SCA Wood Magazine

1/2024

STANDARD LEADS THE WAY TO SUSTAINABILITY

BREEDING FOR BETTER SEEDLINGS

WOODEN FOUNDATIONS

Architect of a better world

Joakim Kaminsky sees architecture as a powerful tool for creating social change. With offices in Gothenburg and Stockholm, his company Kaminsky Arkitektur was an early advocate for what is now everyone's concern: sustainable building.

HANDFORGED AXES SINCE 1902

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Joakim Kaminsky sees architecture as a tool for creating social change.

He found peace in the forests of Jämtland.

She studies the link between the forest and wellbeing.

Breeding stronger plants.

SCA Wood Magazine

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Sustainability for people and the environment

IT IS BECOMING INCREASINGLY IMPORTANT for businesses to report the climate impact of their operations. Global awareness of climate change is increasing as is demand for improved solutions. Politicians are tightening regulations. For example, the EU is planning to increase reporting requirements on the climate impact of new builds and impose a cap on the permitted carbon footprint. It is also becoming more common to impose such reporting requirements on those who finance large-scale construction projects.

Globally, last year was the warmest on record. No one can do everything, but everyone can do something. Everyone must do something. Our contribution is our forests, which bind carbon as they grow, and offering timber products as an alternative to fossil-based and non-renewable materials such as concrete and steel.

Architect Joakim Kaminsky was an early advocate of sustainability and his architectural practice is at the forefront of building with a minimal ecological footprint. In this issue of SCA Wood Magazine, he explains that the key to reducing greenhouse gas emissions is to design buildings as carbon sinks.

You can also read about Environmental Product Declarations (EPDs), which quantify the environmental impact of a product using independently verified results, enabling comparisons between products fulfilling the same function. This is a powerful tool for our industry to demonstrate the climate benefits of wood.

We also meet Derome, a company with a value chain that goes from forest to finished home. Derome is focused on reducing climate impact, to which end it is currently testing a wooden foundation system that can replace concrete slabs.

Markus Torgeby's story is more extreme and has been told in a television documentary. He single-handedly carried three tonnes of building materials up a mountain, where he built a cabin. He has found peace and rehabilitation in the forest, something that Ann Dolling studies at the Swedish University of Agricultural Sciences (SLU). You will meet both of them in this issue, in which we direct our attention to sustainability for both people and the environment.

Pleasant reading!

ANDERS PETERSSON
DIRECTOR OF INNOVATION
AND SUSTAINABILITY, SCA WOOD

PHOTO KRISTOFER LÖNNÅ

PHOTO RASMUS HJORTSHØJ

Treetop walkway to the top

NORWAY'S FIRST TREETOP WALKWAY winds through the forest canopy in the Hamaren Activity Park in Fyresdal. Seemingly floating, the walkway gradually rises on wooden pillars from ground level for a kilometre beside a lake, upwards into the tall pines then along the mountainside until it crests the peak of Klokkarhamaren. Once at the top of the mountain, a circular platform offers panoramic views of the dramatic landscape from a height of 15 metres. The wooden walkway is designed for full accessibility so that everyone can experience the feeling of ascending through the treetops, whether on foot, by bicycle, wheelchair or stroller.

Made from local pine, the walkway is constructed from many small, prefabricated elements that wind through the forest's organic shapes, blending into the natural environment. Danish design studio Effekt is behind the creation and, together with local master builder Inge Aamlid, has ensured that the work is distinguished by the local tradition of craftsmanship and building in pine.

Carrying a house

AND BUILDING A LEGACY

TEXT JENNIE ZETTERQVIST PHOTO FRIDA TORGEBY

Twenty-five years ago, the forests of Norrland saved Markus Torgeby's life. Since then, it has been his teacher, sanctuary and repose. As a tranquil legacy to his daughters, he has now built a timber cabin in the same forest – carrying every plank and component up the mountain himself. "I don't regret a single time I walked up there. Every trip feels valuable," he says.

THE CABIN ITSELF IS SIMPLE, like a stylish version of a childhood den, but the splendid views from the vertiginous location perched on the mountainside are priceless. The famous silhouette of the mountain Åreskutan dominates in one direction, while the entirety of the vast landscape is covered with forests that shift in colour according to the season.

There are no trails leading up to the cabin except the ones beaten by Markus himself over the years it has taken to build it. He has walked 500 kilometres carrying three tonnes of building materials on his back. He took the opportunity to drag the 87-kilo iron stove up the mountain on a sledge while the snow lay deep in winter.

Many might wonder why. Not least those who followed his progress on the television programme Husdrömmar dokumentär [House Dreams Documentary] on SVT, Sweden's public service broadcasting company. And yet when he tells his story, it becomes easier to understand.

COACHING FOR LIFE, BY THE FOREST

It was to these forests that Markus came as a twenty-year-old, completely exhausted by years spent unremittingly pursuing the dream of becoming an elite athlete, and weighed down by the increasing toll that multiple sclerosis was exacting from his mother. Leaving his home on the small island of Öckerö on the west coast of Sweden, he travelled north to Jämtland looking for what was lacking in him, whatever that might be. Back then, the forest was an unknown quantity and quite frightening in its silence for a boy used to the sea and rocky shoreline of the archipelago, where the crashing waves and cry of the seagulls is ever-present.

"By day, it was wonderful and the forest felt protective, like a poor man's overcoat. But at night, I was so terribly afraid of the dark," says Markus.

Overcoming his fear, he remained there alone for four years in a traditional Sami hut. His mind and body had a peace and quiet in which to heal and he found a new framework for life.

"I was really stressed out when I arrived here, completely directionless, and it was as if I found a door to the kind of rest I honestly think would have been hard to find anywhere else. The forest never speaks but it does show you if you're doing something wrong and that was the coaching I needed then," says Markus.

Later, he met his future wife, Frida, and they built a home and a life together on a farm close to the hut. In hindsight, Markus sees that he clung onto the extreme simplicity of his existence for a little too long, before finally realising that it was to the detriment of a family that now included three daughters. They still live on the same farm, but now with more creature comforts to meet everyone's needs, not just his own. The idea of building the simplest of cabins in the mountains occurred to Markus when he realised he still wanted to give his daughters the same healing experience that he had in the forest as a twenty-year-old.

"I couldn't really let go of the idea that I had failed my family, that I pushed too hard in the beginning when I wanted to show them what I'd experienced. My mistake was to be inconsiderate and disregard the nuances, not to look after their needs. Now I'm older and wiser, I want to give my wife and children the gift of a tranquil place they can visit to gain new perspectives," he says.

"I don't want to live the life of the mind, I want to live it in my body."

BEAUTIFUL SIMPLICITY IN NATURAL MATERIALS

When the landowner offered him the opportunity to build in this spot, he didn't waste any time. The budget was limited and some of the materials were already to hand, as Markus was already a prolific self-builder. However, he did buy one packet of tongue and groove and a packet of joists. And even if the products didn't need to exude luxury, he does have high demands.

"This applies to all of the materials I build with: I should be able to wear them on my body or put them in my mouth."

This explains why the insulation is sheep's wool, so soft and beautiful that Markus would have loved to display it behind glass instead hiding it in the wall. But, apart from its one large window, the 12 m^2 cabin is clad in tongue and groove both inside and out.

"I really like how the tongue and groove turned out. It feels so neat and clean."

Physical work is clearly not something that frightens Markus. He sees it as part of life; the easy part of human existence that people have always done. The sense of wellbeing associated with manual labour is also something he wants to share with his children.

"They can see that I'm happy every time I go away, and that I come home hungry and thirsty, but feeling good. I find it difficult to sit still but when I move through nature I feel intelligent. I want to open up that world to them and I can only hope that they will choose to go in that direction," says Markus.

A PHILOSOPHICAL HANDBOOK FOR THE NOVICE BUILDER

He could have chosen to build a log cabin with timber felled on site, instead of dragging it 500 kilometres. But then, there would have been no book. With his wife Frida, Markus has documented their experience of building the cabin in a philosophical handbook for the novice builder, which contains concrete tips for anyone determined to build, as well as beautiful photographs by Frida.

"I know exactly how it feels to fall short. I've finished far behind the world's best runners on the track. And once I built my first cabin without any idea what I was doing. I've tried to give the reader the shortcuts I wish I had when I set out. If I had timbered, no beginner would have been able to follow," he says.

The title is: A Place on Earth: On Building a Cabin and Creating a Life. For Markus, life is about creating memories and that can happen along the same paths. He describes how the thoughts that

"I'm just an ordinary guy with thoughts and a restlessness in my body. I feel best when I'm physically active," says Markus Torgeby, who carried three tonnes of building materials through the forest and up a mountain to build his dream cabin.

The idea of a cabin in the wilderness came to Markus Torgeby on an ultra-distance run from Kilpisjärvi in Finland to the Sulitjelma Glacier in Norway, when he spent the night in a simple cabin owned by the Norwegian Trekking Association. Now, here it stands in the mountains of Jämtland, as a sanctuary and gift for the whole family.

came to him during all those trips up the mountain are superimposed on the other internal and external experiences he has had in the same forest.

"I recently followed the tracks of an elk up to the cabin on skis, to get some exercise and fresh air. I've done that many times before and each time I feel more, and more deeply. In my opinion, it's very important for everyone to build a relationship with nature. There is all sorts of value in the forest, as anyone who works in it or with it knows," he says.

RAISING VITAL ISSUES

Reactions to the three-part television series following the building of the cabin have been many and positive. Markus and Frida were keen to raise questions about how we actually want to live our lives. And they have succeeded.

"There's nothing new about my ideas and it feels as if I've been going on about the same things for the last 25 years. But I guess the time is right. I believe in building memories and the larger the memory bank, the richer life is. So, peel away the layers! Then you will get to the real kernel of life, what you really want to get at. But as humans we are often drive ourselves so intensely that we forget that," says Markus.

