

SILICIUM HT

A NEW GENERATION OF WOOD



OrganoWood®

BY NATURE, FOR THE ENVIROMENT

SILICIUM HT

A new generation sustainable and ecolabelled wood from OrganoWood

Silicium HT has evolved from our unique ecolabelled silicon technology, where we further enhance the durability of wood using a gentle, energy-efficient heat treatment.

The combination of both silicon and heat provides the wood with even better protection than is seen in wood treated solely with either silicon or heat. This is new technology for a new era. A non-toxic alternative to the usual pressure impregnated timber.

We continue to be inspired by nature's own method of fossilising wood, which makes it immensely durable. To manufacture Silicium HT we have combined a number of tried-and-tested technologies: silicon minerals, heat and a vacuum process.

We use silicon, which is one of the most common elements in the earth's crust, and a method called organocatalysis to enhance the durability of the wood and create a mineralisation deep inside it. We use heat and a vacuum process to dry the wood and improve the ability of silicon to penetrate deeper into it. Heat has, to a certain extent, a positive effect on the durability of wood. It both removes nutrients from the wood, which makes it more difficult for rot and fungi to take hold and spread, and reduces cracking in the wood's surface. Use of vacuum technology enables us to lower the boiling point of the process, which gives us the positive effects associated with heat treatment but without us having to expose the wood to detrimentally high temperatures. It also makes the process more energy efficient.

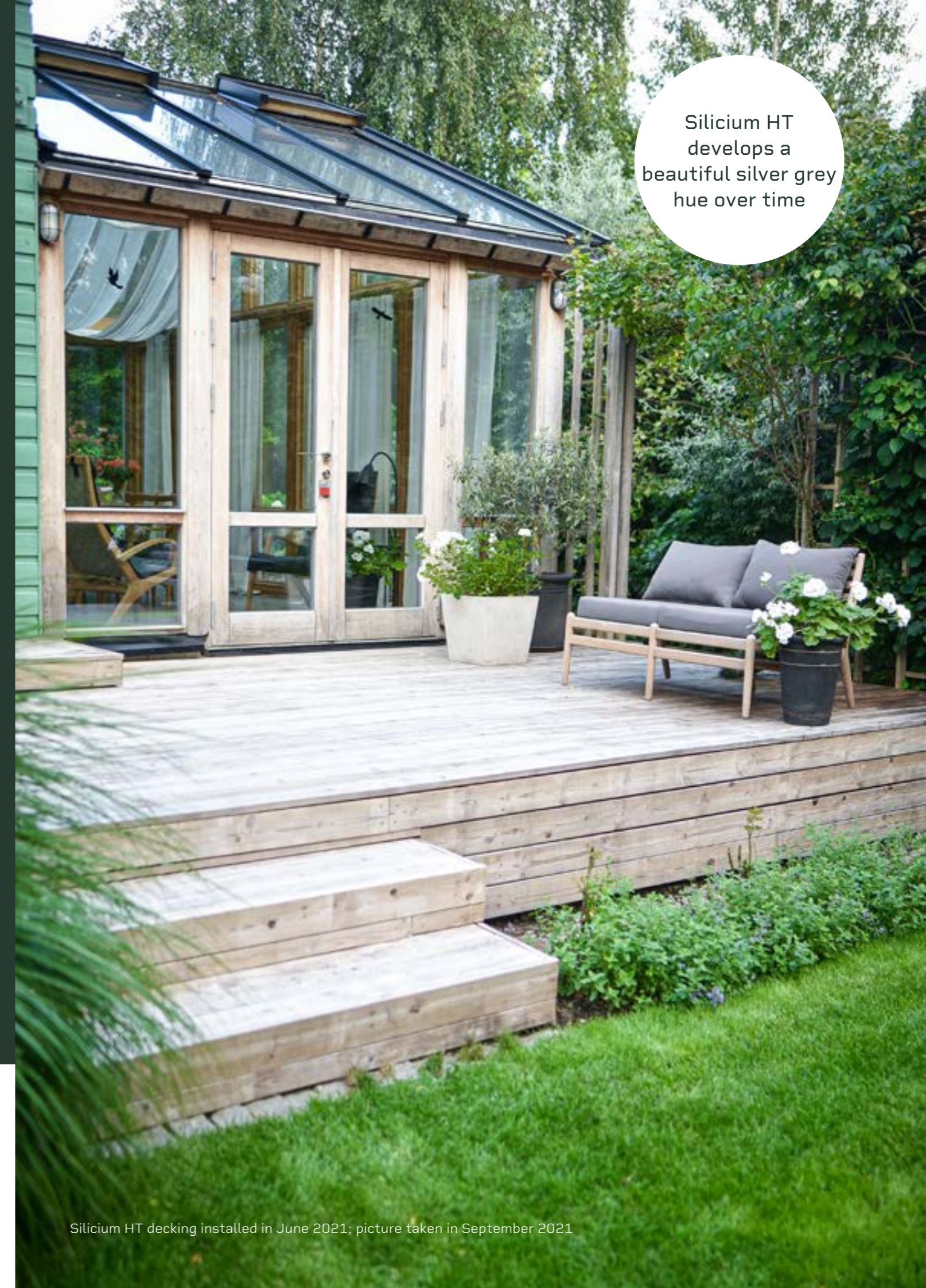
A perfect synergy. That over time produces a beautiful silver grey hue.



