



# An Introduction To FireWright® Natural Fire Retardant Timber Treatment



Lullaby Lane



**FireWright®**

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# An Introduction To FireWright® Treatment

## What is FireWright®?

FireWright® is WJ Group's 100% natural and biodegradable fire-retardant treatment. This environmentally friendly treatment is impregnated into the cell structure of the timber, ensuring the treatment lasts the lifetime of the healthy timber.

We have a dedicated treatment facility in Yorkshire giving us fast distribution networks across the whole of the UK. We have one of the largest kilning capacities in the UK allowing us to cater for large volumes from customers and greatly reducing our lead times.

Our fire-retardant solution is applied using the latest high-pressure, environmentally friendly treatment technology. Our entire process and factory production manual are both audited annually by our notified body giving us our CE/UKCA and ISO 9001 certification. This gives our customer the assurance their timber is treated to the highest specification possible.

FireWright have tested and classified a long list of wood species to the highest possible standard;

- BS EN 13501-1 Fire classification of construction products and building elements.
- EN 45545:2015 R1&R10 – Railway applications. Fire protection on railway vehicles. Requirements for behaviour of materials and components.
- EN 16755:2017 – Durability of Reaction to Fire Performance.

FireWright® can ensure that our treatment achieves the required standards and fire classifications through our factory-controlled processes and computer-controlled equipment. This ensures the correct and specific amount of solution is impregnated into the timber / wood-based panels.



FireWright® Treated Thermo-Ayous In The Kiln  
With Probes For Moisture Testing & Monitoring

# The Treatment Solution



## Introduction

FireWright's treatment is a 100% natural, non-toxic and biodegradable solution. The natural ingredients that go into the powder solution are all fully sustainable making FireWright® an environmentally friendly choice for the fire-retardant treatment of timber.

## The Sustainable, Environmentally Friendly Choice

FireWright® Fire Retardant Powder is Cradle to Cradle Certified™ at 'Gold Level' which makes our product the very first Fire Retardant in the Cradle to Cradle Certified™ Products Program. Part of the sustainability certification includes a Platinum status for Material Health – the highest level of certification possible.

Cradle to Cradle Certified™ model products are designed in a way so that at the end of their initial life they can be readily reused or recycled and therefore avoid landfill altogether. This guides designers and manufacturers through the continual improvement process that looks at a product through five quality categories: material health; material re-utilisation; renewable energy and carbon management; water stewardship; and, social fairness.



## FireWright® Treated Timber Achieves Euroclass B-s1, d0 Rating

FireWright treatment brings treated material to Euroclass B-s1, d0 meaning it's the highest rating achieved for a combustible material.



# The Treatment Process

## High Pressure Impregnation Process

Through the use of an autoclave, we use the latest high-pressure treatment technology to impregnate the fire retardant treatment solution into a variety of timber and plywood species, as well as scaffolding and external timber cladding. This is done in a dedicated facility within a controlled factory environment. The treatment is clear and transparent, it doesn't leave any visible stains or imperfections in the timber.

## Kiln Drying

Our specialist kiln drying facility allows us to return timber to an appropriate or specified moisture level post-treatment, supporting construction standards to hold 10–18% moisture. We have the one of the largest kilning capacities in the UK.

We use probes in timber to constantly measure the moisture content of the material that is in our kilns. We can also dry material to specified moisture levels.



# Choosing The Euroclass System

## Why Specify Euroclass Rather Than Class 0?

The Euroclass system was introduced by the EU to remove trade barriers between member states by having countries adhering to the same standards, prior to this each country had their own testing methods. The UK Building Regulations had a categorisation established that concerned fire safety (1991), used for materials utilised in wall and ceiling linings to ascertain the extent of flame spread.

For UK Building Regulations, Class 1 is the highest level of performance, demonstrating minimal flame spread. While Class 4 indicated the worst performance. Class 0 signified a flame spread equivalent to Class 1, while also taking into consideration the limited heat released from the surface of a product.

The Euroclass system was introduced to the UK by means of a transition, meaning there was a transition period before ending the Class 0 benchmark and moving to the more superior Euroclass system permanently. Years down the line this transitional period is still (24/09/24)\* in effect. While both choices are technically available for specification in construction projects, properly specifying FR materials should use Euroclass. FireWright timber treatment is rated b,s1-d0 in the Euroclass system.

Fire safety standards have evolved significantly over the years, driven by advancements in materials science and testing methods. What was once considered sufficient may no longer meet the demands of modern construction practices and regulatory requirements. Class 0 primarily focuses on surface spread of flame and smoke production, neglecting other critical aspects of fire behaviour. This narrow focus can lead to gaps in fire safety measures and may not accurately reflect real-world fire scenarios.



# Testing and Certification Documents



## Testing and Certification

We believe that certification, traceability and transparency combined with high quality documentation is the key to the provision of fire-retardant specification. FireWright's treatment and facility have been independently audited and certified under the Construction Products Regulation (CPR) in accordance with AVCP system 1. These are the legal requirements for auditing factory production control of a fire-retardant facility and ensure the constancy of performance of the manufactured products.