The documentary series also offers real-life drama. One day, while walking up the mountain with another heavy load, Markus found that the only bridge over the river had been dismantled. All the remained was the three round logs spanning the banks and a few cross-planks in the middle. There was no mystery about whose handiwork it was. A disgruntled neighbour concerned that visitors would be attracted to the area had made sure to make the path more difficult. As the neighbour was the only person Markus had ever encountered during 25 years of daily walks in the woods, he did not give up. Indeed, he could understand the concern that a safe place might be changed, but only someone who knew where the cabin was would ever be able to find it. So, Markus continued to make trips in all weathers, despite the fact that the bare logs became very slippery in the rain.

"When I carried planks across, I felt that the load was a help. As long as it was correctly positioned my balance was actually better than without the planks," he says.

When the cabin was finally completed, the family painted the exterior with iron vitriol to give it a grey patina, as if it had been in the forest for many years. When asked how it feels now the building is finished, Markus does not hesitate for a second.

"Wonderful! It's exactly as I imagined and now there it is, not demanding anything. It can remain unheated without any damage, it costs nothing and the door is always open to anyone I can put a face to."

Most or least protected forest?

EU REPORTING MAKES A DIFFERENCE

TEXT KERSTIN OLOFSSON PHOTO BJÖRN LEIJON

EU Member States report on measures to protect forests and nature in various ways. Sweden stands out with its very strict view of what constitutes protection. "As a result of this, Sweden appears to be the worst in Europe; however, were we to report in the same way as many other countries, we would be viewed as a pioneer. The same problem applies to how we report the status of different habitats, something that can have major consequences for how we can cultivate Swedish forests in future," says Linda Eriksson, Forest Director at the Swedish Forest Industries Federation.

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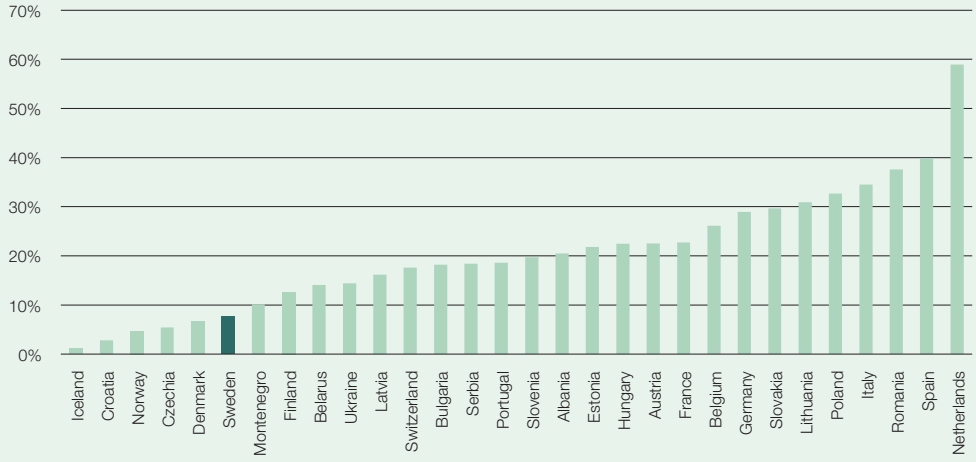
"The fact that Swedish reporting deviates gives a false picture of Swedish forestry. It can also have major consequences for how we can cultivate our forests," says Linda Eriksson of the Swedish Forest Industries Federation.

PERCENTAGE OF PROTECTED FOREST AREA ACCORDING TO FRA2020 (FAO) AND FOREST EUROPE



Sweden is ranked bottom in the EU on protecting forests, but this is due to the fact that we report protected areas in a completely different way to other Member States.

THE TONE of debate on forestry has become harsher over recent years. One much-discussed issue is how much forest Sweden actually protects compared to other countries. There have been comments such as that Sweden is "among the dregs" and that we "have a long way to go" before we can even begin to measure ourselves against the top-ranked countries.

"That's correct. If one chooses to compare reported figures, Sweden is a long way down the rankings. However, if one takes into account that our Swedish agencies report on protected nature in a different, stricter way than the rest of Europe, the situation is quite different," notes Linda Eriksson, Swedish Forest Industries Federation.

SO, WHAT ARE THE DIFFERENCES WHEN IT COMES TO REPORTING ON PROTECTED FORESTS?

"Sweden only reports formal protection within a nature reserve, national park, Natura 2000 area or biotope protection area. Combined, these constitute just over 14 per cent of Sweden's area. However, we do not report on the large area of forest voluntary set aside, non-productive land, protected shoreline and other areas that are protected in various ways.

Most EU Member States state that they protect at least 20 per cent and several report that one third of their land area is protected. But their requirements for designating an area as protected are nowhere near as strict as Sweden's. Much of the area they count is covered by forms of protection that actually allow agriculture and forestry. It's really like comparing apples and oranges.

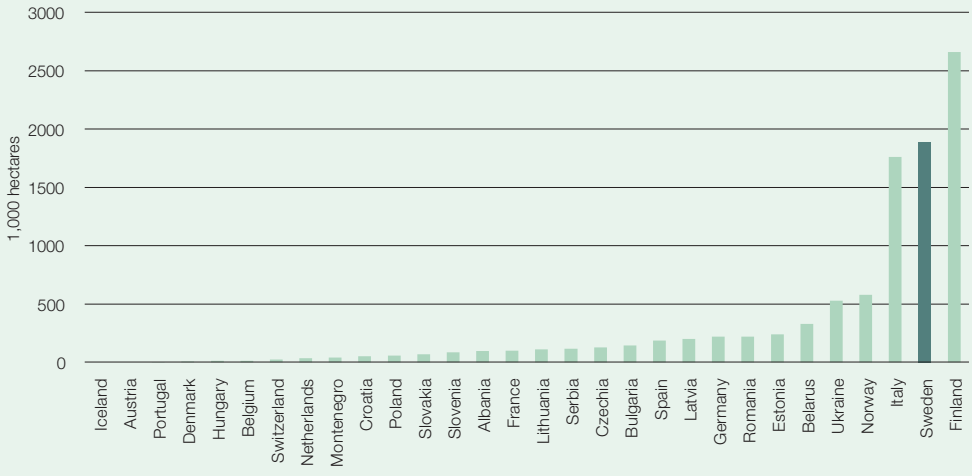
You would get a completely different result if the comparison were based on the same strict definition of protection that Sweden uses in its reporting, in which case Sweden and Finland would be the top-ranked countries in Europe."

HOW DOES REPORTING WORK WHEN IT COMES TO THE STATUS OF DIFFERENT HABITATS?

"Here, the crucial thing is which reference year and reference area one uses for different types of habitat. Here too Sweden has chosen to deviate, with stricter reporting criteria. In Sweden, the present situation is compared with assumed pre-industrial conditions, i.e., the mid-nineteenth century. Many other countries compare the current prevalence of habitat types with the year they joined the EU, so over 100 years after Sweden's chosen reference year. This provides completely different conditions, as reflected in the figures reported.

In relation to other countries, Sweden reports a very low percentage of land with protected status, but this too is like comparing apples and oranges. We consider Sweden's methodology to be unreasonable. Were we to report in the same way as other countries, here too we would be at the top of the rankings."

AREA OF PROTECTED FOREST IN CLASSES 1.1 AND 1.2 ACCORDING TO FOREST EUROPE (THOUSAND HECTARES)



If one looks at the area of strictly protected forest, Sweden is actually in second place.
Source: Hannerz & Simonsson 2023 based on data from Forest Resources Assessment (FAO).

HOW HAS IT COME ABOUT THAT COUNTRIES REPORT DATA TO THE EU IN DIFFERENT WAYS?

"The reporting regulations are not specific enough, something that is now proving to be very unfortunate. Countries have different traditions and different tools for protecting nature and, when it comes to reporting to the EU, they do so in the same way they have always done at national level.

The regulatory framework is interpreted in different ways; even the term forest may be defined differently."

WHAT CONSEQUENCES DOES THIS HAVE?

"Reported figures have been widely disseminated in the forest policy debate and it's clearly a problem when Swedish forestry is presented in a bad light. But future reporting may have enormous consequences on a purely practical level. When the EU enacts new legislation, it can have an impact on how we are permitted to manage our forests. For example, the proposed nature restoration law may force us to restore large areas of forest that we will then not be permitted to cultivate. How we report on the status of habitats will have a major impact on what size of area this applies to.

Then there is the Convention on Biological Diversity, which states that 30 per cent of the Earth's surface should be protected at a global level, of which 10 per cent must be under strict protection. So, of course, it is important how one defines and measures what is protected."

WHAT CHANGES WOULD THE SWEDISH FOREST INDUSTRIES FEDERATION LIKE TO SEE?

"While we are in favour of international targets for biodiversity and protected nature, if these requirements become legally binding we need regulation to ensure that all countries' reporting is as comparable as possible. Sweden must continue to have high ambitions for biodiversity but we need the retain our mandate to decide what we want to protect and how to do it. Under the present system, we leave many of these decisions to the EU.

The Swedish Forest Industries Federation believes that Sweden should change how it reports. We are working to inform politicians about the situation as things stand and what the consequences will be, as awareness of these issues is fairly low. Politicians need to understand the big picture and guide government agencies on how Sweden should be reporting."

ARE THERE ANY CHANGES UNDERWAY?

"Some processes are ongoing, so there is some hope. For example, the Government has tasked the Swedish Environmental Protection Agency with investigating which reference areas we should use when reporting on habitats, while the All-Party Committee on Environmental Objectives is to propose an overall strategy for meeting Sweden's international commitments in a cost-effective manner."

