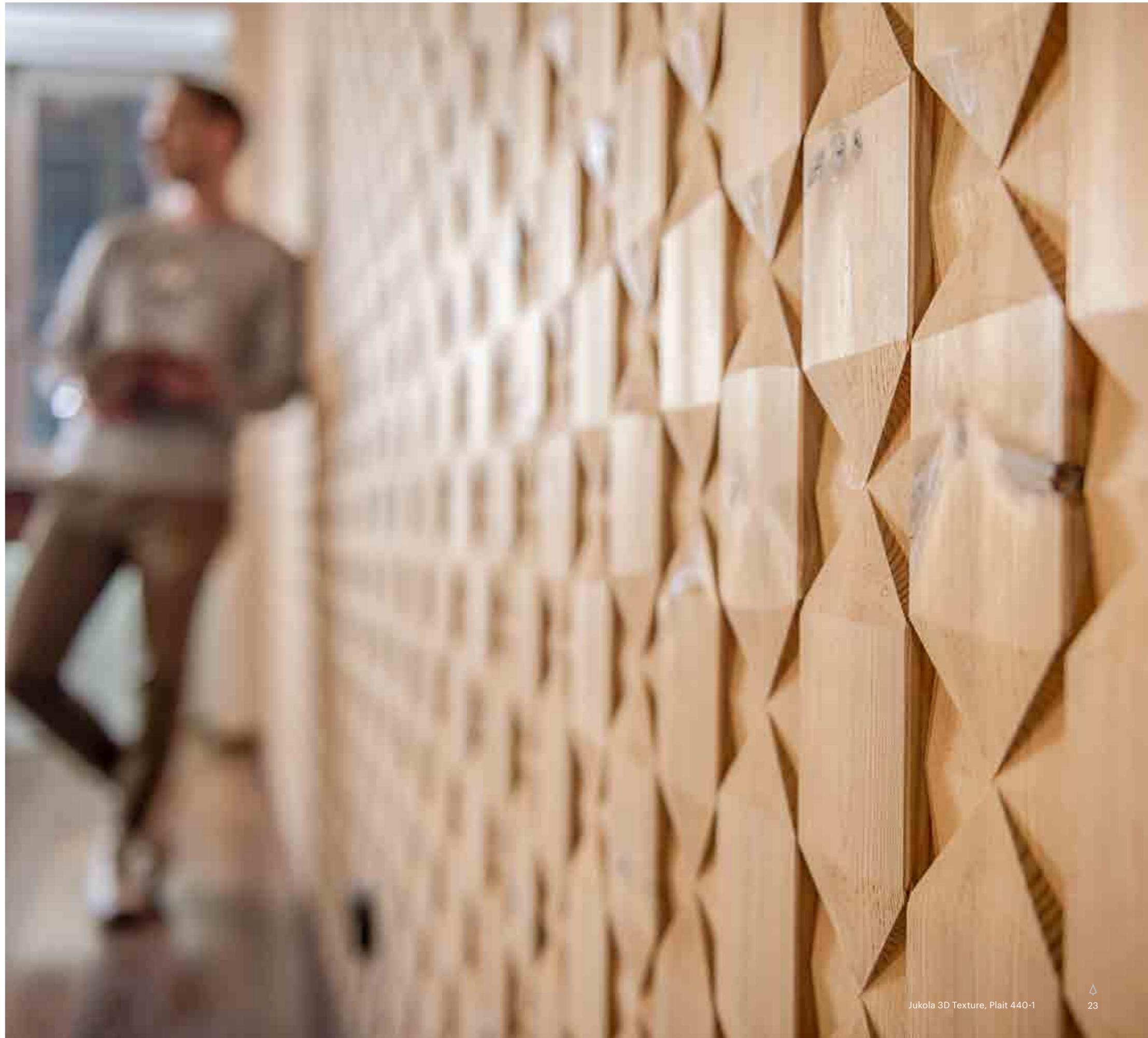
JUKOLA 3D TEXTURES

Lunawood's Jukola 3D panels combine state-of-the-art wood processing with traditional and contemporary Finnish design. The surfaces are composed of specially machined, yet conventional Thermowood profile boards. These boards can be applied in infinite ways as interior decorations as well as facade cladding. We only use the very best Scandinavian pine to ensure prime results.

The innovation behind Lunawood's Jukola 3D panels is based on the integration of mathematically controlled milling and algorithmic processes, which form the three dimensional wooden surface. The play of light and shadows on the three-dimensional surface brings out the unique qualities of the product.