Jens Hamlin, CEO OrganoWood

– It has been our vision at OrganoWood, ever since the company was founded in 2010, to promote a non-toxic society. We are driven by a desire to contribute to sustainable environments and a better world for us all, which is why we continue to come up with new solutions and further develop our products. It feels good to be able to say that the more OrganoWood is used, the better the outcome for society as a whole.

Silicium HT develops a beautiful silver grey hue over time



Silicium HT decking installed in June 2021; picture taken in September 2021

ENVIRONMENTALLY CLASSIFIED

Protecting our climate

Silicium HT has been developed to withstand harsh environments, without the use of harmful substances. All substances are classified as environmentally friendly according to the CLP Regulation and can be returned to the natural cycle. It is therefore possible to recycle timber from OrganoWood as untreated timber, unlike traditional pressure impregnated products that are considered environmentally hazardous waste.

Swedish company OrganoWood is currently the sole global supplier of environmentally classified pressure impregnation for cladding, decking timber and construction timber.

From pine to decking

In order for Silicium HT to be regarded as a truly sustainable option, the wood raw material must, of course, come from a responsibly managed forest. Timber from OrganoWood is FSC certified and PEFC certified. It has also been registered with the Nordic Swan Ecolabel and assessed by both Bygghälsöbyggnadsnämningen and SundaHus in Sweden.

Rot protection and natural durability

Silicium HT has well-documented rot protection. The timber, which has been tested in accordance with the Swedish Institute for Standards' (SIS) accelerated rot protection tests (SS-EN 113-2) and its tests for natural durability of wood (SS-EN 350), achieves the Institute's top classification.

What do the abbreviations mean?

CLP (Classification, Labelling and Packaging)

All chemical products intended for sale must be classified and clearly labelled with any health hazards and environmental hazards. CLP is the EU's regulation on classification, labelling and packaging of chemical substances and mixtures. The regulation number is 1272/2008.

FSC (Forest Stewardship Council)

The global forest certification system FSC aims to ensure ecological, social and economic sustainability for forests and forest products. Certified companies comply with specific rules for both forestry and traceability, which makes it easier to choose products that benefit people and the environment.

PEFC (Programme for the Endorsement of Forest Certification)

PEFC is another global forest certification system, the world's largest in fact, that aims to ensure ecologically, socially and economically sustainable forest management and use. PEFC's certification rules are similar to those of FSC, but are tailored more towards small-scale private forestry.

SS (Svensk Standard)

Swedish standards (SS) are produced by Svenska institutet för standarder (Swedish Institute for Standards (SIS)), in partnership with various organisations, companies and authorities. This is partly to safeguard the quality of products and services, and partly to promote Swedish competitiveness and smart, sustainable social development.



Make your dream outdoor space a reality

Silicium HT is not just environmentally classified and sustainable. It also blends in well with nature and its surroundings. Perfect for anyone who wants to create a harmonious, inviting outdoor space, without having to worry about toxins that have a harmful effect on the environment. A space that can age gracefully.





RAW MATERIAL

Where do the raw materials come from?

The wood raw material for Silicium HT is dried and planed pine, sourced from some of Sweden's largest suppliers: Skogsägarna Norra Skog and Setra Trävaror AB.

We sort the wood raw material into two different qualities: Select and Select Plus. Select comes from the best forests in central and northern Sweden, while Select Plus comes solely from northern Sweden.

OrganoWood's unique silicon compound is produced in Stockholm by our parent company, the award-winning natural chemistry company OrganoClick. Silicon, which is the main ingredient, is extracted from sand. We source our silicon from Germany, where it is also processed before being transported by boat to Sweden.

Our group of companies has been specially selected for the UN's "Unreasonable Goals" programme because of our innovative and sophisticated technologies that can measurably contribute to achieving the UN's Sustainable Development Goals by 2030.



Maria Wennman
R&D Director at OrganoClick

"Working towards a greener future through new innovations is in OrganoClick's DNA. We focus on products that make a real difference and are at the forefront of their field. Our vision is for nature and water to be free from plastic waste and chemical pollution, and we are extremely proud of the fact that our products contribute to that."



