THE DURABLE FIRE RETARDANT TREATMENT OF WOOD

Magazine

WOODSAFE TIMBER PROTECTION AB | SWEDEN

34 WFX POLYMERIC - BEST IN CLASS

No other fire retardant can compete with WOOD**SAFE**® Exterior

WHAT'S INSIDE

Let´s talk about DURABLE FIRE PROTECTION

DURABLE FIRE CHARACTERISTICS
WOOD**SAFE**® only applies documentation issued by notified bodies that verifies sustainable properties. The documentation and information provided by Woodsafe Timber Protection and partners reflect the third party role of the notified body. Woodsafe Timber Protection is quality and management system certified to the international standard ISO 9001:2015.

DURABLE REACH COMPLIANT
WOOD**SAFE**® consists of REACH-authorised substances, sourced in Europe and authorised under EU regulations. Woodsafe Timber Protection is an environmental management certified to the international standard ISO 14001:2015.

DURABLE AND EFFICIENT USE OF ENERGY
WOOD**SAFE**® are manufactured in a factory with optimised energy use with continuous monitoring and improvement. The energy used comes from 100% biofuel and electricity from our own solar power plant, which covers our annual electricity needs. In our production we also recycle water from the process.

DURABLE WORKPLACE
WOOD**SAFE**® are manufactured in a factory with safety and people as a priority. Woodsafe Timber Protection is health and safety management system

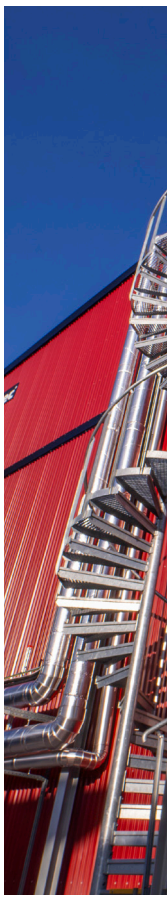
certified to the international standard ISO 45001:2018.

INFO BOX

WOOD**SAFE**®
TRANSPARENT AND WELL-DOCUMENTED

- Type-approved according to building codes
- Certified according to the CPR 305/2011, EN14915
- Certified according to the CPR 305/2011, EN13986
- Action plan according to Agenda 2030
- Sustainability report
- EcoVadis Gold certified
- REACH compliant
- Well Gold certified
- ISO 14001:2015
- ISO 9001:2015
- ISO 45001:2018


valutec



It is almost thirty-four years since I started with passive fire protection. Years go by quickly, no one can say otherwise. Looking back, I can see how Woodsafe Timber Protection AB has grown from a small, almost insignificant player in the wood industry market to a well-established company with a very strong brand in Europe.

It is not for nothing that Woodsafe Timber Protection partners delivers fireproof wood to unique projects such as Mjöstornet (the world's tallest wooden building), Gardermoen Pir-Nord (the world's largest wooden roof), Mall of Scandinavia (Northern Europe's largest shopping center), Cederhusen (the world's largest wooden city block) and not least to the Swedish pavilion in the Dubai 2020 World Exhibition.Since 2015, more than 10,000 projects have passed our production.

Today, 33 years later, Woodsafe Timber Protection AB is part of a group consisting of, among other things, Research and Development where the development of new products and more efficient processes can be developed and contribute to a sustainable society built from wood.

Woodsafe Timber Protection AB's keyword, Durable Fire Protection, stands for the entirety of our business where sustainable fire properties, sustainable production and sustainable work environment reflect our business goals.

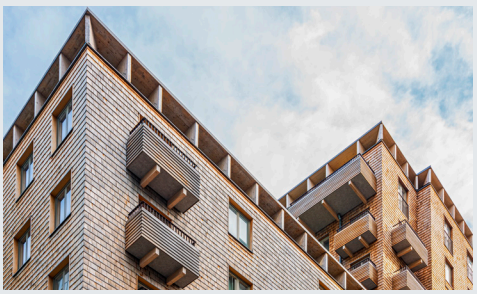
This is our second magazine and I hope you enjoy reading it.

Thomas Bengtsson
Founder of Woodsafe Group

Latest News

WOODSAFE RESEARCH & DEVELOPMENT

During Q4-2023, the WOODSAFE R&D department will be completed with complete equipment for industrial impregnation and fire testing according to several different standards, including EN, ISO, ASTM and others. More information on the next edition of WOODSAFE Magazine



CEDAR HOUSE, STOCKHOLM BUILDING OF THE YEAR 2023

Cederhusen (or Cedar House) is the latest example of a growing practice of building big with what's known as C.L.T., or cross-laminated timber. "This project is going to be really important because it's a whole two blocks in inner Stockholm where you can choose to buy an apartment made out of timber," said Anna Ervast Oberg, a project manager at Folkhem.

WELCOME ISO 45001:2018

Woodsafe Timber Protection welcomes ISO 45001:2018 alongside our previous certificates ISO 9001:2015 and ISO 14001:2015.

Thermory is announcing a collaboration with Woodsafe Timber Protection to provide fire-protected wood

Thermory and Woodsafe Timber Protection, the largest players in their respective industries, announce collaboration to provide thermally modified and durable fire-protected wood.

Woodsafe Protection AB (WOODSAFE®), Europe's largest manufacturer of durable fire-resistant impregnated wood, and Thermory, the world's largest manufacturer of thermally modified wood, announce collaboration for the supply of durable thermally modified fire-resistant wood. Thermory's real wood products with fire protection are available immediately.

"I am very proud of the trust from a well-respected pioneer, innovator and industry leader in the field of thermally modified wood. Together we will contribute to a sustainable society with the forest as a resource," says Woodsafe's founder and CEO Thomas Bengtsson.

"We aspire to improve the environment we live in. Leach-resistant fire protection has been a challenge when creating large public or residential buildings with wood. After a long testing period of comparing different technologies, we are happy to partner with Woodsafe to offer this durable extra layer to our real wood products," says Simmo Soomets, CEO of Thermory.

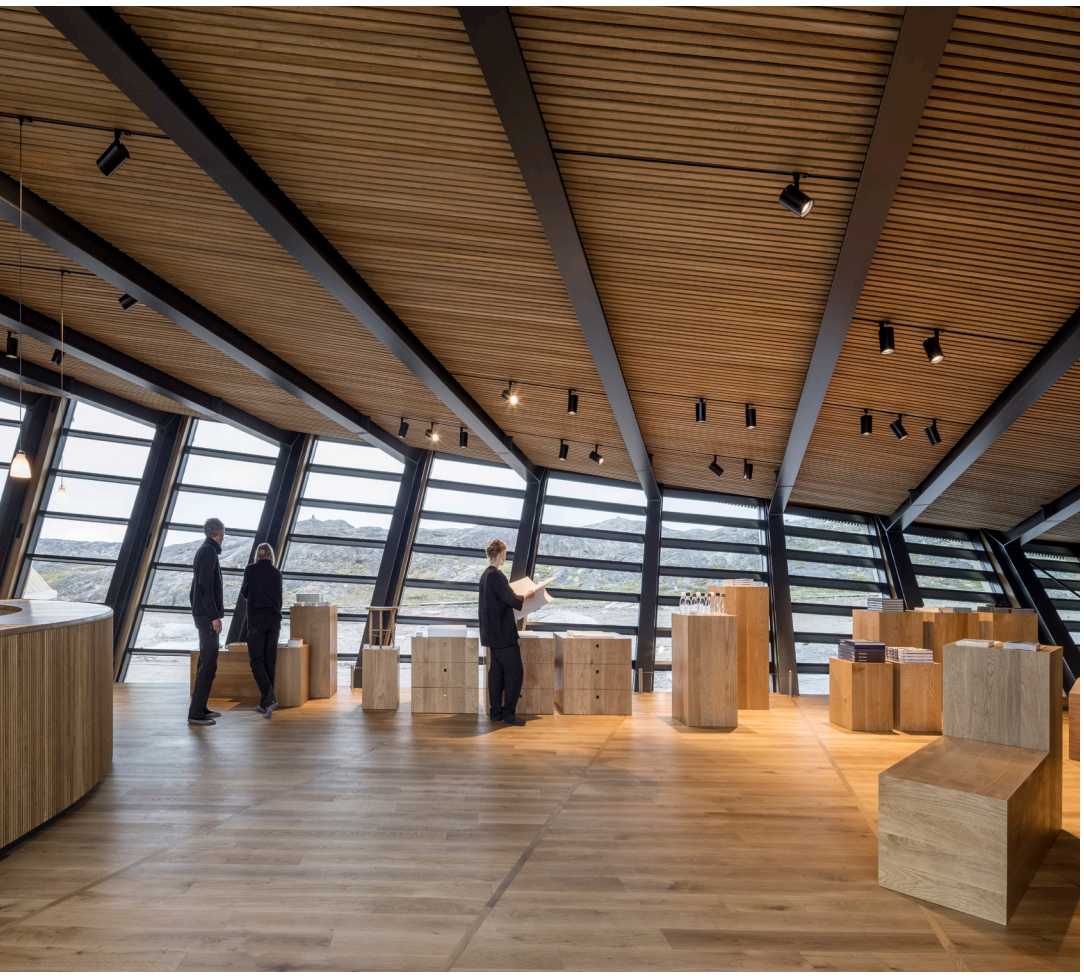
"It's inspiring to merge our areas of expertise – thermally modified and durable fire-protected wood – on top of Thermory's sustainable products and Woodsafe's low energy production and present our combined solution to the global market," says Woodsafe's Product and Business development manager Peter Johnson.