Architecture

AT THE CROSSROADS

TEXT JENNIE ZETTERQVIST PHOTO JOHANNES BERNER

After 10-year-old Joakim Kaminsky sent 10 Swedish kronor to Greenpeace, his letter was used as a motif on a postcard for the organisation's fund-raising campaigns. Pride deepened young Joakim's interest in environmental issues and planted the seeds of a future career based on sustainability – combined with artistic expression. Kaminsky Arkitektur is now a prize-winning architectural practice at the forefront of circular construction. "As an architect, I have the opportunity to make a real difference," says Kaminsky.

GOTHENBURG'S broad main avenue Kungsportsavenyn reaches its highest point at the statue of the Greek god Poseidon, from where winding roads continue up into the exclusive residential area of Lorensberg. Dominated by brick villas with a strong British influence, the neighbourhood of some seven or eight blocks grew up during the 1910s and 1920s as the city's wealthy shipowners and merchants built homes in this unique location.

Villa Solbu was commissioned by the successful Norwegian merchant Adolph J Solbu. An extension containing a function room was added to the villa in the 1950s and for the last decade this has served as the office of Kaminsky Arkitektur.

AN OFFICE THAT REFLECTS THE PRACTICE'S PROFILE

It is of course fitting that a pioneer in the design of sustainable housing and reusing materials should be based in a building of such cultural-historical value that demands careful handling. Here, old meets new with a personal stamp. Original details such as the beautiful wood panelling that adorns the walls play a starring role in the interior of the office, while functional additions add a modern touch. In the large function room, its tall windows overlooking the garden, a plywood box serves as a room divider and meeting place between two conference rooms. A wooden seating gallery used for staff meetings also serves as a library.

The architects have sourced much of the furniture in the meeting rooms and kitchen on the second-hand market. This ability to save resources by reusing materials without compromising aesthetically is one reason why Kaminsky Arkitektur is an acknowledged leader in the field of sustainable architecture.

The business was founded in 2007 when Kaminsky and his then partner Fredrik Kjellgren submitted the winning design for a restaurant project in Falsterbo on the southernmost tip of Sweden.

"While that didn't have any particular sustainability profile, as soon as we were up and running we started looking for projects that did. We continued our training in the field, learned more and gradually built a reputation," says Kaminsky, whose own career path began with a Master of Science in Engineering specialising in construction. After a couple of years, however, he began to feel that all was not quite right. It was time to get off of the beaten track and find his own way. Within him, he had both an artistic streak and a deep-seated commitment to environmental issues that had developed from his childhood donation to Greenpeace into an understanding of and sense of responsibility for climate change.

"The Master of Science in Engineering programme was a little theoretical for my tastes and I was looking for a specialisation in which I could have greater influence. While the path to becoming an architect was winding, over time it became apparent that this was a career choice that would allow me to combine the artistic aspect with achieving something substantial in real projects," explains Kaminsky.

A pioneer of sustainable construction and an active voice in the debate, Joakim Kaminsky founded Kaminsky Arkitektur 2007 with the intention of making a real difference in the building industry.

Joakim Kaminsky has encountered many of tomorrow's architects while teaching at Chalmers University of Technology and visiting schools of architecture in Stockholm, Lund, Århus and Trondheim: "Students these days are generally far more interested in sustainability and many are keen to work with both timber buildings and reuse. Sustainability has become a hygiene factor on a much broader front".

BUILDING A BETTER WORLD

At Kaminsky Arkitektur, they see architecture as "a powerful tool that can improve our world". This is not a matter of superficial ornamentation, but a fundamental conviction. One great role model is that master builder the ant, which uses only renewable resources and produces only waste that promotes biodiversity; the more anthills that are constructed, the better it is for nature. The practice was in the vanguard on an issue that has gradually become a matter of urgency to most people.

"Of course, people were interested in sustainability before we came along but there has been significant development towards a more holistic view that covers so many more aspects, not least building in timber," notes Kaminsky.

The early years of the twenty-first century saw growing interest in energy efficiency and passive houses became a speciality of Kaminsky.

"At first, our customers were generally small, often with links to the green transition movement and on the fringes of the building industry. That said, there were also municipally-owned housing companies that were early adopters of sustainable thinking at the forefront of development," says Kaminsky.

A lot of water has flowed under the bridge since then. The level of knowledge in the industry has increased and certification systems have helped propel development towards reduced climate impact. Climate calculations also make it possible to evaluate building materials and place a specific value on environmental benefits.

"This has undoubtedly had an impact! These days, most people in the industry are involved with sustainability issues and more and more of them are realising how complex it actually is, and they are working on the issues extremely seriously," says Kaminsky.

There is no single right way to go about sustainable building. The best course of action is generally to avoid demolition and new builds and to renovate instead. The next best policy is to reuse existing materials and components in new buildings. When virgin materials are unavoidable, renewable materials that bind carbon, such as wood, should be the first choice.

"The key to reducing carbon dioxide emissions is to design buildings as carbon sinks. Reuse is crucial if we are going to achieve this, because in certain cases it is difficult to find alternatives for some materials, such as sheet metal," explains Kaminsky.

A BREAKTHROUGH IN REUSE

Kaminsky Arkitektur made a breakthrough in upcycling when renovating the head office of the Swedish Society for Nature Conservation in Stockholm.

"This is Sweden's largest non-governmental organisation working with environmental issues,

KAMINSKY ARKITEKTUR

Profile: An architectural practice that has been awarded international prizes such as the Green Dot Award, MIPIM Awards and World Architecture Festival. Recognised strong position on sustainability issues.

Founder: Joakim Kaminsky.

Number of employees: Approx. 60.

Offices: Gothenburg and Stockholm.

with extensive knowledge of sustainability. So, it was no surprise that they were open to fairly groundbreaking ideas on sustainability when the time came to renovate," says Kaminsky.

The office is located in a building dating from the nineteenth century. During the pandemic, the shabby interior was to be transformed into the workplace of the future, using circular design and innovative methods to minimise the carbon footprint of the building and safeguard the environment. Close to 100 per cent of the furniture, fixtures and fittings consisted of reused materials. Building elements such as wall panels, interior doors, roof tiles and sanitary porcelain from the old offices or other renovation projects were also given a new lease on life.

"We were given the opportunity to implement many solutions that would normally be dismissed out of hand. We also did it at a reasonable cost and, of course, when someone has the courage to lead the way like this, it paves the way for others to follow," says Kaminsky.

Thus far, some 60 companies have visited the offices of the Swedish Society for Nature Conservation in search of knowledge and inspiration for their own sustainable renovations. Given the level of attention the final results have attracted, the project can only be described as a breakthrough for the industry.

REUSE WHILE MAINTAINING AESTHETIC APPEAL

Kaminsky Arkitektur is determined to create buildings and environments that make people happy and to leave a minimal ecological footprint while doing so. For an architect, who naturally wishes to achieve a certain aesthetic, reuse demands unconventional working methods. Second-hand products are also not always available off the shelf and, if they are to be sourced externally, in a construction project spanning many years it is important to be able to adapt to whatever is available when the time comes to undertake a given stage of the project.

"To a great extent, you have to change your mindset when reusing materials, to reverse the process. But it can be quite enjoyable. As an architect, you get back to your roots, needing to be on site more often and more involved in the building process," says Kaminsky.

While more time will be spent searching for used materials, the expense of doing so is usually offset by lower prices compared to new products. Although there is no fully functioning second-hand market in the industry as yet, the Center for Circular Building's website (ccbuild.se) hosts an online circular marketplace with a wide range of reusable building materials, furniture, fixtures and fittings.

Kaminsky Arkitektur engages in the public discourse and, in addition to sustainable building choices, would like to see more discussion about what the world will look like once the 2°C threshold rise in global average temperature is reached. “In the present situation, we can’t simply think ahead; we also need to think about how will cope in a new world with extreme weather,” says Joakim Kaminsky.

“Otherwise, it’s a matter of keeping your ear to the ground. We have to make calls and inquiries and we often come across someone who knows someone with good options. The lack of a functioning market is certainly hampering development. It’s in its infancy and hasn't really found its shape yet, which presents a problem when you want to reuse materials on a large scale. Still, in 10 years time I’m sure things will look very different,” says Kaminsky.

ACCELERATED DEVELOPMENT NEEDED

And according to Kaminsky, if there is one profession capable of working artistically and creatively within limitations, it is architects.

“For good or ill, we are already accustomed to working within the confines of multiple frameworks. That said, for the sake of the climate it would be desirable to further accelerate development. The building industry accounts for approximately 20 per cent of Sweden’s greenhouse gas emissions. Given the major advancements in both the energy efficiency of buildings and sustainable energy supply, it is high time we took advantage of the potential impact of circular building processes that extend the working life of existing materials.”

For example, Kaminsky believes that the statutory requirement for climate declarations for new buildings that entered into force in 2022 could be linked to strict limit values, which is not the case today.

“There would then be real and significant financial incentives to reuse products. It would quite simply be compulsory to meet the requirements. We are on the way there; for example, municipalities have already started to impose strict environmental requirements on developers building on municipal land.”

A glance into the future reveals that the predicted climate change that prompted Joakim Kaminsky’s career choice will become a reality, creating new conditions for the building industry. This demands both continued, long-term sustainability efforts and resilience to extreme weather.

Kaminsky believes that a conversation about how we can build to meet the 2°C climate target is long overdue. It is estimated that the average global temperature will reach 1.5°C above the preindustrial level during 2024. While no one knows exactly what the implications are, the signs are overwhelming that increasing the pace of sustainable building is more urgent than ever.

“By the end of my professional life, I believe that not only will net-zero be industry standard, but that it will probably be commonplace for new buildings to be carbon sinks, calculated to bind carbon in materials such as wood, straw, hemp and mud, thus achieving negative emissions.”

JOAKIM KAMINSKY ON BUILDING IN TIMBER

"Our clients' acceptance of timber buildings is increasing all the time and one could easily think that everything is already being built in timber. And yet it still accounts for only 10 per cent of our projects, even though we're an architectural practice that specialises in sustainable construction. Our goal is to build in timber in 25 per cent of projects, so we're continuing to work towards that.