FACTS ABOUT WOOD

A sustainable and natural choice

Sweden is a heavily forested country and wood has long been the obvious choice for a building material. It is easy to see why – wood is a natural product, sustainable and recyclable.

OrganoWood's unique method of modifying wood with silicon has been developed predominantly for use with pine and spruce. Pine is traditionally used for patios and construction, while spruce tends to be used for cladding. Silicium HT is produced using dried, planed pine. Pine is a soft wood with many advantages. It has a low density and is easy to work with. The fact that timber from OrganoWood is dried to some extent makes it slightly lighter in weight than traditionally treated timber for outdoor use.

Wood is a living material that is always looking to be in balance with the environment around it. It therefore swells and shrinks in response to changes in the humidity and temperature of the surrounding air. Both pine and spruce are woods that contain some knots, with knot structures that can vary in appearance from one instance to the next. It can be useful to know that knots can fall out during periods of dry weather, as the wood changes with changes in the air. Cracks may also appear in the wood during dry weather, but they usually close when humidity increases again.

"People are building patios like never before, but ensuring that they are both non-toxic and sustainable requires some thought. [...] It's not easy weighing up all the various aspects of a plank of timber, but Swedish, non-toxic timber can be obtained from the company OrganoWood, which impregnates the wood with silicon rather than copper."

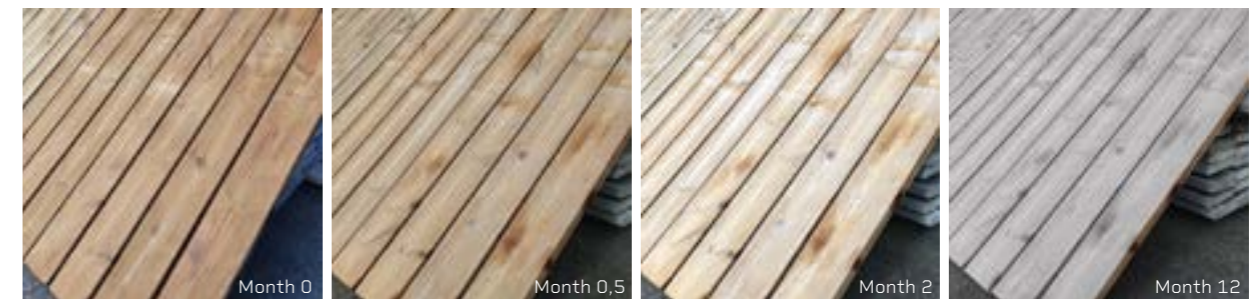
*FROM THE ARTICLE "GIFTFRI OCH HÅLLBAR ALTAN" [A NON-TOXIC, SUSTAINABLE PATIO]
BY ANNA FROSTER, PUBLISHED IN SWEDEN'S BEST-SELLING NATURE AND ENVIRONMENTAL MAGAZINE
"SVERIGES NATUR"
(ISSUE 3-2021).*



Silicium HT decking installed in June 2021; picture taken in September 2021

The colour of the wood

Silicium HT starts out a deep brown colour, which is characteristic of heat-treated wood. However, this brown colour is not permanent, as the wood takes on a silver grey hue over time. Much like all other wood. This is a natural greying process that takes place when wood is exposed to the sun and moisture, although the silicon present in Silicium HT produces a slightly lighter grey hue. The length of time this takes depends on the conditions. In a very sunny location, it may take about a year, but in more shaded areas, it will take longer.



Resinous stains

Softwoods such as pine and spruce contain resin. The resin softens during heat treatment and may then seep through to the surface of the timber. At the same time, the volatile compounds begin to evaporate, which can leave a residual stain of non-sticky solid resin. Some boards may have extensive staining, while others have no stains at all. To minimise resinous stains, all Silicium HT boards are passed through a brushing machine.

Any remaining resin, or resin that appears after installation, fades over time. If you do wish to remove resinous stains, you can brush the wood carefully with a steel brush.



TWO DIFFERENT QUALITIES

Silicium HT Select

The raw material for Silicium HT Select comes from the best forests in central and northern Sweden. The wood raw material sourced here comprises a higher proportion of heartwood and knots that are smaller and rounder than those found in wood raw material from southern Sweden. **Decking dimensions (mm): 28x120, 28x145, 34x145**

Silicium HT Select Plus

Silicium HT Select Plus comes from the more northerly parts of Sweden. There trees grow more slowly than anywhere else in the country, which increases the proportion of heartwood and contributes to a smoother, calmer appearance. Silicium HT Select Plus has also received additional surface treatment using OrganoWood 02. Repellent, which gives the wood dirt and water-repelling properties that further reduce the risk of surface growth and make the surface easier to clean. **Decking dimensions (mm): 28x120, 34x145**



The 'Pod' shelter, the inside of which is clad with Silicium HT

Arknat 2021

"It has been exciting to test alternatives to the 'usual' pressure impregnated timber - in particular Silicium HT, which is also heat-treated. Heat-treated timber is reputed to be brittle, but we have pushed this material to its limit! We have split the planking once and twice and then soaked it in Lake Råbelövssjön, with impressive results. I look forward to seeing this material age and grey beautifully over time"

- Karl Lind, Architecture student



INSTALLATION

Carefully read through the installation instructions before installing. A detailed installation instruction is available at www.organowood.com.