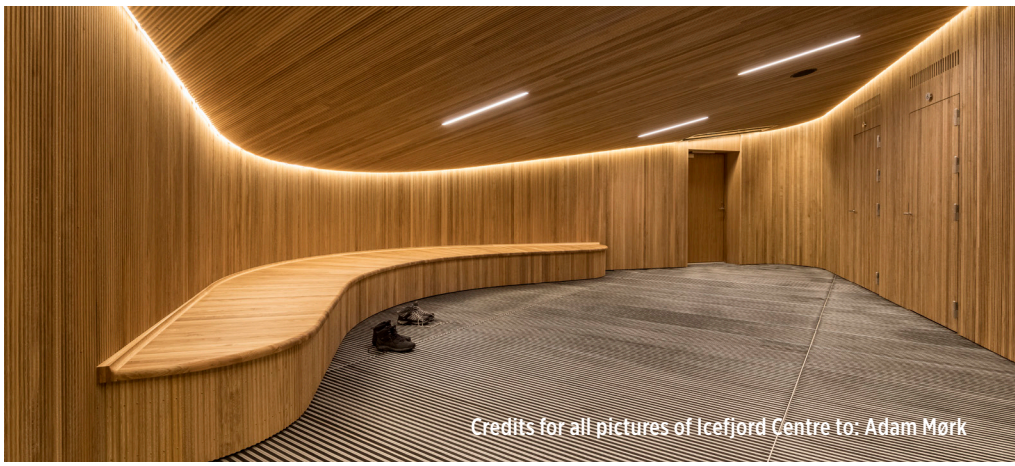
About Thermory

Thermory is a leading manufacturer of thermally modified wood and sauna materials with over 25 years of experience and a global network of distribution partners in 50+ countries.

Thermory's mission is to leave a lasting impact – to enhance the environment around us with sustainable real wood products, reduce the footprint of our operations, keep innovating and improving. Using only heat and steam, Thermory creates durable and climate-resistant interior and exterior cladding, decking, flooring and sauna materials that are unrivalled in both performance and beauty.


WINNER
WPA
2022
Wood Protection Association AWARDS





Credits for all pictures of Icefjord Centre to: Adam Mørk

“Icefjord Center is the entrance to the Unesco World Heritage”

On the border of the UNESCO-listed Ilulissat Icefjord lies Kangiata Illorsua – Ilulissat Icefjord Centre. The Icefjord Centre is a visitor and dissemination centre which, through the exhibition “The Tale of Ice”, informs visitors about the history of ice, the culture in and around the icefjord, and climate change. The Icefjord Centre’s exhibition is based on research and data, and explains the area’s unique natural and cultural history, as well as the climate changes that can be clearly seen and felt.

The Icefjord Centre’s exhibition is built around three themes: “The Lifecycle of the Ice”, “The rich life by the Icefjord” and “Climate changes”. The exhibition begins at the Icefjord Centre’s cinema, where a short film about the origin of ice is shown. The film runs every 10 minutes.

In the Icefjord Centre’s café, visitors can pick up an audio guide. The audio guide contains interviews with local residents from Ilulissat, who explain about their daily lives and climate changes. The audio guide can be listened to while moving around between the exhibition’s ‘prisms’, which show animations and illustrations of snow, ice, icebergs, and much more.

If visitors need a little rest, they can use the benches that are placed throughout the whole exhibition. From here, they can enjoy the view and the historic atmosphere which characterises this beautiful UNESCO site. The Icefjord Centre also has virtual reality glasses available, which can be used while sitting on the benches. The glasses take visitors on a virtual journey to the Greenlandic research station, EGRIP.

The Icefjord Centre also has its own “Explorer room”. This room is a contemporary art installation featuring sounds that are directly transmitted from the ice at all research stations in Greenland. The sounds, which are transformed inside the room, are experienced as a beautiful symphony, so that visitors can close their eyes and dream that they are out on the ice.

If you visit the Icefjord Centre, it is impossible not to be captivated by the beautiful UNESCO-listed Kangia Icefjord, which is located just a stone’s throw from the Centre. Visitors can get an even better view of the beautiful surroundings by walking up on the roof of the Icefjord Centre, which is open for visitors around the clock during the summer months. From the top of the building there is a view over the icefjord and the whole of Ilulissat.

At each end of the building there is also an open terrace area, where visitors can sit and enjoy the view, or discuss the impressions that the exhibition has left them with.

THE HOUSE

The Icefjord Centre is designed by the architect Dorte Mandrup and was initiated in 2019. The total area of the building is 1.500 square meters, where 900 are heated and 400 are used as exhibition space. The house accommodates an exhibition, a café and a shop.

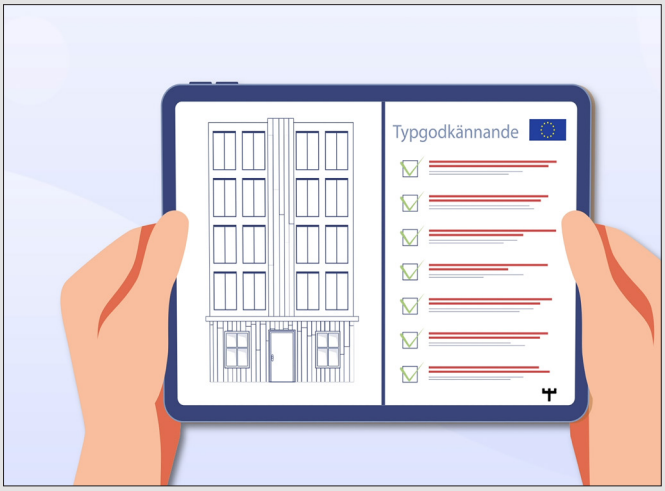
The building is constructed of steel, wood and glass where the steel constitutes the bearing structure of 52 steel frames. Every steel frame has a unique geometrical shape that together creates its characteristic bent structure. Floors, roof, the outdoor terraces and deck, together with a large amount of the interior surfaces are made of wood which gives the house a natural warmth. The primary sort of wood that has been used is european oak, which is resilient and durable in the arctic climate. Because the Icefjord centre is located in the arctic where very low temperatures occur, heating has been a central consideration in the building process. The building is very well isolated and is being heated CO2-neutrally with green energy from Ilulissat water power plant.