Beautiful textures inspired by nature

Lunawood's Jukola Portfolio has 6 beautiful textures for creating a unique style for private and public houses, hotels, restaurants and offices. Textures create repetitive surface textures suited for interior design or wooden facades. The play of natural and artificial light brings out the unique characteristics of the paneling product. All of these textures are also available in white and black covering.



LUNAWOOD THERMOWOOD COMPOSITE (TWPC)

In construction projects you have confidence in the materials used. Lunawood Thermowood Composite (TWPC) is the most stable wood composite decking available on the market. It holds its own against changes in temperature better than any other composite material. The natural length variation is only 1 mm/meter in circumstances where temperatures fluctuate by 50°C. That's what we call stable!

TWPC is an outstanding choice for decks and gardens in both private and public spaces. It is extremely resilient in all weather conditions. Due to the breakdown of hemicellulose (sugar chains), the Thermowood fibers no longer contain sufficient nutrients to support decay-causing fungi. Thermowood fibers used in the composite manufacturing process are a by-product from our own Thermowood production and over 60% of the material is Thermowood. Lunawood composite is PVC free, non-toxic and off-cuts can be burned or recycled as timber waste (check your local rules in recycling).

Lunawood Thermowood Composite is available in two decking dimensions: 26 x 140 mm and extra strong 42 x 200 mm. In Luna TWPC 42 x 200 we use recycled plastic (about 20% share), which really is a hallmark of our actions when striving to do everything in the most sustainable way. Stylish brushed or smooth surfaces in silver grey, graphite grey and mocha brown give the decking a modern finish.

Lunawood Thermowood Composite is an eco-friendly choice for demanding use.



Luna TWPC 42x200 mocha brown



Luna TWPC 26x140 silver grey



Luna TWPC 26x140 black



GOOD TO KNOW ABOUT THERMOWOOD

TWO HEAT TREATMENT CLASSES

Lunawood produces two standard thermal modification classes, LunaThermo-S and LunaThermo-D. The difference between the classes centres on differing heat treatment temperatures.

LunaThermo-S

LunaThermo-S, where S stands for stability, has an attractive shade of light brown and the stability is greatly improved. It is heat-treated with milder temperatures (190°C). LunaThermo-S products are suitable for indoor applications.

LunaThermo-D

LunaThermo-D, where D stands for durability, has a darker brown tone. Its durability and stability are significantly improved. LunaThermo-D is thermally modified at 212°C and is suitable for external applications without the need for chemical preservative treatment.

DURABILITY

LunaThermo-D is classified as durability class 2 (BS EN 350) "durable" and carries a British Research Establishment (BRE) endorsement stating an expected service life of 30 years when used as cladding and decking. Durability and colour is consistent throughout the material.

DIMENSIONS

Lunawood is available as standard in thicknesses 25, 32, 38, 50 mm. Standard widths are: 100, 125, 150, 175, 200 mm. Wider boards available in Luna-Lam edge glued boards, are available as a special order. Planed finished sizes are slightly smaller than un-modified wood. Recommended planed dimensions are 19, 26, 32, & 42 mm thick and 92, 117, 140, 165, & 185 mm wide.

USE CLASS

LunaThermo-D is suitable for Use class 3 (BS EN 335) applications, "situations in which the wood is above ground and exposed to the weather (particularly rain)" It is suitable for use as cladding facades, rainscreen, decking and many other external applications. Lunawood is not recommended for use in direct contact with the ground.

DURABILITY

LunaThermo-D is classified as durability class 2 (BS EN 350) "durable" and carries a British Research Establishment (BRE) endorsement stating an expected service life of 30 years when used as cladding and decking. Durability and colour is consistent throughout the material.

TERMITE RESISTANCY

Lunawood is not termite resistant. Lunawood can be however treated with specialist termite chemical treatments.

LEACHING

LunaThermo-D will not leach colour. Minor release of the color pigment is possible during the first exposure to rain.