Wood binds carbon and thus plays a vital role in the transition to sustainable construction. In certain areas, wood is the natural replacement for nonorganic materials such as concrete and steel, especially structural timbers. Wood is already the obvious choice for houses, and even for more innovative apartment blocks and office buildings. However, I would say that it is still very uncommon in warehousing and logistics and, depending on the type of project, even in industry. While there's really nothing that can't be built in wood, it is clear that it takes a few years from something being possible in theory to it being widely applied. It always takes a few brave souls to lead the way. After all, the building industry has an inbuilt inertia, as a project can take many years to complete. So, it takes time from someone having the courage to be a pioneer until we're looking at large-scale adoption.

Still, with time I think that wood will become a really exclusive, sought-after product. Then it will be really important to use wood in the right places. In houses, its best use is in structural timbers, while for insulation one can choose materials such as straw or hemp, annual crops that grow quickly but also bind carbon."

EXAMPLES OF TIMBER CONSTRUCTION PROJECTS >

PHOTO JAN TÖVE

KRISTALLEN, ALINGSÅS

"Kristallen is a splendid project to build small timber houses, that we worked on back in 2016. They are passive houses with very low energy consumption and integrated photovoltaic cells on the roof. The structure is timber with heat-treated timber cladding – and it's very beautiful."

PHOTO KAMINSKY ARKITEKTUR

ETC APARTMENT BUILDINGS, VÄSTERÅS

"Here, we have an example of apartment buildings with timber frames and photovoltaic cells, built to passive house standards. The objective was to create a climate-positive building, as far as possible using wood and recyclable materials. It also turned out to be very lovely, with wood interiors that give a soft, human touch."

EXAMPLES OF REUSE PROJECTS >

HEAD OFFICE OF THE SWEDISH SOCIETY FOR NATURE CONSERVATION, STOCKHOLM

"This project was a breakthrough project for us and the industry as a whole in terms of reuse. Interestingly, the most difficult thing to find was reusable textiles. So, in the meeting room we started from the fabric and adapted everything else accordingly. This is an example of how reuse demands a different way of working, where one might otherwise begin at a computer screen, creating a mood board and then ordering suitable products. But it's enjoyable! Reuse often brings you back to your roots as an architect."

Examples of reuse in renovations:

> Wall elements, interior doors, roof tiles and sanitary porcelain have been reused.
> Almost 100 per cent of furniture, fixtures and fittings made of recycled materials.
> Bathrooms are clad in Fibo wall panels, a watertight product made of layered plywood.
> New mats are woven from yarn based on recycled fishing nets and other waste materials.
> In the limited number of new purchases, wood was prioritised over plastic and metal for furniture such as built-in sofas, benches and bookshelves.

PHOTO EMIL FAGANDER

A SUSTAINABLE AND RESILIENT HQ

WHEN ARCHITECTURAL PRACTICE De Zwarte Hond was commissioned to create the new Amsterdam headquarters of the Alliander Group, the result was a compact structure of glued laminated timber and beams that binds 560 tonnes of carbon dioxide. Each choice of material and energy source was governed by sustainability and the pursuit of a long working life. Solar panels and thermal energy storage make for an energy-neutral building, while generous planting around and on the buildings will cover 30 per cent of the facade with vegetation, providing a habitat for insects and birds and stimulating biodiversity. Rainwater is stored locally on-site and used for watering plants on the property.

While the building is designed to offer a pleasant, open-plan workplace today, it also looks to the future with flexibility, scalability and modularity that will make it easier to convert to new functions.

PHOTO SCAGLIOLA BRAKKE

PHOTO JOAKIM ZÜGER

Imaginative yet functional design

UNG SVENSK FORM [Young Swedish Design] is an arena for young design that has been running for over 25 years, providing an important forum for designers at the start of their careers. For this year's exhibition, the jury selected 24 winning entries to be exhibited for the first time at February's Stockholm Furniture Fair.
The exhibition will tour Sweden over the coming year.

Among those awarded a scholarship are several designers who have chosen to work in wood. Hanna Johansson's design, *Petal*, is a playful pavilion made of wooden deck chairs. During the day, the pavilion is in full bloom and houses a 360° bar. At night, the petals close, forming a screen for light projection. When desired, the deck chairs can be dismantled and returned to their original purpose. Learn more at ungsvenskform.se.

Nature moves in to timber office building

SWEDEN'S FIRST certified sustainable district is taking shape in Gothenburg. Originally built in the early 1900s as a state-of-the-art port for oceangoing vessels, Masthuggskajen is now being transformed to meet future needs. The nine-storey office building Habitat 7 will be constructed entirely in wood.

The building is being constructed using solid wood technology with a hybrid frame of climate-smart concrete and wood. The facade will be clad in rustic timber panels, while interior wooden surfaces will help to create a restful work environment. Nature is a source of inspiration throughout the building. Lush vegetation with trees and a green wall will welcome workers and visitors to the 14-metre-high entrance hall, while two roof terraces will be an oasis amid the district's roofscape.

The building's design is inspired by old port warehouses and the reinterpretation includes glazed gables that admit maximum natural light. Architects Krook & Tjäder were commissioned to design the building by developer NCC. Ambitious sustainability goals have been set for the building, which will be ready for occupancy in early 2025.

BILD KROOK & TJÄDER

IMPREGNATED

BY NATURE ITSELF

TEXT HÅKAN NORBERG PHOTO ADOBE STOCK

The water-repellent, rot-resistant properties of heartwood make it ideal for manufacturing wood products for outdoor use. But what is heartwood and how is it formed?

THE TRUNK OF MOST TREE SPECIES consists of two types of wood: heartwood and sapwood. The outermost part of the trunk consists of sapwood. Its fibres transport water from the roots to the crown of the tree. While the tree is young, the entire trunk is sapwood but, as the tree ages, the inner part of the trunk becomes heartwood. This inhibits the ability of cells to transport water and substances that protect the wood, such as resins and fats, are stored in the fibres. It is this natural impregnation of so-called extractives that makes heartwood more water-repellent and resistant to damp and rot, valuable attributes for wood products that are exposed to the weather.

"This is why heartwood has traditionally been used for windows, cladding and even entire timber buildings, before wood treatments such as pressure impregnation were invented," says Karin Sandberg, senior researcher at Rise Research Institutes of Sweden.

Sandberg has long experience of studying timber construction technology and the development of wooden structures, especially exterior wood exposed to the elements, such as cladding and facade systems. She managed the project *Facade of the City, Swift, Stylish, Smart*, which culminated in a facade system in heartwood pine.

As well as being resistant to damp and rot, products manufactured in heartwood are also more dimensionally stable, as they do not swell and contract as much, even when the humidity changes around them. The amount of extractives does however vary significantly between different species of tree. For example, oak, pine and larch heartwood are more resistant to rot than other native Swedish tree species.

"That's true. And larch and pine have roughly the same durability, while spruce is somewhat less durable than pine," says Sandberg, who explains that heartwood has the same uses today as in the past: outdoor wood products. "But heartwood is not used as often for facades as it once was, which I suspect is a cost issue. In Sweden, cladding is more commonly made of spruce, which is cheaper than pine," says Sandberg.

In spruce, it is difficult to distinguish heartwood from sapwood when dry, and the sapwood absorbs moisture more slowly than pine sapwood, making it suitable for exterior cladding.

"However, in the vast majority of cases, heartwood is preferable when wood will be exposed to the elements," explains Sandberg.

HOW PINE HEARTWOOD IS FORMED

In pines, heartwood begins to form when the tree is 15 to 20 years old, beginning in the centre at the bottom of the trunk then tapering upwards. The older the tree, the greater the percentage of heartwood.

X-RAYS ENHANCE QUALITY

To manufacture products with a high percentage of heartwood, one needs to know exactly which logs to select and how to saw them. By X-raying logs, the sawmill can turn out products with the exact percentage of heartwood ordered by customers.

Derome is laying the foundations of the future

TEXT JENNIE ZETTERQVIST PHOTO DEROME

Derome literally gets to the bottom of sustainable building. The company is now rethinking the part of the construction process that usually has the greatest climate impact by testing a wooden foundation system in place of a concrete slab.

"Our trials look very promising," says Anders Carlsson, head of sustainability at Derome.

THE OWNERS OF DEROME, the largest family business in the Swedish forest and wood industry, are determined to develop constantly. Reducing the company's climate impact is one main objective and continuous climate calculations help to identify which building elements cause the most emissions. Initiatives that can potentially make the greatest difference are prioritised and conventional foundations of reinforced concrete with polyurethane foam insulation are well-known culprits. When Klara Byggsystem launched the Klaragrunden foundation system, which utilises cross-laminated timber (CLT) as a structural element, Derome decided to test it.

"We have already conducted projects to reduce the amount of concrete in foundations and we have been careful to use the right kind of concrete, but this still left a large carbon footprint and about three years ago we began to collaborate with Klara, the manufacturer of the wooden foundation," says Carlsson.

A WOODEN FOUNDATION SYSTEM WITH TRIPLE BENEFITS

Derome set about building a house with the prefabricated foundation in which the concrete slab is replaced by cross-laminated timber, although the traditional polyurethane foam insulation remains. In addition to the significant reduction in climate impact due to the choice of materials, there were other benefits in that the system could be installed in half a day and there was no need to wait for the slab to dry.

"It was like a Kinder Egg, with three surprises in one: a reduced carbon footprint; carbon bound in the wood; and no drying time halting work, or requiring additional thermal energy [to cure the slab]. If we install the foundation on one day, we can begin building walls on the following day," says Carlsson.