INFO BOX

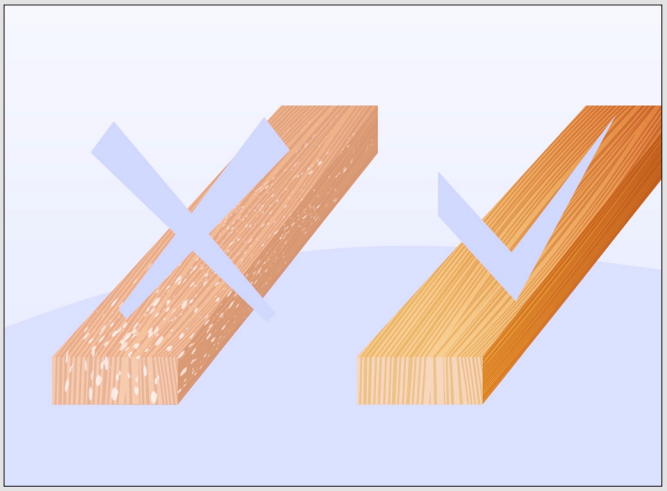
- The Icefjord Centre opened in July 2021.
- It was designed by the Danish architect Dorte Mandrup.
- Wood Protection Association Award: Flame retardant project of the Year - Woodsafe Timber Protection, Sweden.
- Fire retardant treated oak ribs with by Woodsafe Timber Protection. www.woodsafe.com


WOODSAFE®
academy

WOOD**SAFE**® ACADEMY



TYPE APPROVAL CERTIFICATE



DIFFERENT TYPES OF FIRE RETARDANTS

LET´S TALK ABOUT PROCUREMENT

WOOD**SAFE**® ACADEMY

Watch the WOOD**SAFE**® ACADEMY film that presents what the ACADEMY is about and what it can help you with.

LET´S TALK ABOUT TYPE APPROVAL CERTIFICATE

Fire retardant treated wood is subject to regulation and quality control. Individual documents are often presented as proof of the product's properties. But how can you be sure that the requirements are met?
WOOD**SAFE**® ACADEMY explains.

LET´S TALK FIRE RETARDANT POLYMERIC CHARACTERISTICS

Fire retardant treated wood can fulfill the same fire class but have completely different properties in different environments. It can be disastrous to choose the wrong properties. But don't worry, WOOD**SAFE**® ACADEMY explains.

ARE YOU IN CONTROL OF YOUR PROCUREMENT?

Fire rating is one thing, but fire retardant treated wood is about much more than fire rating. Is the product quality assured? Is the product suitable for exterior use? What does the overall picture look like, is the product really equivalent? Does it sound complicated? Don't worry, WOOD**SAFE**® ACADEMY helps you make the right decisions!

WOOD**SAFE**® PRO

WOOD**SAFE**® PRO is an interior and exterior high temperature fire retardant chemical formulation based on proprietary Woodsafe Timber Protection technology.

INDEPENDENT TESTING

Performed in accordance with industry standards has shown WOOD**SAFE**® PRO products exhibit fire retardant performance properties without significantly compromising other critical engineering properties such as strength, durability, corrosivity, and hygroscopicity. WOOD**SAFE**® PRO is a WPA Approved Product under their Flame Retardant Quality Scheme.

WOOD**SAFE**® PRO products are permitted for use in above ground interior applications where the adopted building regulations permit the use of wood products or fire retardant treated wood products such as roof systems, sheathing, joists and such like. It can also be used in other interior applications such as exhibition stands. The specifier and/or end user is responsible for reviewing the test data on WOOD**SAFE**® PRO products to determine if they are acceptable for the intended end use.

WOOD**SAFE**® PRO may be used in above ground external situations where it is effectively protected from direct rainfall and weathering. External grade wood coatings may give adequate long term protection, in combination with a programme of planned maintenance. Check with a coating manufacturer before use.

STANDARDS AND SPECIFICATION INFORMATION

WOOD**SAFE**® PRO fire retardant treated wood products have been tested to EN 13501-1 fire classification of construction products and building elements. These tests are commonly referred to as 'reaction to fire tests'. Reaction to fire tests are commonly called up in regulations in both the building and transport sectors.

The classifications of flammability are:

A1	A2	B	C	D	E	F

Woodsafe Timber Protection currently holds approvals for many of the most commonly specified species. Below is a list of just some of the approvals held.

- Spruce
- Pine
- Oak
- Maple
- Siberian Larch
- Poplar
- Birch
- Heat modified pine
- Cedar
- Plywood e.g. birch, spruce

PRODUCTION AND CERTIFICATION

Woodsafe Timber Protection is subject to third party continuous monitoring by a notified body (RISE 0402) and since 2009 is CE marked according to the European Construction Products Regulation CPR 305/2011 (CPD 89/106). Woodsafe Timber Protection also holds national type-approval certificates according to building codes for, among other things, façade construction SP-Fire 105 and long-term fire resistance EN16755 EXT for all types of wood. For exterior application, WOOD**SAFE**® PRO the timber cladding shall be coated with a film-forming paint system according to the instruction sheet.

Credits to: Stylt Trampoli

Possibilities **for interior** applications

Woodsafe Timber Protection AB fire retardant treatment service gives you the freedom to choose between several different types of wood where each type of wood has its own unique properties that creates an unique feeling and character in the room.

Through WOOD**SAFE**® PRO unique properties, the wood retains its appearance and technical properties that can then be used in a variety of contexts for, among other things, acoustic properties, decoration, wear-resistant surface layers in spaces such as corridors, sports halls, schools and more.

Examples of excellent installations include

- Sports and sports facilities
- Office environments
- Health care facilities
- Corridors
- Hotel and conference
- Assembly halls
- Auditorium
- Shopping centers


Toalett
Toilet

REACH approved substances

Let´s talk about WOOD**SAFE**® PRO *fire retardant treated wood and the relation to the REACH framework which is a regulation as opposed to most environmental assessment systems which are profit driven companies and which in many cases do not coincide with the REACH assessment.*

REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.

In principle, REACH applies to all chemical substances; not only those used in industrial processes but also in our day-to-day lives, for example in cleaning products, paints as well as in articles such as clothes, furniture and electrical appliances. Therefore, the regulation has an impact on most companies across the EU.

REACH places the burden of proof on companies. To comply with the regulation, companies must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate to ECHA how the substance can be safely used, and they must communicate the risk management measures to the users.

If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted with less dangerous ones.

REACH stands for Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force on 1 June 2007

Substances of very high concern identification
Substances that may have serious and often irreversible effects on human health and the environment can be identified as substances of very high concern (SVHCs). If a substance is identified as an SVHC, it will be added to the Candidate List for eventual inclusion in the Authorisation List.

The fact that a substance may have undesirable effects does not automatically mean that the substance is threatening on a large scale. Factors to consider include how the product will be used and how humans may be exposed to direct contact such as skin contact, inhalation or ingestion. Obviously, the unsuitable properties of confirmed substances should be avoided, but it is also important to put this in relation to the area of use and purpose of the product.

Boron is listed on the SVHC list under H360F, without being proven to be harmful to humans and is a natural element found in water, natural foods and in most consumer products available in stores and in higher concentrations than the SVHC and H360F limits.

WOOD**SAFE**® PRO fire retardant treated wood is a fire safety wood product designed to protect people, animals and economic assets such as wooden buildings. WOOD**SAFE**® PRO fire retardant treated wood is managed in accordance with Woodsafe Timber Protection AB Quality and Management System ISO 9001:2015, Environmental Management System ISO 14001:2015 and Health and Safety Management System ISO 45001:2018.

WOOD**SAFE**® PRO is humidity durable and does not leach and thus does not contribute to fertilizer effect as not approved according to standard EN16755 EXT (typeapproval TG0263-08).

- WOOD**SAFE**® PRO is a fire-impregnated wood product, not a chemical substance.
- WOOD**SAFE**® PRO does not contain REACH prohibited substances.
- WOOD**SAFE**® PRO contains boron in low quantities.
- WOOD**SAFE**® PRO have approved VOC values for interior use.


WOODSAFE®
consists only
of REACH
approved
substances

Let´s talk about THE FOREST

'The Forest', Sweden's pavilion at Expo 2020 in Dubai, an unique and fascinating structure that showcased the best of Swedish design, innovation and culture. An important key to constructing this unique building in a country that bans wood was Woodsafe Timber Protection AB's efforts to fire-impregnate wooden trunks, panels and plywood.