CC SPACING

For 28 mm thick decking, floor structures that will be subjected to a normal load require a maximum CC spacing of 600 mm between studs.

VENTILATION

The structure should be designed to ensure good ventilation in order to minimise problems with buckling. For installation on balconies or roof terraces, it is necessary to ensure that the timber is always given the opportunity to dry out properly and that there is no risk of litter or dirt collecting under the decking.

SAW CUT

If you have to cut the timber, make holes in it or prepare it in any other way, you must treat the exposed surfaces with OrganoWood 01. To maintain the rot protection, for optimum protection, we recommend that visible wood ends also be treated with OrganoWood 02.

HANDLING AND STORAGE

Store the timber so it remains dry. If storing timber outdoors, ensure that it is covered and protected from precipitation and ground moisture.

Ensure that the structure is professionally built; see the recommendations for installing decking from Svenskt Trä (Swedish Wood).

Extra treatment

To minimise the risk of surface growth, we recommend that you treat the wood with OrganoWood's surface treatment 02. Surface Protection. This also increases the wood's form stability and makes it easier to keep clean. Silicium HT Select Plus has already received an additional surface treatment using OrganoWood 02. Surface Protection.



GROUND AREA

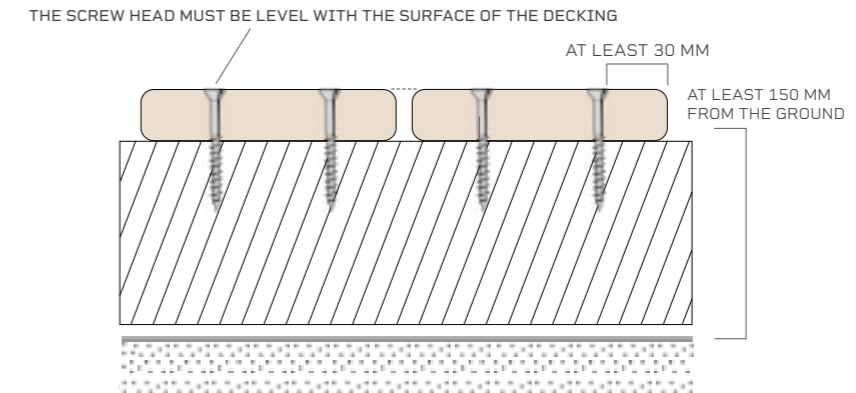
The ground below the decking must consist of draining material and be designed with a drop from the house. If there is a risk of rising ground moisture, then particular attention must be paid to this when designing the structure. Install the decking **at least 150 mm** from the ground.

Patios must also be designed to ensure they slope away from the house. Create a slight drop from the house; a sufficient drop is **approximately 1 centimetre per metre**.

SCREWS

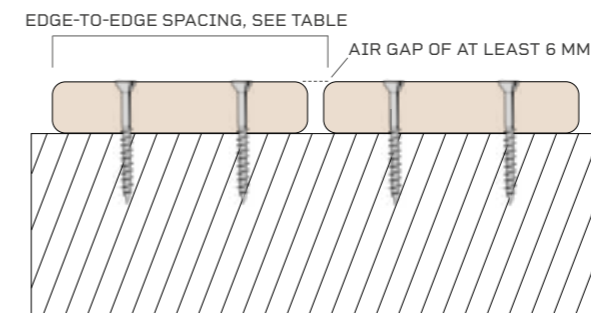
Generally, Silicium HT does not need to be predrilled, but no rule is without an exception... If you use decking screws within **30 mm** of the end of the board, you should predrill holes to reduce the risk of cracking. We recommend not using screws within **30 mm** of any edge.

Use good quality stainless steel screws in grade A2 or A4, or surface treated screws in grade C4. Insert decking screws perpendicular to the decking timber to ensure the screw head ends up level with the top side of the timber. Do not screw it down below the surface of the wood.



SPACINGS/AIR GAP

As wood is a living material that swells and shrinks in response to changes in the humidity and temperature of the surrounding air, it is important to always check the width of the wood carefully prior to installation to ensure an adequate air gap. Silicium HT is always delivered dry, and you should therefore always use an air gap between the boards of at least **6 mm**. See the accompanying table for exact spacings based on dimensions.



WIDTH (MM)	EDGE-TO-EDGE SPACING (MM)
116	122
117	123
118	124
119	125
120	126



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