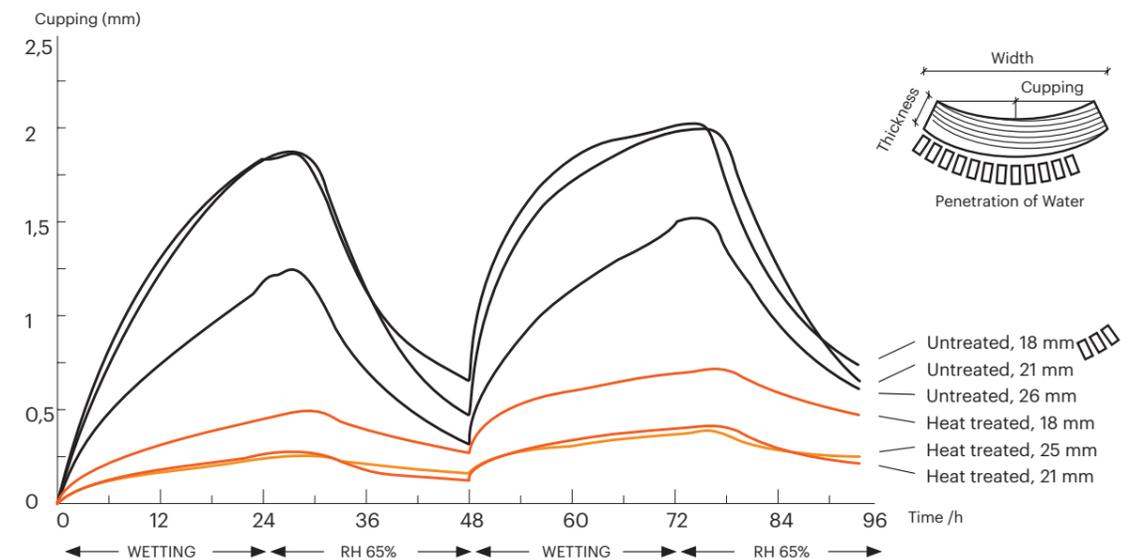
FIRE RATING

Lunawood has D4 rating which means it same as any other natural timber. Lunawood will accept standard fire retardant treatments in the same way as un-modified timber.

MACHINEABILITY

Processing does not affect the unique performance properties of Lunawood, as it is modified throughout. Planing Lunawood gives its surface a superior quality. The planing machine should be adjusted as if machining hardwood and the planing speed is less than with

STABILITY DIAGRAM OF EXTERIOR CLADDING BOARDS



Cupping of exterior cladding boards: Comparison between LunaThermo-D and untreated Scandinavian pine and spruce in different thicknesses.

Source: Jari Virta, Helsinki University of Technology

un-modified softwoods. Care should be taken with the feed roller set-up and pressures to avoid cracking the boards. The heart-side of the board should be selected as the weather-exposed face. Sanding may not be needed with Lunawood as the quality of the planed surface is of premium quality.

WEARING OVER TIME

Like all timber products LunaThermo-D will go grey upon exposure to UV, and in time may show some fine cracks or splits on the surface. The silvering effect will be visible in a relatively short period of time, 3 to 6 months after installation. It is recommended to apply an oil or approved wood coating to help preserve and maintain the original appearance.

SURFACE COATINGS

Lunawood will accept most good quality proprietary surface coatings that are suitable for un-modified wood. Lunawood can be treated with tinted or pigmented wood oil, wax, wood-protecting stain, varnish or paint – which contains a UV-filter – which helps retain the surface color. The surface treatment can be applied either before or immediately after installation using only a thin coat.

ENVIRONMENTAL

Lunawood is PEFC certified and uses only trees from well managed and re-planted Forest areas of Nordic countries.

STRENGTH

Bending strength properties are somewhat reduced with heat treatment class LunaThermo-D. Therefore it is not recommended to use Lunawood in load bearing structures without additional support; or without strength calculations being carried out on a case-by-case basis.

FASTENING

By hand

Thermal processing makes wood slightly more susceptible to splitting. For this reason we recommend using self-tapping screws with a coarse thread or pre-drilled holes before fixing. The screws should be stainless steel and suitable for fastening wood. When using nails, they should not be closer than 7 cm from the end of the board or use pre-drilled nail holes. When using a conventional hammer, it is advisable to use a nail punch for the last 2–3 mm.