The Forest - Sustainability in practice.
The Swedish pavilion The Forest, located in the Sustainability District, has a three-step effect on sustainability. By using alternative materials instead of concrete and steel, we are expected to save 1,000 tons of carbon dioxide. Furthermore, The Forest combines the two ways of reducing carbon dioxide in the atmosphere: by reducing emissions or by extracting an additional 2,000 tons of carbon dioxide from the atmosphere and storing it - reducing 'carbon sources' and increasing 'carbon sinks'.

While wandering freely in the Forest, visitors are offered a range of varied and unexpected experiences in a fully connected and interactive environment. The Swedish pavilion will focus on new ways to build the Smart Society, including topics such as technology, life sciences, next generation transport, Industry 4.0, new materials, smart cities and circular bio-based economies.

Significance for Sweden's participation at Expo 2020
"The Forest" was an important part of Sweden's participation at Expo 2020, serving as a platform to showcase the country's progress in sustainability, technology and culture. By providing a unique and inspiring environment for visitors, the pavilion succeeded in putting Sweden on the world map and strengthening the country's brand as a pioneer in sustainable development and innovation. Sweden's pavilion 'The Forest' at Expo 2020 was an impressive and inspiring structure that captured the interest and attention of visitors. By combining innovative architecture with interactive exhibitions and cultural events, the Swedish pavilion provided an insight into the country's commitment to sustainability, innovation and culture. "The Forest" will be remembered as one of the highlights of Expo 2020 and an outstanding example of Swedish design and creativity.

Architecture and design
The Swedish pavilion, called 'The Forest', was a spectacular structure made up of a fascinating combination of wood and glass. This innovative design created a forest-like atmosphere that symbolized Sweden's connection to nature and its sustainability values. The Swedish pavilion covered an area of 3 000 square meters and was designed by the Swedish architectural firm Alessandro Ripellino Arkitekter, Studio Adrien Gardère and Luigi Pardo Architetti.


Swe en

THIS IS OUR STORY ABOUT WORLD EXPO 2020, DUBAI

On a dark winter day in 2019, the first logs arrived at Woodsafe Timber Protection AB. Shortly thereafter, the first call came that lead times in the project were delayed so it was really urgent to perform fire impregnation on these logs for delivery in containers at sea. We have never handled such a project so when the timber trucks rolled in one by one in a steady stream, the production faced a very challenging task to solve.

The first challenge was to prepare space for 300m3 logs indoors, which was solved by moving machines and materials around for the allocation of 1500m^2 of temperate indoor storage space. Storing hundreds of logs indoors without risking employee safety was a challenge alone. Then came the next challenge in handling twice the length of material we normally handle, which meant that side-loaded trucks had to be hired for handling and logistics.

Now that everything was technically prepared, we were faced with the challenge of working in over 2 months late delivery. The challenge the production management and employees faced was to handle, produce and finalize the logs for delivery in containers to be shipped to Dubai. The production time was planned to be three months, we had to do it in 21 days with Christmas and New Year holidays in the same period.

However, the challenge was no problem for Team Woodsafe. All employees pitched in and worked late into the night and started again early in the morning until all logs were impregnated and dried.

That World Expo 2020 was then postponed due to Covid-19 is another story. But regardless of the situation that affected the whole world, TEAM Woodsafe solved the delivery of fire retardant treated wooden logs.

Hats off and my humble thanks to everyone involved. Well done!

THE NEED FOR **KNOWLEDGE** OF FIRE RETARDANT TREATED **WOOD** CLADDING IS **GREATER** THAN EVER.

1888, the year that stopped wooden façades in Sweden for more than 100 years

"The whole city is on fire. Hard north-west storm. Military assistance requested from Östersund"

The Sundsvall fire of 1888 is the largest fire in Swedish history, and the third city fire in the history of Sundsvall. What caused the fire is not entirely certain, but most information suggests that a spark from the Selånger steam engine was the cause. The weather on 25 June 1888 was hot, dry and windy, so there were all the conditions for a rapid progression of the fire.

The ship travelled along Selångersån up towards the former town centre in Åkroken. A spark from the ship blew from the ship onto land and the strong wind combined with dry grass and wooden buildings had devastating consequences. The first building to catch fire was a pier house opposite the current sports hall. The city was in ruins within 9 hours and 9 000 people were left homeless. Five people died. The damage to property from the fire was valued at almost €30 million.

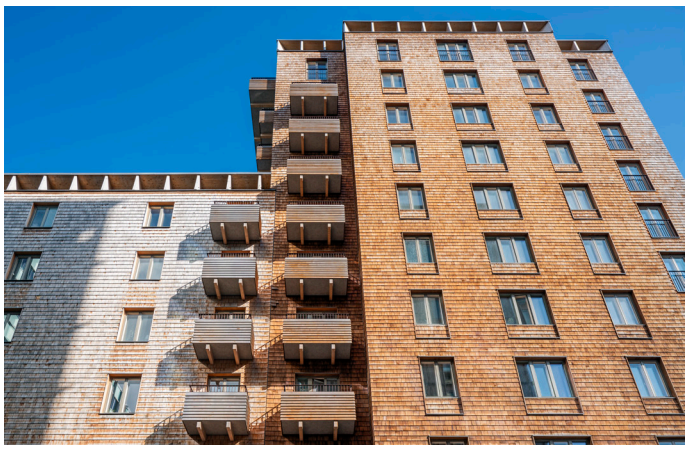
To prevent further devastating city fires, the city council decided on 15 January 1889 to allow only stone houses in the centre of Sundsvall, resulting in the Stone City.

The fire in Sundsvall set the building rules in Sweden for more than 100 years, but in connection with the revision of the Swedish National Board of Housing, Building and Planning's building rules at the end of the 1990s, the doors were opened for wooden facades with approved SP-Fire 105 performance.

In order to prevent a fire from spreading in an external wall or along the façade and quickly affecting the safety of several floors in a building, external walls are required to fulfil specific fire safety requirements. Factors that affect and need to be protected against include a fully developed fire inside the building that breaks out with large flames through a window. External fires such as a direct fire in the façade, grass fires or fires in objects close to the façade or on balconies and the like should also be considered.

Current fire requirements in Br 1 buildings.
The requirements set and whether it is possible to have wood and other combustible materials in the outer wall or as facade cladding depends, among other things, on how many floors a building has, whether the building is equipped with a sprinkler system and whether the current facade structure has undergone special fire testing.

Buildings in class Br1
Br1 buildings are buildings with high protection needs. The building class covers the vast majority of buildings with between 3 and 16 storeys. In addition, some lower buildings with special risks may belong to building class Br1. The requirements for fire spread via the façade are therefore significantly higher than in classes Br2 and Br3.



Stockholm building of the year 2023

Wooden Buildings Reach for the Sky in Stockholm, Sweden. As one of many projects, the Cedar houses are rising in one of the world's largest inner-city wooden house projects.

Timber accounts for roughly 20 percent of new multistory buildings in Sweden, but that figure is on the rise. That is happening in part because of companies like Folkhem, the real estate developer behind Cederhusen, which decided in 2012 to build exclusively in wood.

All this works especially well in a place like Sweden which has well-managed forests, and plenty of them. Seventy percent of Sweden's land is forest, double what it was 50 years ago.

One of the biggest apartment complex developments so far in Sweden, according to Folkhem, used around 211,000 cubic feet, or 5,975 cubic meters, of wood for the construction. That wood, the company said, was estimated to take around 20 minutes for the Swedish forests to regrow.

Building single family homes out of timber is, of course, nothing new. The majority of homes in Sweden are wooden, as in many places around the world. What is new is the push to build larger buildings, office structures or apartment blocks as well as infrastructure like bridges, using timber frames instead of concrete or steel. But although timber use is on the rise, concrete still dominates in the construction industry.

- Cederhusen is a very worthy winner. It is both technically and environmentally interesting as one of the largest wooden house projects in the world. The jury's comment on the winner is: "Cederhusen sets a new standard in Stockholm for what a wooden house can be and how it can contribute to the Stockholm cityscape. Stockholm is largely characterised by light plastered facades and Cederhusen is a good example of how new materials can interact with the city's traditional tone and design. At night, lighting at entrances, balconies and courtyards adds human warmth. The design of the buildings works well both from a distance and in detail."