The foundation can also be disassembled and reused when the time comes. The trial foundation has now been in place for 18 months as part of the

THIS IS HOW THE WOODEN FOUNDATION SYSTEM WORKS

The Klaragrunden foundation system works on the same principle as other insulated slabs. The temperature difference between the top of the slab and the colder soil causes moisture to be transported downwards rather than up, in the same way as the capillary absorption of concrete. All of the timber in the slab is covered with a membrane that is sealed on the outside and diffusion-open on the inside. An upper membrane is then installed that is completely sealed against radon and all types of ground emissions.

Learn more about the technology at klarabyggsystem.se.

R&D project Klivet, a timber house on the outskirts of Gothenburg. Regular measurements are taken in collaboration with RISE Research Institutes of Sweden and, thus far, the results are very promising.

"Some censors were exposed to damp from the beginning and it turned out that the protective foil was punctured, letting in moisture when we had heavy rainfall. In hindsight, it's a good thing that we had so much rain so that we discovered this and could monitor how the timber handled the damp and whether it dried out well – which it did," explains Carlsson.

STABILE RESULTS LAY THE GROUNDWORK FOR THE NEXT STAGE

RISE and Derome are continuing to monitor the project and at present no concerns have been raised. The next stage is to build a further five houses with the timber foundation system. Clients who have chosen Derome building systems for their new builds have been invited to apply to take part in the project, thus making their homes more climate friendly. At the time of writing, applications are being processed and the aim is to deliver the foundation systems during the second half of 2024.

"We've been using concrete foundations for so long that we and the rest of the industry feel a sense of security and familiarity with it. This is something new but, given the results we've seen, we feel very secure in continuing," says Carlsson.

Derome is also testing many other innovative solutions to reduce climate impact as part of the Klivet project. Instead of plasterboard, they have opted to use boards made from recycled milk and juice cartons. These are manufactured by Recoma, by pressing shredded cartons under high pressure and temperature. The thin plastic layer in a Tetra Pak acts as a binding agent in the new product, making the material as strong as wood. Other types of wood-based boards are also being

As part of the Klivet R&D project just outside Gothenburg, Derome is testing a wooden foundation system in place of a conventional concrete slab. “In terms of houses, we have chosen to position ourselves at the cutting edge with a number of flagship projects that challenge both us and the industry. In Klivet, we are really making the most of innovative solutions,” says Anders Carlsson, head of sustainability at Derome.

trialled in Klivet in place of plasterboard. In another development project, Derome is testing new roof solutions using wooden panels as a surface layer instead of sheet metal or tiles.

“It’s a matter of replacing materials with a large climate impact with organic materials with a low carbon footprint. We need to make every effort to achieve circular flows. Demand for this will only continue to grow, regardless of the industry,” says Carlsson.

THE PUBLIC GOOD COMES FIRST

The Hoppet preschool in Gothenburg is part of another project using innovative fossil-free building materials. In the second stage of the project, which is a collaboration with the City of Gothenburg, Derome will be building a new school on Friedländers gata with reuse as the point of departure. The new school will be built on the site of an earlier school and will use the existing foundations.

“We will be reusing things such as windows and roofing sheets. Reuse is very attractive environmentally, even more so than recycling in the form of grinding down and reforming. That said, it can be a fairly complex process, but we have to begin somewhere,” says Carlsson.

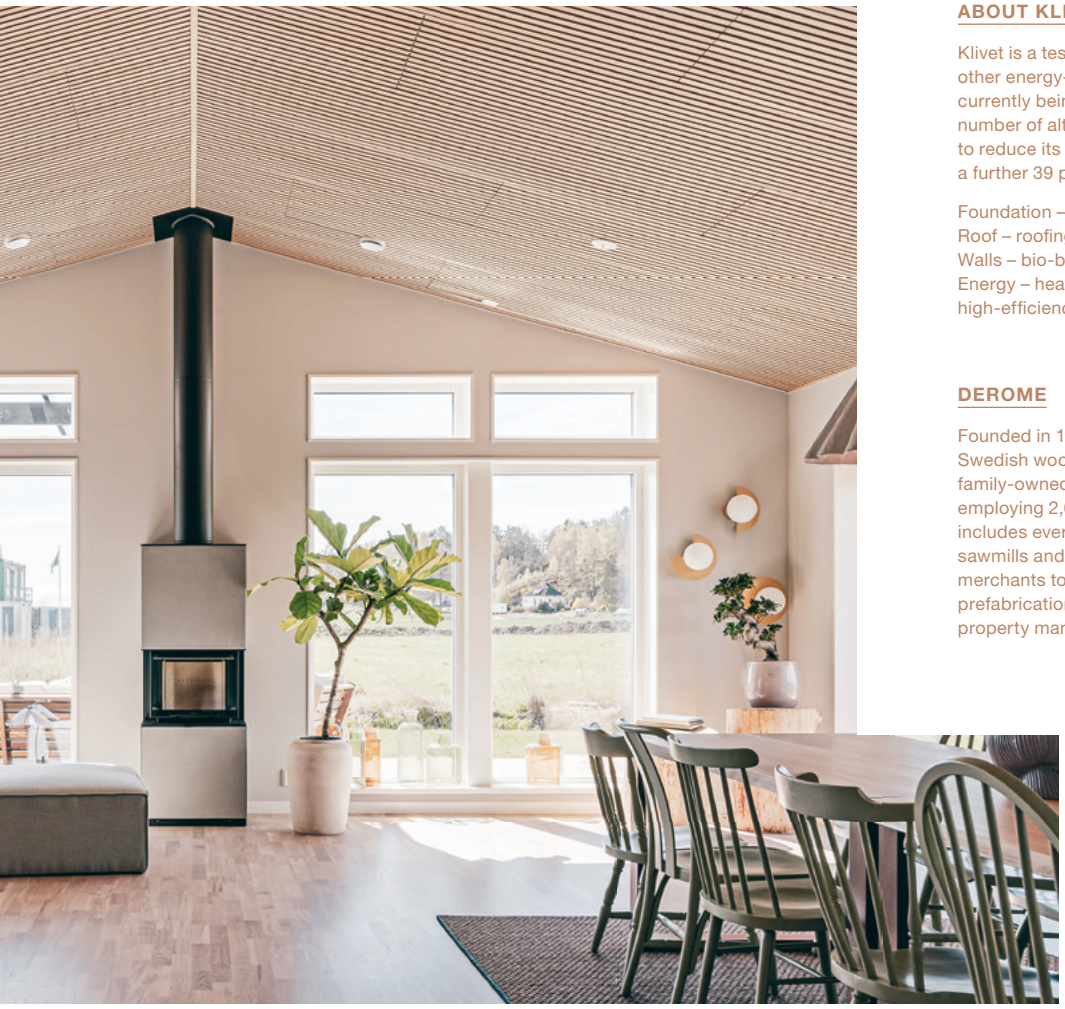
Having won a competition announced by the City of Gothenburg, Derome is also building a five-story timber apartment building, Omställningen, on Hisingen, Gothenburg. To qualify for the competition, proposals were required to come in under 200 kg CO_2e per square metre of gross floor area (GFA).

“Our timber construction system came in well under that figure and it’s gratifying that the public good is really being prioritised with climate-smart building. What they [the City of Gothenburg] are doing will have a major impact and, just like us, they have a great responsibility to reduce the climate impact of the sector,” says Carlsson.

GENEROUS COOPERATION IS VITAL

According to Derome, cooperation and sharing knowledge are also important to increasing the positive effects.

“A building consists of so many elements and there is no chance we could solve everything ourselves. Our projects have a wonderful cocktail of stakeholders. But if one wants to collaborate,



ABOUT KLIVET

Klivet is a test bed largely similar to other energy-efficient timber houses currently being built, but with a number of alterations calculated to reduce its climate impact by a further 39 per cent.

Foundation – wood instead of concrete.
Roof – roofing felt instead of concrete tiles.
Walls – bio-based insulation.
Energy – heat recovery ventilation and high-efficiency heat pump.

DEROME

Founded in 1946, Derome is the Swedish wood industry's largest family-owned business, currently employing 2,600 people. The group includes everything from four sawmills and some 50 builders' merchants to timber engineering, prefabrication, housebuilding and property management.

you also need to be generous with your knowledge, and if you are, you'll get so much back in return," says Carlsson, who has noticed that interest in climate-smart building, especially in timber, is increasing on a broad front.

"We are witnessing a significant trend within the industry; interest in building in wood has risen sharply. Some large national construction companies that were previously unwilling to collaborate with us are now keen to do so. Where we were once pursuing them, they are now pursuing us!"

One partner that has been with Derome for some time now is SCA. As a specialist producer of load-bearing structural timbers, Derome uses wood from the forests of southern Sweden. For exterior cladding, however, they prefer trees grown in more northerly forests and much of the timber used for this purpose is purchased from SCA.

"SCA is a robust company that shoulders great social responsibility. They are at the forefront of sustainability and on some fronts we are looking to them in this regard. We have a good relationship and it is easy for us to reach out to bounce ideas off of one another," says Carlsson.

Anders Carlsson, head of sustainability at Derome.