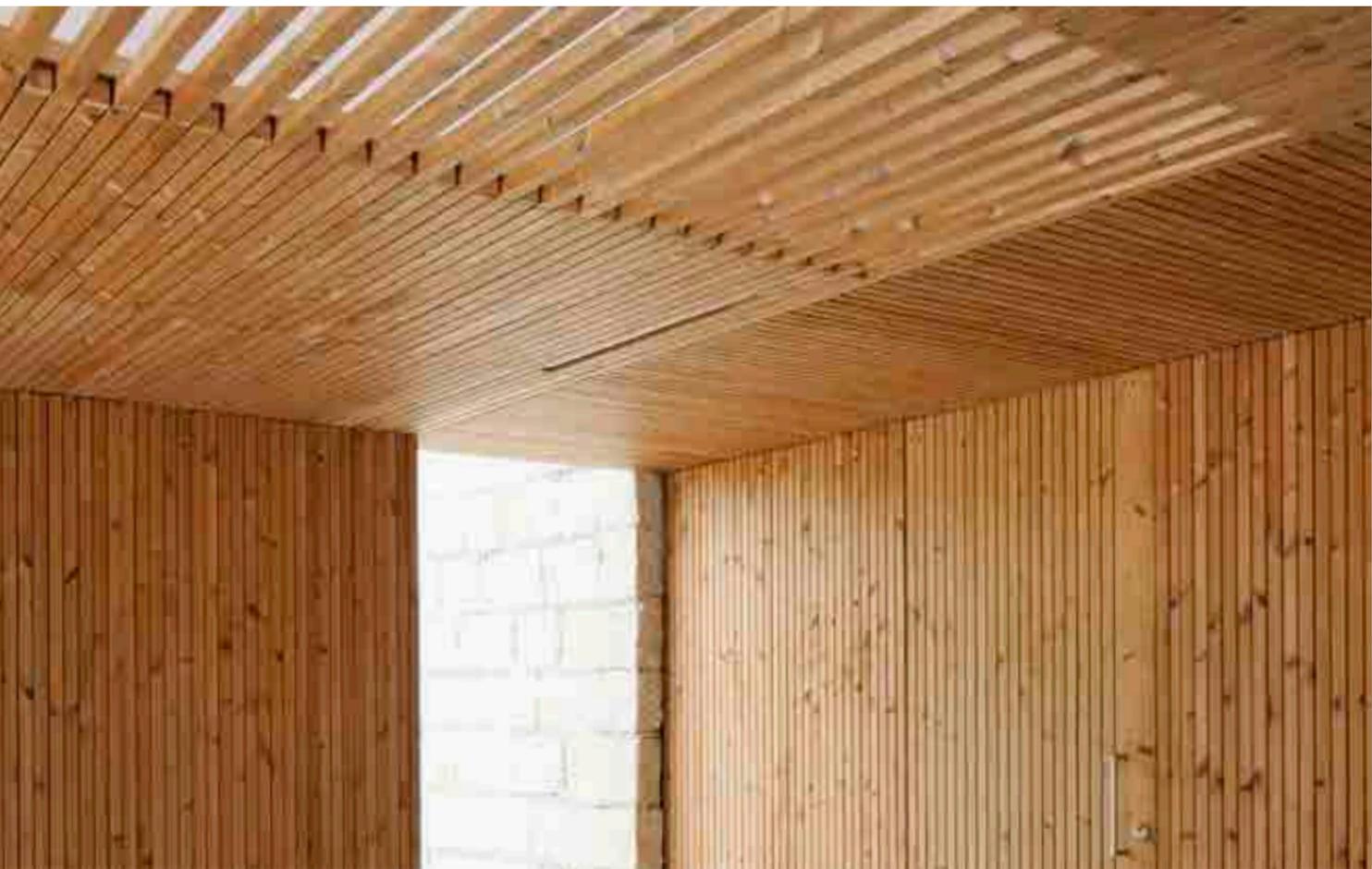
Tongue and grooved boards should be fastened using pre-drilled holes from over the top of the tongue so that the screw or thin nail is driven in at an angle of less than 40 degrees. In the installation the heart side should always be the weather-exposed face.

By pneumatic nailing machine

Good results can be achieved by using a small pneumatic nailing machine. However the pressure must be adjusted so that the nails are not driven too deeply into the wood.

Gluing

Gluing of Lunawood Thermowood is possible. However, the gluing and compression time may be 4–6 times longer compared to un-modified wood. Good results can be achieved with most common adhesives, but PUR glue gives the best performance according to test results.



INSTALLATION

Decking

When building a deck it is always recommended to keep the deck off the ground to improve the air circulation below. The gap between the boards should be at least 6 mm to secure air ventilation and promote drainage of rainwater. Any gap next to an adjoining wall should be at least 6 mm and the gap between two board ends should be 1–2 mm to allow for any movement.