In this unique project the cedar shingles has been delivered by Moelven and fire retardant treated by Woodsafe Timber Protection with WOOD**SAFE** EXTERIOR WFX.

INFO BOX

Cederhusen is one of the largest wooden building projects in the world in an inner-city environment with 245 homes and about 21500 square metres of light BTA.

Architect: General Architecture
Developer: Folkhem

SPF-105

Non-combustible or SP-Fire 105.
Wood can never be non-combustible so the requirement falls on SP-Fire 105, a Swedish test method for exterior wall construction where the cladding is tested. The test rig is 4m wide and 6m high and the facade system being tested must reflect the actual use, i.e. if the facade cladding is tested with non-combustible underlying insulation, then combustible insulation is not approved and so on. In addition, each individual wood species shall be tested and major deviating installation conditions shall also be tested from the same wood species.

During testing, several different values are checked and visual properties are assessed very carefully:

- Fire spread along the surface of the façade
- Fire spread in the structure
- Eaves temperature
- Heat radiation from facade
- Falling parts

Examples of structural design that affects fire behaviour
- Insulation materials
- Air gap
- Vertical mounting
- Horizontal mounting
- Various dimensions of wood, which can increase the amount of combustible wood on the same surface.
- Various dimensions of wood that can contribute to tunnel effect
- Surface treatment

Our offer to you through WOODSAFE® partners

Several different SP-Fire 105 facade construction solutions are offered through partners.

Wood species
- Spruce
- Pine
- Cedar
- Cedar shingle
- Three-layer cladding board
- Thermowood / Thermal modified spruce
- Thermowood / Thermal modified pine

Mounting condition
- Vertical
- Horisonal
- Decorative facade solution
- Ventilated facade
- Airgap
- Surface treatment

Insulation
- Stone wool insulation
- Glass wool insulation
- phenolic resins insulation
- polyurethane insulation

Substrate
- Non-combustible A1, A2 substrates
- CLT and wood substrate in accordance with euroclass D-s2,d0

Certifying documentation
- Typeapproval TG0263-08
- Partners certificate
- Third-party monitored control
- Planning and Construction Act (SFS 2010:900)
- Swedish National Board of Housing, Building and Planning (BBR)
- Durability of Fire Performance EN16755 INT1, INT2 and EXT
- Certified quality system ISO 9001:2015
- Certified self-monitoring WQS 2.0

WOODSAFE® EXTERIOR

Long-established leach resistant fire-retardant protection for exterior timbers is certified as a WPA Approved Product, the highest quality approval from the Wood Protection Association (WPA).

WOOD**SAFE**® EXTERIOR WFX provides a tried, tested and trusted fire protection for timber and has been used in prestigious projects around the world since the early 1960s and is the only external fire retardant treatment to be awarded WPA Approved status, which gives specifiers and merchants real assurance that they have selected a high-performance, durable and maintenance-free fire protection.

APPROVED STATUS INVOLVES A RIGOROUS ASSESSMENT of fire performance data by an independent panel of experts appointed by the WPA. The WPA panel considered all aspects of WOOD**SAFE**® EXTERIOR WFX fire performance before awarding it the coveted WPA Approved Product Certificate including, classification reports, durability, smoke generation, hygroscopicity, leach resistance and other key ancillary properties, such as corrosion, strength and biological resistance properties.

WOOD**SAFE**® EXTERIOR WFX products are permitted for use in above ground interior applications where the adopted building regulations permit the use of wood products or fire retardant treated wood products such as roof systems, sheathing, joists and such like. It can also be used in other interior applications such as exhibition stands. The specifier and/or end user is responsible for reviewing the test data on WOOD**SAFE**® EXTERIOR WFX products to determine if they are acceptable for the intended end use.

UNIQUE FIRE RETARDANT WITH POLYMER PROPERTIES

- WOOD**SAFE**® EXTERIOR WFX fire retardant is an advanced polymer based formulation, free from halogenated compounds.
- **Proven stability.** The ingredients used in the WOOD**SAFE**® EXTERIOR WFX process are non-hygroscopic, so overcoming many of the disadvantages of conventional fire retardants. The processed materials can be used in situations where high and fluctuating relative humidities are a problem.
- **Excellent structural / mechanical properties.** Independent notified body tests have shown that there is no loss of strength in the modulus of rupture or the modulus of elasticity as a result of WOOD**SAFE**® EXTERIOR WFX treatment of timber.

WOOD**SAFE**® EXTERIOR WFX can be used exterior or severe damp situations without any surface treatment och protected area.

STANDARDS AND SPECIFICATION INFORMATION

WOOD**SAFE**® EXTERIOR WFX fire retardant treated wood products have been tested to EN 13501-1 fire classification of construction products and building elements. These tests are commonly referred to as 'reaction to fire tests'. Reaction to fire tests are commonly called up in regulations in both the building and transport sectors.

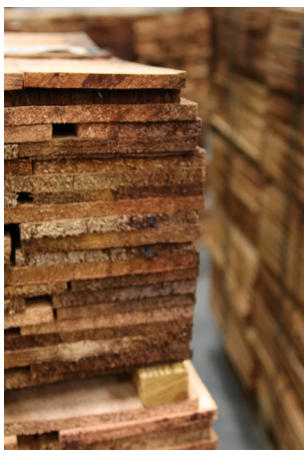
The classifications of flammability are:

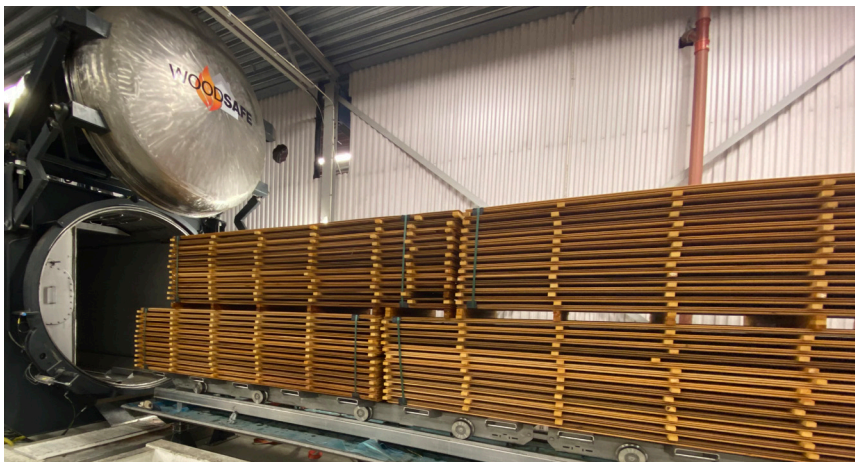
A1	A2	B	C	D	E	F

Woodsafe Timber Protection currently holds approvals for many of the most commonly specified species. Below is a list of just some of the approvals held.

- Cedar
- Cedar shingle
- Siberian Larch
- Spruce
- Pine
- Oak
- Accoya (Radiata Pine)
- Nobelwood (by Foreco)
- Thermally modified pine, spruce, ash (Thermowood)
- Thermally modified frake
- Thermally poplar
- Douglas Fir
- 3 layer solid wood panel

WOOD**SAFE**® EXTERIOR WFX also holds type approval certificates for several different SP-Fire 105 cladding systems, read more on page 28.





PRODUCTION AND CERTIFICATION

Woodsafe Timber Protection is subject to third party continuous monitoring by a notified body (RISE 0402) and since 2009 is CE marked according to the European Construction Products Regulation CPR 305/2011 (CPD 89/106).