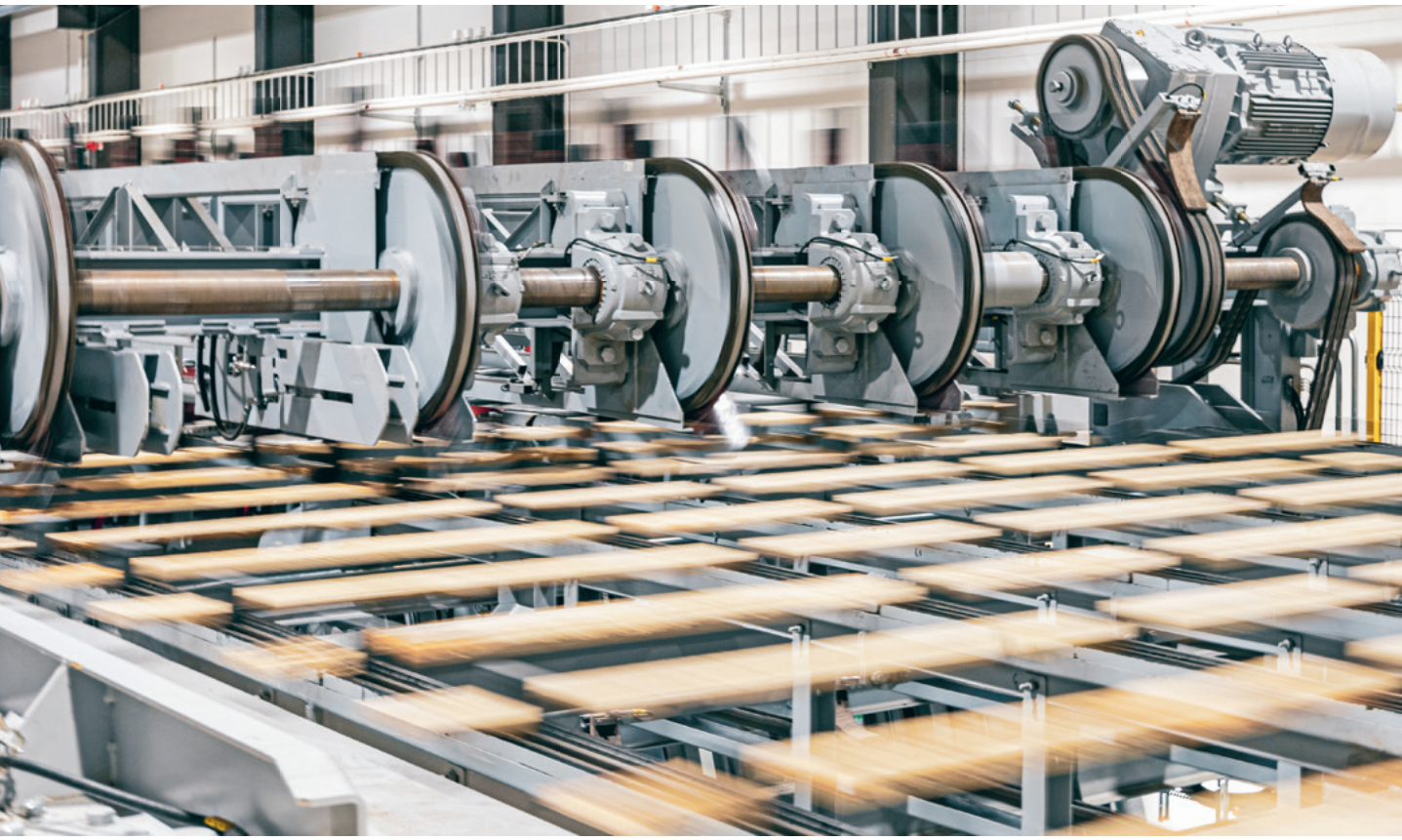
STANDARD

REPORT FULL ENVIRONMENTAL IMPACT

TEXT KERSTIN OLOFSSON PHOTO ADOBE STOCK

It is becoming increasing important to understand the environmental impact of a given building material over its lifecycle, hence the demand for Environmental Product Declarations (EPDs).

“EPDs present a fantastic opportunity for the timber products industry. We can now demonstrate in black and white just how important it is to choose wood as a building material,” says Lars Thorlund, partner in Thorlund Skou A/S, a leading Danish distributor of timber products.



AN EPD QUANTIFIES environmental information on the life cycle of a product. The results are independently verified and reported in a standardised manner to enable objective comparisons between products and materials fulfilling the same function.

Markus Henningsson, Vice President Marketing & Sales at SCA Wood, concurs with Thorlund about the opportunities presented by EPDs.

"They make it easy to compare wood with, for example, steel or concrete and, in many cases, wood has only a tenth of the environmental impact of other materials," he notes.

Henningsson considers sustainability to be fairly vague term. It can be applied in many different ways and at times it can be ambiguous.

"But EPDs make sustainability very tangible. The full environmental impact of manufacturing a product is investigated and measured in a hyper-transparent way. You can't get away with sweeping anything under the carpet."

EVERYTHING IS COUNTED

An EPD quantifies the full environmental impact along the entire value chain, from extracting the raw material, through transport, production, demolition and recycling the material. For example, an EPD for a timber product will calculate how much hydraulic fluid is used when sawing the tree and the electricity used for processes such as planing.

The amount of work involved in obtaining all of the necessary figures was made clear to both SCA Wood and Thorlund Skou A/S when preparing their lifecycle analyses. Thorlund Skou A/S began the task just over 12 months ago, engaging the services of a consultant for part of the job.

"We import timber products from over 150 sawmills and offer a full range for the B2B market, so that's a lot of EPDs and a great many values to calculate. We also plane and paint certain products inhouse, so there's that as well. Still, even if it takes a lot of work to prepare all of the figures, it's worth it. And it will soon be essential to have EPDs for all products," says Thorlund.

This is because the EU is tightening reporting requirements on the climate impact of new builds and imposing a carbon footprint cap.

"The building industry currently accounts for approximately 40 per cent of global greenhouse gas emissions, so a rapid transformation is required. Politicians have realised that EPDs are an effective way of achieving this. When the new regulations enter into effect, the demand for product-specific data on building materials will gradually increase," says Henningsson.

PHOTO FREDRIK MODIN

PHOTO KRISTOFER LÖNNÅ

Markus Henningsson, Vice President Marketing & Sales at SCA Wood.

PHOTO THORLUND SKOU A/S

Lars Thorlund, partner in Thorlund Skou A/S, a leading Danish distributor of timber products.

THE RIGHT MATERIALS IN THE RIGHT PLACE

As Thorlund notes, EPDs are an opportunity to demonstrate the advantages of wood, but they also make it easier for developers to use the right materials in the right place.

"While building materials such as steel and concrete will also be needed, it is important that each material is used where it has most benefit. When they have the facts, it will be easier for developers to prioritise and make better decisions when choosing materials," he says.

Another significant advantage of exhaustive lifecycle analyses is that they provide a good point of departure for producers to reduce their own environmental impact.

"You can see clearly what you need to work on. For us, it was obvious that the main issues were energy consumption per cubic metre of finished goods, and painting products. We suspected that this was the case but now we are certain about where we need to invest most to minimise our climate footprint."

CALCULATIONS PAY OFF

As an alternative to calculating exact figures for every product when preparing an EPD, generic data is available for each material.

"In that case, you can retrieve general values from a table; however, these values are higher than our actual values. If you do use generic data, you also need to add 25 per cent to the figures. This is a deliberate strategy on the part of politicians to encourage more companies to use actual values for their products," explains Henningsson.

BEST FIGURES WIN

Thorlund Skou A/S uses actual values in many cases but the company sometimes needs to use generic data for certain products.

"As yet, not all suppliers have prepared EPDs. And when we want to manufacture schallboards, for example, we may source raw materials from multiple suppliers, so then we are forced to use generic values," explains Thorlund.

Still, he is convinced that the use of actual figures will increase within the industry as stricter regulations are introduced on the maximum permitted climate footprint of new builds.

"Eventually, it will be a competitive advantage to have the EPD with the best figures," he says.

IMPROVEMENT DOWN THE GENERATIONS

TEXT KERSTIN OLOFSSON PHOTO MICHAEL ENGMAN

Swedish forests are growing at an astounding rate. For every tree harvested, at least two are planted – and these are super seedlings. After all, they have been bred by crossing the very finest trees going back generations.

"Today's improved plants grow 25 per cent faster than trees in unprocessed forests," says Thomas Vestman, head of SCA's seedling operation NorrPlant.

IT WAS IN THE 1940s that researchers realised that forestry had much to learn from agriculture, where plants had been bred for thousands of years to increase the growth rate and quality of crops such as wheat, barley and corn.

"Forestry researchers then began to breed pine and spruce in the same way. Forestry and agriculture have many similarities but, while farmers sow in the spring and harvest in autumn, foresters must wait for at least 80 years for each harvest. The timescale for tree breeding is therefore completely different," says Vestman.

ONLY THE BEST ARE CHOSEN

Tree breeding continues from one generation to the next in a never-ending cycle. It began with selecting the very finest trees: trees that were large, with straight trunks and thin twigs. Seedlings were then grown from their seeds and planted in experimental forests where their progress was monitored.

"Field trials are absolutely vital as they reveal how well the various offspring grow, what attributes they have and how resistant they are to diseases and pests. Thanks to field trials, we can choose which trees will be the parents of the next generation of forest," explains Vestman.

Field trials take place in several different areas with varying conditions in terms of climate and other factors. Some trees fare better in one environment than another.

"Others seem to grow well anywhere and it is primarily these that are selected as so-called parent trees. These are the most robust trees and thus have the best chance of coping with a changing climate," says Vestman.

THE SAME GRAFTING TECHNIQUE USED FOR APPLE TREES

To obtain as many specimens of the chosen trees as possible, they are grafted onto 'ordinary' seedlings in exactly the same process used for

PHOTO KENT JONSSON

PHOTO SKOGFORSK

Thomas Vestman, head of SCA's seedling operation NorrPlant, and Thomas Kraft, programme manager for tree breeding at the Forestry Research Institute of Sweden (Skogforsk)

apple trees. These are then planted in so-called seed orchards, areas that contain only parent trees. Once the seedlings grow into trees and begin to blossom, they will be naturally cross-pollinated, although some pollen will also blow in from the surrounding forest.

"Once the female flowers have developed into cones, we pick them and remove the seeds. It is these seeds that produce the millions of seedlings in nurseries all over Sweden. The seedlings are then planted outside and become future forests. The breeding cycle then starts again as the very best trees from this generation are selected and crossed with one another," explains Vestman.