We provide a Declaration of Performance (DoP), in line with our CE Mark certification for each of our fire-retardant treated products. The timber material distributor of the FireWright treated product is responsible for the issuance of a Declaration of Performance (DoP) however, as well as issuing this to distributors, we keep records internally should customers need to reference this in the future.

As part of our treatment, you also get a Constancy of Performance (CoP) issued by our notified body, Finotrol Oy. This certification shows the range of species and applications including thickness details and density of the material tested and the corresponding results. This gives architects, distributors and end-users the clarity, transparency and peace of mind that our treatment has been audited by a third party notified body.

# UKCA/CE Marking

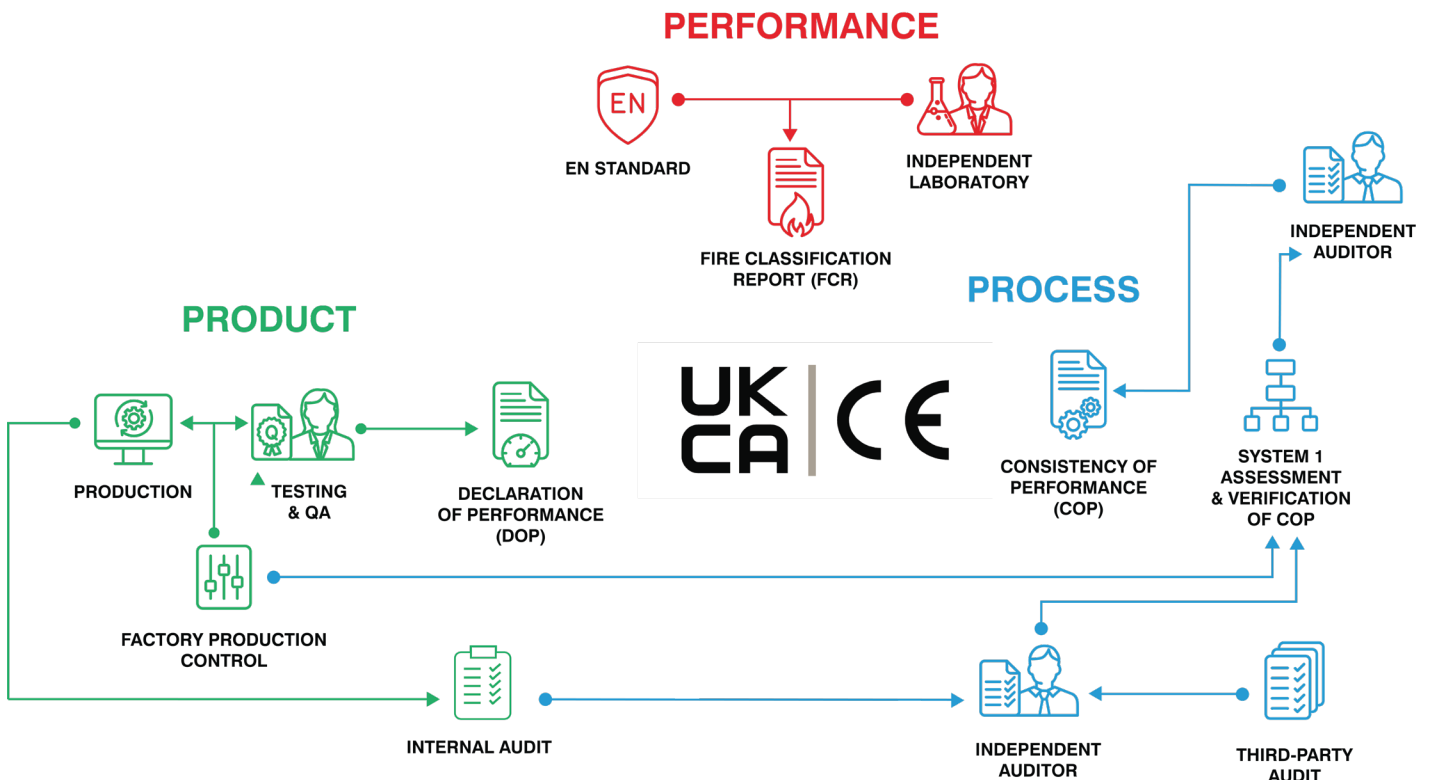
## UKCA/CE Marking

FireWright® issue distributors with everything needed for UKCA/CE marking their product. This is not something we have to issue, rather something we go above and beyond to offer our customers. This means that FireWright treated material comes with:

- A Fire Classification Report
- Declaration of Performance
- Constasy of Performance

Certificates of Constasy of Performance are for:

- Solid wood panelling and cladding – EN 14915:2013 + A1:2017
- Wood based panels – EN 13986:2004 + A1:2015



The above diagram shows the various processes, documentation and certification that goes into offering UKCA/CE marking for fire-retardant timber products. When specifying FireWright® treated materials, you're also specifying certified, reliable and trusted peace of mind.

# St Mary's Catholic Primary School



## Fire Retardant Timber Treatment Project Overview

St Mary's Catholic Voluntary Academy in Derby, Derbyshire is a newly constructed school, with cedar cladding to all external elevations.