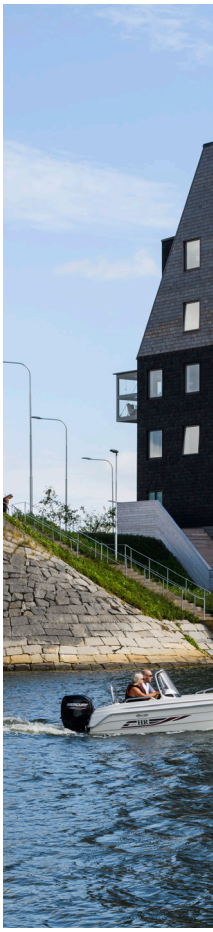
Woodsafe Timber Protection also holds national type-approval certificates according to building codes for, among other things, façade construction SP-Fire 105 and durability of fire performance EN16755 EXT for all types of wood.

Manufacturing monitored and continuous quality system in accordance with:

- ISO 9001:2015
- WQS 2.0. Woodsafe Timber Protection AB internal quality system, included in third party quality control.

Benchmark
APPROVED **TREATER**
WPA
Certificate no: **FR-201901**

Possibilities **for exterior** applications



Woodsafe Timber Protection AB fire retardant treatment service gives you the freedom to choose between several different types of wood where each type of wood has its own unique properties that create a unique feeling and nature of the application.

Through WOOD**SAFE**® EXTERIOR WFX unique properties, the wood retains its appearance for natural ageing and its technical properties which can then be used in a variety of applications such as façade cladding, wooden roofs, decorative installations and more.

Examples of excellent installations include

- Facade cladding
- Wooden roof
- Balcony
- Maritime interior design
- Lorry and train design
- Wooden protective packaging
- Underground
- Mining environment
- Humid interior applications
- Natural ageing or colouring


Let´s talk
POLYMERIC
fire retardant
SCAN TO READ MORE

WFX™ Superior properties

There is a growing demand on the market for addressing the lifespan expectancy of flame retardant treated wood cladding. Since there is no harmonized standard for verifying lifespan expectancy in number of years, Woodsafe Timber Protection AB has conducted a qualitative study in order to provide an estimation of the lifespan expectancy for WOOD**SAFE**® EXTERIOR WFX.

It is globally a well-known fact that flame retardants based on heat-cured polymeric systems outperform all other competing solutions when it comes to maintaining the fire protecting properties over time (Reaction to Fire properties). A challenge for the industry is that there exists no deterministic methods to quantitatively determine the lifespan expectancy.

Therefore, Woodsafe has conducted a qualitative study in order to provide the market with an estimation of the lifespan expectancy for WOOD**SAFE** EXTERIOR WFX. The three main methods used in the study are:

1. **Experiences from long-time outdoor weathering.** This method is a combination from published international long-term studies, information from commercial actors and our own long-time field service experience with Exterior WFX treated wood.

2. **Tests based on accelerated weathering methods.** Results from tests according to international standards such as ASTM D2898 and EN16755 are crucial in determining compliance and allowance for outdoor use.

3. **Literature review.** Articles, web content and other written material such as commercial product information is central in finding a state-of-the-art knowledge regarding lifetime expectancy of polymeric flame retardant treated wood.

The Forest Product Laboratory at the United Department of Agriculture Forest Service in the US undertook a 10-year outdoor weathering study of various fire retardant treatments including Koppers, which is a polymeric flame retardant (LeVan & Holmes). Samples were exposed towards the south with a roof angle of 37,5°.

Results presented in the paper confirmed that the samples treated with polymeric fire retardant outperformed other methods. It had a flame spread of only 29 inches after 10 years and the treated specimens were the only samples which self-extinguished in the Schlyter tunnel test. The report also concluded that the polymeric fire retardant treatment had a high degree of leach resistance and outclassed all the alternative treatments. These test methods have been incorporated into standards over the world, for example, the ASTM D2898 standard in the US and EN16755 in the European Union.

INFO BOX

Available test results, both in the public domain and from manufacturers, clearly shows the same pattern in the results: It is only wood that have been treated with the polymeric flame retardant as described above that are approved for exterior use in cladding, i.e. that survives the heavy test conditions in ASTM D2898 and EN16755.

How much **do you know** about the difference between EXT v/s EXT-LR

Picture shows Cederhousen with cedar shingle, fire retardant treated with WOODSAFE Exterior WFX. Credit to: Michael Perlmutter

"The same fire rating does not mean that the fire retardant treatment is suitable in damp exterior environments. That's why you need to keep track of the fire protection's classified use class"

Fire retardant treated wood for outdoor use and classified according to EN16755 EXT basically consists of approved INT2 classification which is then tested according to the EXT procedure with associated fire tests. The approval of EN16755 EXT reflects the suitability of the the composition of the fire protection agent, but there are two key differences between different fire protection products and their properties.

PRODUCT B, -EXT CLASSIFIED.

Simpler compositions of fire retardants often consist of ammonium compounds, borates and other similar substances. These fire retardants have one thing in common, regardless of what is claimed by the supplier/manufacturer. They need to be protected with a paint layer in the exterior environment to prevent moisture from penetrating the wood, dissolving and releasing the fire retardant in order to prevent leaching..

The final product must be tested and approved in accordance with EN16755 EXT, which in practice means that the downstream user cannot freely choose the colour system. It must be an approved system that has passed the EN16755 test.

"If you want to be sure, this is the symbol you should look for, for the characteristics of the product"

Without EN16755 EXT approval

Without EN16755 EXT approval

Approved EN16755 EXT

WOOD**SAFE**® EXTERIOR WFX

PRODUCT A, -EXT CLASSIFIED.

Complex compositions of fire retardants consist of several different substances that react with each other in the refinement process, where a long polymer chain is created and cured in the cellular structure of the wood as a water-resistant polymer. This type of fire retardant, WOOD**SAFE**® EXTERIOR WFX, cannot in any way be compared with simpler fire retardants such as product A.

The fire class may be equivalent, but product A, WOOD**SAFE**® EXTERIOR WFX, fulfils the strict durability requirements of EN16755 EXT without any requirement for surface treatment.

This type of fire retardant, i.e., the chemical composition is classified as Leach Resistance (LR) which is not included in EN16755 EXT, but due to its complex formula is classified as "LR" by the Wood Protection Association (http://thewpa.org.uk) which no other fire retardant achieves. So there is a difference between a fire retardant and a fire protection product, despite the same fire class.

WHY DURABILITY CLASS IS SO IMPORTANT

Without fulfilling the requirement of durability of fire performance, it is most likely that the fire protection agent will leach out. But there are also other problems that can arise if the properties of the fire retardant are those of a fertiliser component such as ammonium, which is used in agriculture, and the composition is hygroscopic, which can contribute to a high level of moisture in the wood and an increased risk of mould growth. In fact, hygroscopic substances can carry more moisture than their own weight and this obviously creates major problems.

The images above show, on the left, show white fields of leaching fire retardant caused by hygroscopic properties and without protective surface treatment. **The picture in the middle** shows heavy mould growth caused by high moisture content in the wood and the contribution of nutrients for unnatural mould growth as well as very high moisture absorption. **The right image** shows classified approved fire retardant without leaching or mould growth.

INFO BOX

WOOD**SAFE**® EXTERIOR WFX

- Typeapproved by RISE (0402) according to Durability of Fire Performance EN16755 INT1, INT2, EXT
- Classified as Leach Resistance by WPA, Wood Protection Association, UK.
- No requirement for surface treatment, certified for all types of wood.
- Reference TG0263-08

WOOD**SAFE**® PRO

- Typeapproved by RISE (0402) according to Durability of Fire Performance EN16755 INT1, INT2, EXT
- Surface treatment requirements
- Classified on spruce wood
- Reference TG0263-08

Pelgulinna state secondary school

Pelgulinna State Gymnasium is nominated in the Architect of the Year category and in the Interior Design category and the Finnish Cultural Foundation's Architecture Award.

Since 2012, a large number of state upper secondary schools have been established in Estonia to ensure the availability of quality upper secondary education in every county. The changes are being driven by a decline in the number of pupils and a consequent desire to use resources wisely and to stop the flow of children from the counties to the larger cities. Opened in 2023, the Pelgulinna State Upper Secondary School is the 26th schoolhouse to be completed.