Cladding

In claddings, ventilation should be provided behind the boards (min. 25 mm). Please also note that there should be at least 30 cm between the ground and lower edge of the cladding. Screws or nails can be used for mounting. They need to be stainless steel.

Milling

If Lunawood is intended to be milled, the blades should be in good and sharp condition to ensure good end results. The light, fine-grained saw dust is readily extracted with no adhesion to the cutter blades. Furthermore, due to the fine-grained sawdust, it is recommended to use a respiratory protection mask.

Planing

Lunawood can be planed with a normal planer or planing machine. Planing Lunawood gives its surface a superior quality. The planing machine should be adjusted for hardwood species and the planing speed is less than with untreated similar wood. The raw material after thermal processing may be convex and therefore the feed rollers should be adjusted accordingly to prevent the boards from splitting.

Sanding

Sanding may not be needed with Lunawood at all because the quality of the surface is so good after being planed and milled. However, if Lunawood is sanded the resin free material keeps your sandpaper in good shape for a longer period of time.

Sawing

Sawing Lunawood is just as easy as sawing ordinary wood. However, the blade should be a sharp, fine-toothed saw and the wood should be fed slowly.

SURFACE TREATMENT

Outdoors

Lunawood is durable and does not require maintenance to withstand time. However, regular maintenance is recommended to keep the original appearance and avoid small cracks and splits over time. Treating the boards with tinted or pigmented wood oil, wax, wood-protecting stain, varnish or paint – which contains a UV-filter – can retain the surface color. The surface treatment can be applied either before or immediately after installation using only a thin coat. Any excess should be wiped off. However, one should always follow the manufacturer's recommended guidelines.

The surface treatment should be renewed as necessary. The need for re-treating varies depending on the climate, amount of usage and the degree of exposure to UV-light. With opaque painted untreated wood the typical interval between maintenance is approximately 5 years. With Lunawood Thermowood the maintenance interval in painting can be greatly extended, possibly three times longer than usual. By using a more stable material considerable costs can be saved in cladding and decking, taking into consideration the entire lifespan of the product.

Indoors

Normal paints, wood oils, waxes, and varnishes can be used indoors. For saunas, paraffin oil can be used in addition to a surface treatment agent to emphasize the color of Thermowood and protect it from impurities.

THE USE OF LUNAWOOD WITHOUT SURFACE TREATMENT

Lunawood recommends surface treatment for Thermowood always when the end use application is exposed to weather. With all wood materials it is typical that after time fine cracks and splinters appear on the surface. Though Thermowood has lower potential for these defects, they still exist and coating protects the wood from them.

If unfinished Thermowood is used or it has been coated with non-pigmented wood oil, the brown color of the surface will fade and turn to grey over time due to the influence of UV. The weathered grey appearance of the Thermowood is elegant and the beneficial properties in durability against decay remain intact. However, horizontally planed surfaces such as terraces, which are exposed to surface wear and downright rain and sun, require protective coating to ensure long service life considering the mechanical properties. In other words surface treatment with, for example, wood oil is the best way to protect wooden decks. Further coating protects Lunawood from airborne impurities allowing for easier cleaning.

If the color of Thermowood has started to fade, the original brown color can be restored using an effective washing solution designed for wood and/or by sanding. After restoring the color a surface treatment can be applied with e.g. brown-pigmented wood oil.



The Nordic Swan Ecolabel is a voluntary ecolabelling scheme that evaluates a product's impact on the environment throughout the whole life cycle. The label guarantees among other things that climate requirements are taken into account, and that CO₂ emissions (and other harmful gases) are limited – where it is most relevant. By buying Nordic Swan Ecolabelled products and services, the consumer can contribute to a more sustainable environment, and be among the millions of people who daily make climate-friendly choices. Products carrying the Nordic Swan Ecolabel meet extremely high environmental and often climate requirements.