ONE GENERATION EVERY 20 YEARS

So, this there is a long process underlying the improved plants. Each cycle from the selection of parent trees until seedlings are ready to be planted takes just over 20 years.

"I am impressed by those who began this work; it must have seemed hopeless at first. But today, 80 years later, we are truly grateful for their efforts. It has provided fantastic results," says Thomas Kraft, programme manager for tree breeding at the Forestry Research Institute of Sweden (Skogforsk).

While Skogforsk has overall responsibility for tree breeding in Sweden, SCA and many other stakeholders contribute to the work and own shares in the seed orchards. Today, we are harvesting seeds from the third cycle of seed orchards and the seedlings we plant today will produce forests that grow 25 per cent faster than unprocessed forests. The improved plants also produce wood of higher quality and are more resistant to diseases and pests.

"They are also better equipped for climate change. The climate is changing so rapidly that trees don't have time to adapt naturally; so, we help them along the way through our selections," says Kraft.

CLIMATE BENEFITS

Thanks to their high growth rate, cultivated trees also help to mitigate the impact of climate change. As trees grow, they bind carbon and when they are harvested they continue to benefit the climate when used as sustainable alternatives to fossil-based materials such as plastics and concrete, allowing us to leave fossil carbon in the ground.

"The higher growth rate means that trees bind more carbon and that we have access to more climate-smart raw materials. So, today's seedlings have dual benefits," says Vestman.

GREAT GENETIC DIVERSITY

Breeding continues relentlessly to produce even better seedlings. As always when breeding and crossbreeding, it is vital to avoid inbreeding.

"However, when it comes to breeding pine and spruce this problem is easy to avoid. Firstly, because these species are incredibly genetically diverse, secondly, because we have a large number of parent trees in each generation, and thirdly, because we have a pedigree chart for each parent tree and check its lineage before choosing which seeds to plant in which seed orchard," says Kraft.

Wayward pollen from the forests surrounding seed orchards also increases genetic diversity.

Improved plants thus make a significant difference to the growth of Sweden's forests; however, good management is also required if the trees are to grow well. The most important thing is to prepare the soil in which the seedlings will be planted, so they have good growing conditions. With time, the forest will also need to be thinned and possibly fertilised.

"Thanks to improved plants and careful management of our forests, Sweden has more and more forest each year. The amount of timber in Swedish forests has doubled over the last century," concludes Vestman.

She studies how the forest can make us feel better

TEXT HÅKAN NORBERG PHOTO HENRIK KARMEHAG

In her interdisciplinary research into forests and health, Ann Dolling has combined her interests in people and their wellbeing and plants and the forest, leading to insights into what we humans actually need.

"The forest and plants help but, above all, we need to relax from time to time for the sake of our wellbeing," she says.

BOTANY IS THE SCIENTIFIC STUDY of plants, their life processes, the interaction between species in nature and their evolutionary origins. It was with botany that Dolling's interest in the forest began.

"It was the plants that interested me. I was allowed to join my parents on walks in the woods instead of attending Sunday school and when Mum didn't know the name of a flower I had found, we looked it up in a book on flora," she explains.

This interest led her to study forestry in Umeå. The programme included a good deal of botany, such as the knowledge needed to differentiate between soil types based on vegetation.

As the programme neared its end, Dolling was offered a doctoral studentship at the Swedish University of Agricultural Sciences (SLU). As her third-cycle subject area, she chose forest vegetation ecology. Her research dealt with how plants defend themselves to survive.

"However, I'm more interested in people than industrial forestry, so after defending my doctoral thesis I looked for a path that might suit me. That's when I became aware of rehabilitation gardens and thought – why not in the forest?"

Rehabilitation gardens emerged as an alternative therapy at a time when diagnoses such as burnout and chronic fatigue syndrome were becoming increasingly common. How could people recover from stress-related conditions and increase their chances of returning to work? Dolling applied for and was awarded a grant to study the possibility of offering equivalent therapy in the forest together with colleagues in the fields of psychology and medicine.

She explains that many people were diagnosed with burnout in the late 1990s but that medication and therapy appeared to be of little help. And the sicker a person became, the greater their need for tranquillity, something that is in plentiful supply in the forest.

"We worked with people who had been very ill for a very long time, and we witnessed them getting better. Not to the extent that they could immediately return to work after spending time in the forest, but they found a sanctuary and, over time, they were able to change their lives and become healthier. They were given space to relax and to realise that it was possible to make different life choices."

PHOTO ADOBE STOCK

Today, Dolling is a part-time researcher at the Department of Forest Ecology and Management at SLU.

"I've tried to retire, but without success. It's a privilege to be able to continue my work alongside so many other people in the autumn of life."

She continues to conduct interdisciplinary research to learn more about how spending time in the forest affects people's health, and how this knowledge can be utilised in businesses specialising in nature and health and for making lifestyle changes and decisions about forest management. And she practices what she preaches.

"I walk in the woods a great deal and I'm quite happy to sit there alone for hours on end. It's so lovely, so calming, and it's something I've being doing since long before I began researching it," says Dolling.

Read Ann Dolling on the value of the "spontaneous attention" the forest elicits from us, in contrast to the energy-sapping "directed attention" of modern day-to-day life.

Rest and a sense of context

IN SUSTAINABLE FORESTRY, we must give due consideration to the social value of the forest. Why? Because the forest is important to our health! Just two hours a week in nature is enough to improve our wellbeing. It is now widely accepted that 'forest bathing' helps people to de-stress.

For a long time now we have relied on medication to treat diseases but, when it comes to recovering from stress-related conditions, traditional medicine has failed. This is where the forest comes in.

So, why is the forest good for us? Well, evolution has adapted us to life in the forest, yet over half of the global population lives in cities. In Sweden, 87 per cent of the population live in densely populated areas. We have lost touch with the forest and our modern day lives demand our 'directed attention'. We constantly allocate our mental resources to making many small decisions, such as when we work at a computer or drive a car. And when we do have time off, we expose ourselves to many stimuli via television and mobile devices. Our brains never get any rest.

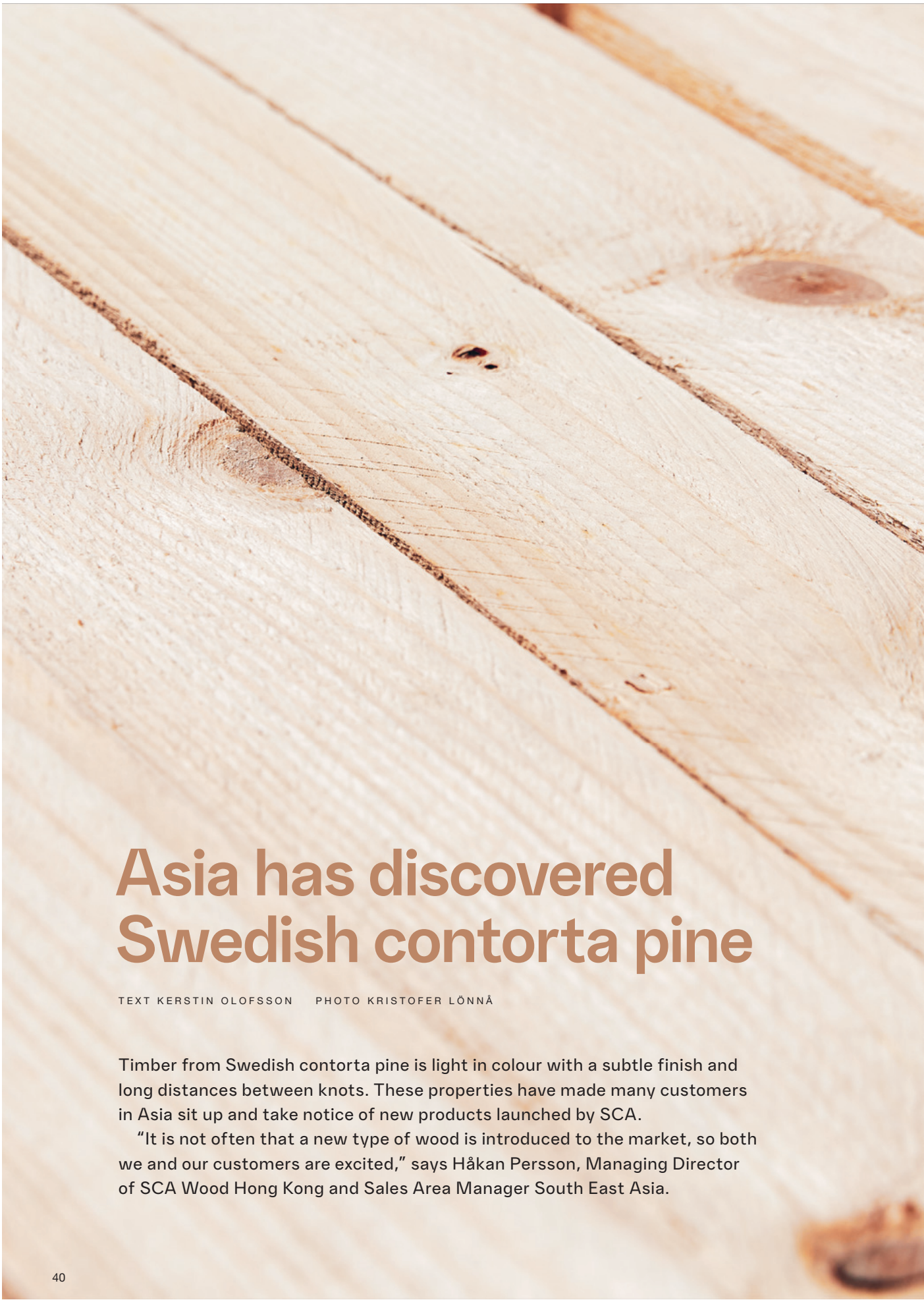
The opposite of this directed attention is the spontaneous attention we experience when we bathe in the forest. This provides us with just the right amount of stimulus, placing few and low demands on our brains. This allows our brain to rest and recover by absorbing natural patterns, colours, scents, sounds, tastes and physical sensations. For our brains, which have not kept pace with technological development, this environment is comprehensible, manageable and meaningful – it provides a sense of context. Our heart rate and blood pressure decrease and our mood improves. We begin to recover.