The public architectural competition was won by Architect Must, whose vision was to create one of the largest wooden structures in Estonia. "Pelgulinna State Upper Secondary School is environmentally oriented and it was important for us to create an organic link between the spatial environment and the school's learning direction through the choice of materials," says one of the architects of the building, Ott Alver. "85% of the building's load-bearing structure is made of timber, plus 3,600 m2 of façade cladding and 33 km of timber frame elements."

Wood has been used in a wide and varied range of ways in the school building project and is beautifully displayed. Wood is used for acoustic panels and triangular sound reflecting profiles; the cross-laminated timber wall, partition and roof panels; the cassette ceilings, façade cladding and the frame of the double façade. The finishing materials are light wood with a greyish undertone, giving the building a natural overall appearance.

Source: https://archello.com/project/pelgulinna-state-upper-secondary-school

Read more about **Thermory**, – scan the QR code

In this fantastic project, the collaboration between Thermory AS and Woodsafe Timber Protection AB has enabled Pelgulinna riigigümnaasium to have a very unique and inspiring facade that is unlike any other facade we have seen. The project has been challenging in terms of delivery time and handling as both volume and dimension were extensive. The project comprised approximately 500 cubic metres of thermally modified pine that was fire impregnated with WOOD**SAFE**® EXTERIOR WFX.

Architect: MUST, Riigi Kinnisvara

Insurance companies increase requirements for wooden buildings.

Source: https://www.svenskbyggtidning.se/2023/06/07/nya-forsakringskrav-pa-brandskydd-i-trabyggnader/

Länsförsäkringar has extended its requirements for fire protection of tall wooden buildings. Boverket's building regulations do not take into account how fire protection in a wooden facade is affected in the long term. For this reason, Länsförsäkringar now requires, among other things, that fire protection in wooden façades must have proven durability in an outdoor climate.

- MANY PEOPLE THINK that you get good fire protection for your building if you comply with the Swedish National Board of Housing, Building and Planning's building regulations, without realising that the authorities' requirements focus primarily on protecting people.

"Of course, it is most important that no one is injured as a result of a fire, but we also want the buildings that are constructed to be as resilient as possible and sustainable in the long term," says Anna Dahlström, risk engineer at Länsförsäkringar.
The Swedish National Board of Housing, Building and Planning's building regulations require a wooden facade to be approved according to the SP-Fire 105 facade fire test. However, there are no requirements for the material to be approved for use in an outdoor environment. Therefore, Länsförsäkringar now requires that a wooden facade must also be type-approved according to EN 16755 EXT, which concerns resistance in outdoor climates.

- SP Fire 105 does not consider the long-term effects that a facade exposed to the outdoors is expected to be exposed to. "It is quite easy to meet SP Fire 105 with the addition of fire retardants or similar, but more difficult to maintain the properties over a long period of time," says Anna Dahlström.

She points out that there is a risk of impregnating agents and additives leaching out and that after a while you no longer have a facade that maintains its fire protection properties.
- A facade material that is type-approved according to EN 16755 EXT, where the facade has been subjected to accelerated ageing in tests, provides better fire protection over time, which is extremely important as the building must function throughout its technical lifetime.

Björn Yndemark is a fire consultant at YHR Consulting. He says that although it is not stated in the building regulations, it is already common practice in the construction industry to require resistance-tested panels according to EN 16755 EXT on tall wooden buildings.

- But it is good that Länsförsäkringar clarifies what applies. Historically, when buildings have been designed, very little emphasis has been placed on the insurance companies' requirements. Now it will be clearer for developers that there will be requirements and they can avoid being caught out at a later stage if it turns out that something deviates from the insurance companies' view. At the same time, Björn notes that Länsförsäkringar's new requirements are not entirely consistent with other rules.

"There are differences with Länsförsäkringar in both the Swedish National Board of Housing, Building and Planning's current building regulations and the agency's proposal for revised building regulations - even Trygg Hansa's rules differ in some areas. There should be more synchronisation. If everyone has their own guidelines, it will be almost impossible for developers to know what is correct," says Björn Yndemark. He was part of a consultation group when the Swedish National Board of Housing, Building and Planning drew up proposals for revised building regulations.

Increased requirements for wooden buildings

Among the differences, he mentions that Länsförsäkringar's rules apply if the building has more than three floors, while the Swedish National Board of Housing, Building and Planning focuses on buildings with more than three floors. There are also differences such as the fact that a combustible frame can be protected by cladding instead of sprinklers. The Swedish National Board of Housing, Building and Planning's new rules are proposed to allow this, while Länsförsäkringar has introduced certain restrictions on which technical replacements are approved - "But it's just over a year until the Swedish National Board of Housing, Building and Planning issues revised building rules, plus a transition period of one year.

When I asked the insurance companies about this, they said that they will look at the new rules when they come, and then they can relatively quickly change their rules to possibly synchronise with the Swedish National Board of Housing," says Björn Yndemark.

Peter Johnson is product manager at Woodsafe Timber Protection AB, which manufactures fire-impregnated wood. He notes that many fire protection products are hygroscopic, which makes them sensitive to moisture. "If moisture gets into a wooden panel, the fire retardant can start to migrate and reduce its content.

- Our fire-impregnated products are type-approved in accordance with EN16755 EXT and we have long called for requirements for fire protection to be durable over time. Therefore, Länsförsäkringar's initiative is good because it helps developers and fire consultants to choose the right fire protection with the help of type approval," says Peter Johnson.
He points out that it is not enough to claim that a product is approved according to EN16755 EXT by showing a single test, as the standard requires several consecutive tests. It is also not enough to show a classification report for the UK which for a period of time had different lower test criteria compared to the rest of Europe.

- Unfortunately, this is an example that occurs and I believe that it is misleading and risks leading to construction errors with the installation of products that do not have acceptable resistant fire protection. Hopefully, Länsförsäkringar's new requirements for resistance in outdoor environments will also be introduced in the building regulations," says Peter Johnson.
Länsförsäkringar's new requirements were developed after the construction industry, the Swedish National Board of Housing, Building and Planning and the international reinsurance market asked what requirements insurers set for new construction of tall wooden buildings.

The new requirements apply to buildings with combustible frames that have four or more storeys and are designed from 1 January 2023.
Länsförsäkringar encourages developers and construction companies, together with their fire consultants, to contact their regional insurance company as early as possible in the construction process.

"As an insurance company, we always want to be involved from the start and have the opportunity to influence things. It is important to choose the right building materials at the design stage. If something has to be changed afterwards, it often becomes more expensive and sometimes it is not even possible. This can lead to higher insurance premiums or, in the worst case, to us not being able to insure the building," emphasises Anna Dahlström.

- A facade material that is type-approved according to EN 16755 EXT, where the facade has been subjected to accelerated ageing in tests, provides better fire protection over time, which is extremely important as the building must function throughout its technical lifetime."

INFO BOX

WOOD**SAFE**® EXTERIOR WFX & PRO

- Typeapproved by RISE (0402) according to Durability of Fire Performance EN16755 INT1, INT2, EXT
- Certificate reference: TG0263-08

"This is the symbol you should ask for if you want to be sure your choice meets the requirements of SP-Fire 105 and EN16755 EXT"

CL boards gives **freedom** to create **large wooden** surfaces.

"3-5-7 wooden lamellas is the building's "wooden wallpaper" in large formats up to 5000x1200x50mm. that achieves fire class B-s1,d0 through WOOD**SAFE**® *fire retardant treatment"*

CL board in 3-5-7 layers, is considered to be entirely made of solid wood as a finished product. By joining the longitudinal and transverse layers together, any distortion of the wood - swelling or shrinkage - is reduced to a negligible level. As a result, the product can easily fulfil the requirements of a modern building material. Cross-laminated timber is monolithic and is effectively a single piece of wood. The solid finished multi-layered product can carry high loads and allows for efficient construction time. CLT with WOOD**SAFE**® fire retardant treatment fulfils national building code SP-Fire 105 and Euroclass B-s1,d0 as well as durability of fire performance EN16755 EXT.

CL board fire retardant treated with WOOD**SAFE**® Exterior WFX is type approved in accordance with the Swedish National Board of Housing, Building and Planning (SFS 2010:900). Available formats are standard dimension to project customised dimensions.