Environmental requirements

- Chemical requirements
- Sustainable forestry
- Biological durability and use classes
- Energy and climate
- Wood during use and disposal

Quality and regulatory requirement

www.nordic-ecolabel.org

bre

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PEFC is the world's largest forest certification system. Two thirds of the world's certified forests are certified according to PEFC requirements. PEFC certification demonstrates that forests are managed in a sustainable fashion. www.pefc.org



The International ThermoWood Association supervises its member companies' quality of production. This supervision is conducted by Finotrol Oy as an independent third party. Finotrol Oy awards a certificate to companies that meet the quality requirements, on which basis the International ThermoWood Association awards companies the right to use the TMT certification label.

www.thermowood.fi



International KOMO certification guarantees the degree of resistance to decay. The KOMO certificate confirms that Lunawood Thermo-D –class materials meet the quality requirements set for their biological durability and production.

www.komo.nl

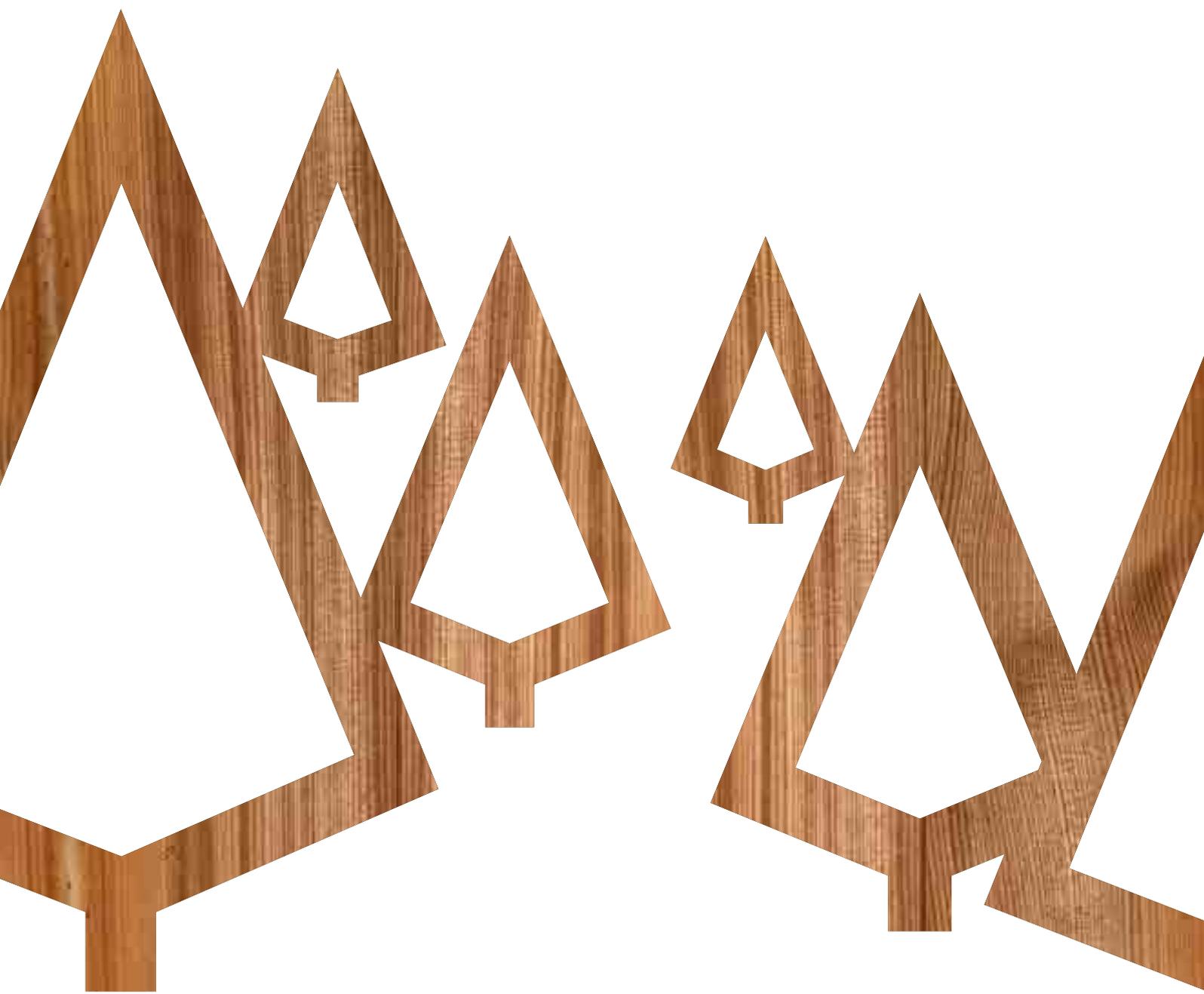


The CE marking is the manufacturer's declaration that the product is in conformity with the EU requirements that apply to it. All Lunawood exterior cladding products are CE-marked, which guarantees their performance.



All our products are manufactured in **Finland.**





LUNAWOOD.COM