Our research into the effect of forests on people suffering from burnout demonstrates that 45 minutes in the forest lowers both heart rate and blood pressure. Participants cheer up, calm down, relax and feel more harmonious, alert and clear-headed. Simply being in the forest on a regular basis helps them to get a grip on their lives and begin to plan for a new future.

A good forest for rehabilitation should be bright and open with a sense of space; there should be views and preferably large trees, but at the same time the forest should be sheltering. Lakeside forests were most popular. Sparse pine forest and rocky outcrops were also appreciated. Environments lacking in views and open spaces, such as dense spruce forests and forests with thick undergrowth, were rejected.

Older, managed forests often have the qualities that make a forest suitable for rehabilitation. With the help of forest planning, we can make space for both social and economic value in sustainable forestry.

ANN DOLLING
RESEARCHER AT THE SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES (SLU) IN UMEÅ



Asia has discovered Swedish contorta pine

TEXT KERSTIN OLOFSSON PHOTO KRISTOFER LÖNNÅ

Timber from Swedish contorta pine is light in colour with a subtle finish and long distances between knots. These properties have made many customers in Asia sit up and take notice of new products launched by SCA.

"It is not often that a new type of wood is introduced to the market, so both we and our customers are excited," says Håkan Persson, Managing Director of SCA Wood Hong Kong and Sales Area Manager South East Asia.

SCA HAS BEEN OFFERING products manufactured in contorta pine on some markets for a few years now. While thus far most of these products have been sold in the Baltic States, customers in Asia are also starting to test this new type of wood.

"In Asia, they're used to using many different species of tree, so their open to trying new things." says Persson.

Contorta pine is admittedly not new in itself and many customers in Asia are familiar with contorta pine from North America.

"But there are significant differences between the properties of North American and Swedish contorta pine. so it's actually like a new tree species," explains Persson.

KNOT-FREE MATERIAL

The differences in properties are due to the fact that the trees grow under entirely different conditions on the two continents. In North America, contorta pines regenerate naturally and grow densely and slowly, so they are slender and dead straight. In Sweden, on the other hand, they are planted and grow more rapidly and sparsely. This rapid growth means that there is a very long distance between knots.

"On the Asian market, the North American contorta pine is packaged with several woods of low quality and used mainly as a bulk product, while we see completely different areas of use for contorta pine from Sweden. There are many exciting possibilities," says Persson.

The main advantage of Swedish contorta pine is the long distance between knots, often 35 centimetres or more, making it possible to extract a great deal of knot-free material.

"They also have a large percentage of healthy knots and many customers appreciate the light colour and subtle finish of the wood," says Persson.

FURNITURE AND PANELLING

Efforts are currently underway to assess which applications Swedish contorta pine is best suited for.

"Customers mainly used the earliest deliveries to make pallets, but now they are beginning to test the wood for higher quality products. No offence to pallets, but the attributes of contorta pine can really come into their own in other products. One customer has already manufactured tables, mirrors, shelves and other furniture with good results," says Persson.

SCA closely monitors how its customers rate the performance of contorta pine when processed, including the yield and the opinions of end-customers.

"One of our customers wants to manufacture knot-free furniture components, mainly for beds. It will be fascinating to follow their progress, as this ought to be an area that suits contorta pine very well. Another customer is planning to manufacture panelling, another application where this species of tree should come into its own."

There are also customers planning to manufacture kennels, chicken coops and rabbit hutches.

"There's a big market for it in the United States, so that's another interesting area," notes Persson.

CLIMATE BENEFITS

The reason that products made from contorta pine are arriving on the market now is that SCA's contorta pine forests are ripe for harvesting. Deliveries will be gradually scaled up, providing a significant addition to the timber products market – and a welcome boost to the green transition.

"Contorta pine has significant climate benefits. As it grows so rapidly, it binds a great deal of carbon. It grows 40 per cent faster than Swedish pine, for example, corresponding to an additional annual uptake of 800,000 tonnes of carbon dioxide on SCA's woodland," says Persson.

The high growth rate also means quick access to more renewable raw materials, from which climate-smart products can be manufactured.

"This allows us to replace a larger percentage of fossil-based products and thus leave more fossil carbon in the ground. We are now looking forward to an interesting period of finding out which products it is best suited to," says Persson.

TIMBER BUILDING TO HOUSE SPACE RESEARCH

TEXT JENNIE ZETTERQVIST IMAGE HENNING LARSEN / VIVID VISION

SCIENTISTS FROM ALL OVER the world come together at CERN, the European Organization for Nuclear Research, just outside Geneva, Switzerland. Since CERN's inception 70 years ago, they have been searching for and finding answers to the mysteries of the universe, while pushing back the technological boundaries in fields as diverse as medicine and space exploration. CERN is home to the world's largest particle physics laboratory and it was here that the world wide web was developed, making the internet accessible to the common man.

When the organisation found itself in need of a new campus to accommodate its expanding operation, an international architecture competition was announced. The winning design is by Danish architectural practice Henning Larsen. The circular timber main building with its open interior both contributes to biodiversity and creates a work environment that invites scientists and visitors to engage with the surrounding forest.

Due for completion in 2027, the project, known as the B777 building, will be an inspiring landmark for future development and innovation. All materials and structures have therefore been chosen with the environment in mind. The potential for reuse and recycling has also been taken into account, while simple junctions will make it easy to dismantle the building at the end of its working life.

Pioneers of pine

IN SRI LANKA

TEXT KERSTIN OLOFSSON PHOTO SCA

The first shipment of Swedish pine to MA Enterprises in Sri Lanka was dispatched almost a decade ago and is now well established in the country in both private homes and public spaces. MA Enterprises specialises in making good use of absolutely all raw material in its products. "We even make products from offcuts, sawdust and packaging," says managing director and owner Amjad Marjan.

MA ENTERPRISES MANUFACTURES a wide range of products, but especially skirting boards, coving, beading, cladding and floorboards. It also has a wholesale business importing and reselling sawn timber products. The company uses many different types of wood and since 2015 this includes Swedish pine.

"We are pioneers of pine in Sri Lanka. There is now great demand for these products and it's growing all the time," says Marjan.

Swedish pine is unique in terms of quality as trees in northern Sweden grow so slowly, resulting in dense and even annual rings.

"This means that the timber is in a class of its own when it comes to density. Our customers also appreciate the colour and think that this wood has a fine surface finish, so they use it a great deal for visible products. Its strength is also a much-appreciated attribute," says Marjan.

IMPORTANT TO HAVE FEW KNOTS

Most of the pine the company buys comes from SCA's Munksund Sawmill, although some comes from Bollsta. Much of it is in the higher quality classes.

"High quality is demanded in order to plane thin products like skirting board and coving. One important factor is that the timber doesn't have large knots," explains Håkan Persson, SCA's Sales Area Manager for South East Asia.

Most of MA Enterprises' products are sold to construction companies. There is no do-it-yourself culture as we know it in Sri Lanka, hence no DIY stores.

"That's the case in large parts of Asia. People don't have their own tools; they call a carpenter if something in the home needs fixing.*So, construction companies buy sawn timber products directly from the manufacturer," explains Persson.

TOYS MADE OF STICKS

MA Enterprises ensures that all of the timber is put to good use. Offcuts, shavings and even packaging are used in the manufacture of various products.

"Among other things, we use the inserts and thin binding sticks used to stabilise the timber packages. Most manufacturers burn these but we see everything as a resource and put a great deal of effort into minimising waste in our production," says Marjan.

Binding sticks are glued together and made into products such as toys, mugs and bowls, all made by hand. Wood shavings are used as stable bedding for horses.

BUYING THE CUSTOMER'S WASTE

In its efforts to avoid waste, MA Enterprises goes as far as utilising customers' offcuts and other residual products of processing.

"When we sell timber products, we usually agree to buy back any waste. When you consider that the pines have grown for at least 80 years before being felled, as much as possible should be turned into timber products rather than incinerated. We find uses for everything," says Marjan.

Persson is impressed by the company's efforts and underlines that this is a perfect fit for SCA's mindset and objectives.

"One of our sustainability goals is zero waste. A vital element of this work is making the optimal use of every part of the tree. It's great that MA Enterprises is also working hard to achieve this."

‹ Håkan Persson, managing director of SCA Wood Hong Kong, and Amjad Marjan, managing director and owner of MA Enterprises.

A unique dining experience

SOMEWHERE IN THE TRIANGLE formed by Falkenberg, Varberg and Ullared lies Ästad Vingård, home to Restaurant Äng, which serves a Scandinavian-inspired tasting menu with the emphasis on local produce prepared with methods from all over the world. The restaurant is housed in a glasshouse in a meadow, bringing nature to the doorstep. The head chef is Filip Gemzell who, together with his team, works with producers who share the restaurant's philosophy of sustainability and organic farming. Äng has received many awards, including a Michelin star and the Michelin Green Star for sustainability. For further information, visit restaurangang.se.

PHOTO RESTAURANG ÄNG

Growth for both forests and people

SCA collaborates with over a hundred organizations in northern Sweden to contribute to a wide variety of recreational activities for children and young people in the areas where we operate. An example is Save the Children's activity Summer Vibe in Sundsvall, which SCA sponsors for three years. There, children and young people get to try out sports, participate in artist workshops, dance, and draw comics.

A meaningful leisure time for everyone who spend their summer vacation at home, and a way for SCA to contribute to a sustainable social climate.

Save the Children

SCA


SCA