CL BOARD is a building component consisting of at least 3-5-7 layers of glued boards or planks made of softwood, where every second layer is at 90 degrees to the adjacent layer.

CL BOARD WITH HEAT TREATED SURFACE

A beautiful wood that is heat-treated at about 200 degrees and therefore has a dark colour throughout. Probably one of our most exclusive CLT boards. Rot-resistant, but to avoid greying, it needs to be surface treated.Without surface treatment, heat-treated wood greys quickly if exposed to sunlight. The greying can be reduced or stopped with various UV protection and pigments added to oils, varnishes or glazes.

CL BOARD WITH STAINED SURFACE

The possibility of choosing a natural surface for natural ageing is just as possible as choosing a coloured surface in shades such as grey, black, brown, silver and others.

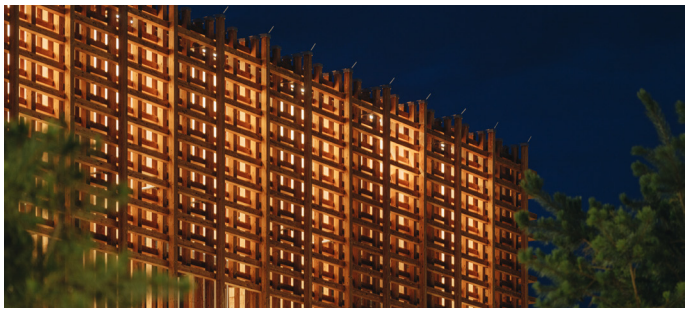
INFO BOX

WOOD**SAFE**® - CL BOARD

- Typeapproved SP-Fire 105
- Typeapproved by RISE (0402) according to Durability of Fire Performance EN16755 INT1, INT2, EXT
- Reference TG0263-08
- CE certified B-s1,d0 (EN13986)
- Can be used indoor and outdoor
- Cimensional stability
- Large variety of formats
- Can be coloured

Portfolio

WOODSAFE® EXTERIOR WFX



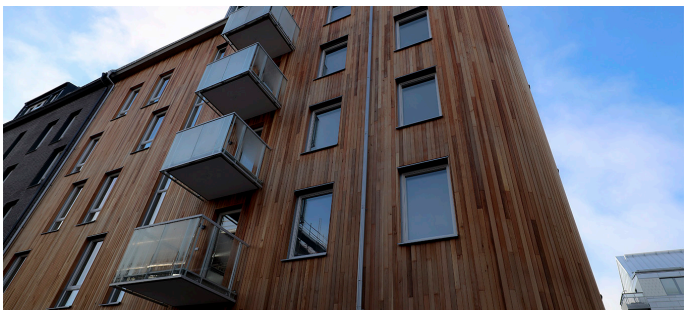


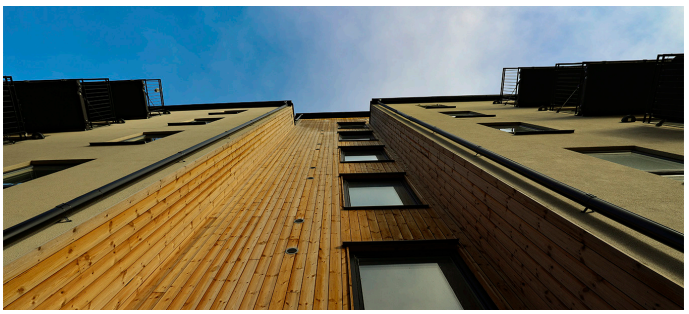


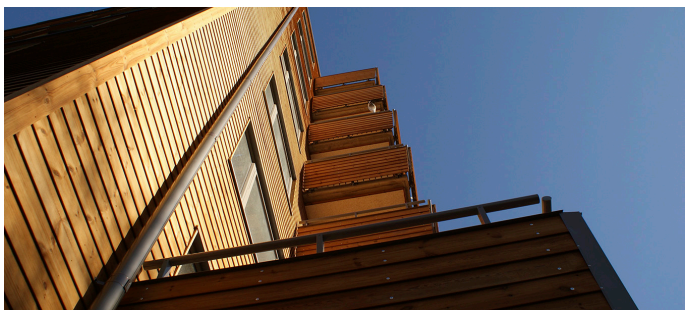


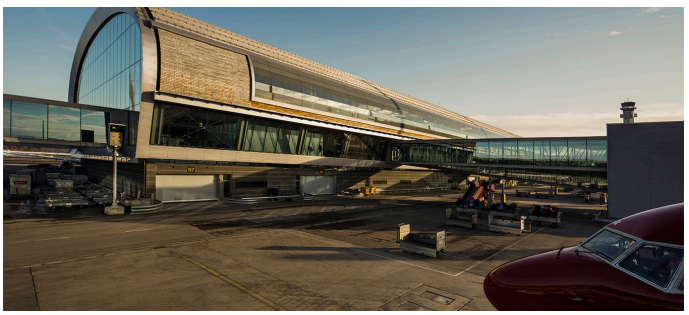


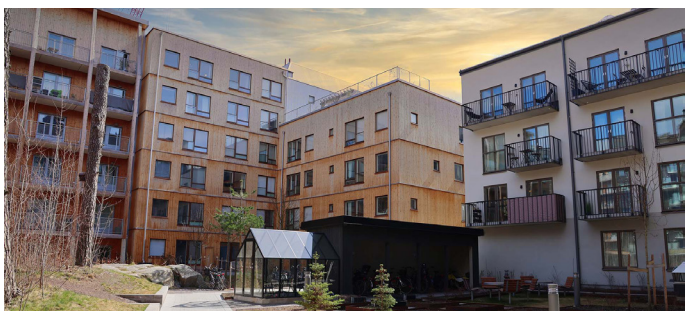
WOOD
HOTEL



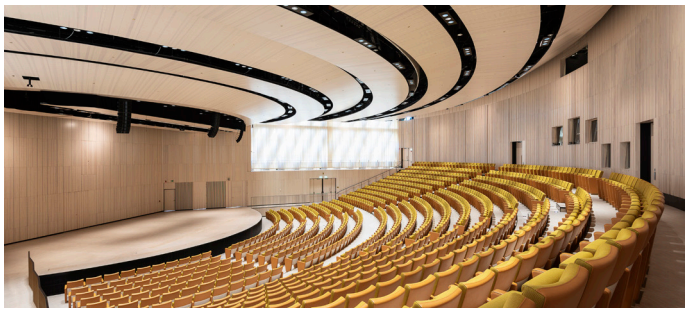


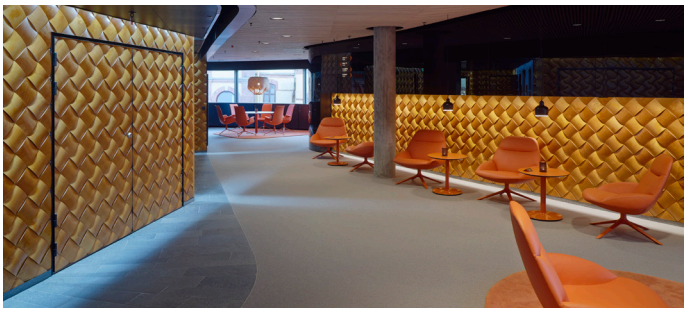


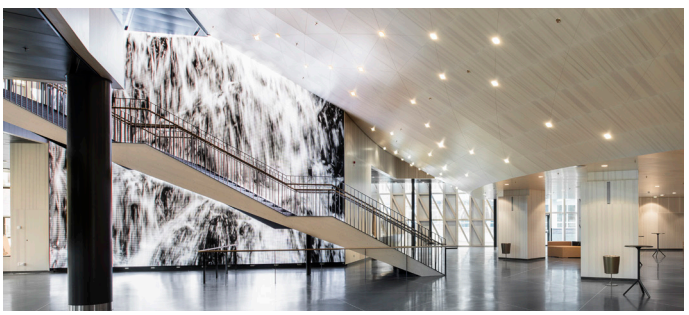




Portfolio
WOODSAFE® PRO







Notes

WOODSAFE®

Durable Fire Protection

LET'S KEEP IN TOUCH

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