The brand-new construction of the academy has now opened its doors to pupils and teachers just three years after their original school burned down due to an arson attack. The site was selected by the Department for Education (DfE) in 2021 as a pilot scheme, following the devastating attack that destroyed the previous school. Given the history of the former school, this modular build was specified to have fire retardant timber cladding.

The timber cladding helps the academy in its approach to being net-zero carbon in operation, low embodied carbon and an MMC exemplar. The roofs of the five blocks are also currently being prepared for either PV or wildflower green roof installations that will contribute to the school's energy loads; albeit the core of the energy strategy is to reduce the need for heat and light in the first instance.

This the UK's first biophilic primary school, designed to increase occupant connectivity to the natural environment through the use of direct nature, indirect nature, and 'space and place' conditions.

FireWright were contacted by timber supplier, Duffield Timber to provide a fire-retardant timber treatment for all of the external cedar cladding panels for the project. Duffield Timber, a Ripon based timber supplier, needed around 53 cubic metres of timber for the whole project to be treated.



## Fire Retardant Timber Treatment Project Overview

The York University has been at the heart of its community for more than 180 years. It has one of the most impressive city centre campuses in the UK – making it yet another impressive, high-profile project to be involved in. Designed to foster creativity and collaboration among students and staff, required building materials that combined aesthetics, sustainability, and safety.

Russwood, a renowned supplier of high-quality timber, were tasked with providing Siberian larch timber for both the exterior and interior of the new building. To meet stringent fire safety regulations, they turned to our FireWright team for expertise in fire retardant timber treatment. While the timber offered durability and an appealing aesthetic, it needed to meet stringent fire safety requirements for use in a public building.

FireWright, being a trusted provider of fire retardant timber treatment solutions, were chosen to ensure that the Siberian larch timber met the necessary fire safety standards without compromising its natural beauty. Our expertise in timber treatment, combined with our commitment to sustainability, made us the ideal partner for this project.

FireWright's commitment to safety, sustainability, and quality proved invaluable in achieving the project's objectives, showcasing our vital role as a trusted partner in delivering an timely fire retardant timber treatment for customer, Russwood. This large volume case study is an example of how FireWright can provide a high quality, timely service for customers.

# Queen Elizabeth Hospital, King's Lynn



## Fire Retardant Timber Treatment Project Overview

Queen Elizabeth Hospital, King's Lynn, included a new vaccination centre and nursery to their grounds opening on the 8th March 2023. The buildings are both modular systems supplied by FireWright customer, Kingston Modular Systems.

The buildings both specified thermo pine timber cladding on all elevations. Thermo pine is a thermally modified Scots Pine timber, using only heat and steam in the modification process. Using thermo-pine for external cladding is a great choice due to its exceptional durability (Class 2 - 3 BS EN 350-2). The thermally modified pine also benefits from high stability with a reduction in any swelling or shrinking thanks to the thermal modification process.

We were contacted by Kingston Modular Systems to provide fire retardant treatment for their thermo pine cladding. Treating around 6m<sup>3</sup> total, FireWright enhanced the project's safety standards without compromising design through our natural, clear treatment solution impregnating the thermo pine cladding. Using timber cladding not only looks great but is a sustainable choice, using timber sourced from sustainable forests. Untreated thermo pine is rated Euroclass D however using our FireWright treatment, the Euroclass rating is increased to B with an s1 smoke rating and D0 for burning droplets.

These stunning units are now installed and have been in use since March 2023. The external aesthetic of the cladding is now a natural grey colour and the cladding meets Euroclass B s1,d0. The fire retardant properties of the timber cladding will last the lifetime of the cladding's healthy life. We can treat a range of external and internal cladding species and profiles and work with the UK's leading cladding suppliers.

# Great Yarmouth Market Place



## Fire Retardant Timber Treatment Project Overview

Situated in the historic town of Great Yarmouth, the Great Yarmouth Indoor Marketplace is a vibrant hub for local vendors and artisans.

This multi-million pound bustling marketplace required building materials that combined functionality, aesthetics, and safety. The project called for the use of Siberian larch timber for the facade, and a wood panelled ceiling & walls, producing an impressive finish. To ensure compliance with fire safety regulations and preserve the visual appeal of the timber, the project's architects turned to FireWright® for their expertise, fast turnaround and certified, natural fire retardant timber treatment.

All of the treated timber was handled at one of our treatment facilities in Yorkshire for our Scottish headquartered client, Russwood. The Great Yarmouth Indoor Marketplace is a central gathering place for the local community, offering a wide range of goods and services. The project aimed to create a welcoming and attractive space while ensuring the safety of the visitors and vendors.

The stunning project was designed by Chaplin Farrant Architects, who have been established since 1938 and with 85 years in the business, have grown into one of the leading multi-disciplinary architectural practices. The project contractor, Pentaco Construction Ltd used supplier Russwood to provide the timber for this project. The selection of FireWright's fire retardant timber treatment on their Siberian larch timber for both the facade and wood panelled ceiling and walls of the Great Yarmouth Indoor Marketplace was a great choice to meet stringent fire safety regulations while preserving the timber's natural beauty.

# Forge Mill Farm Visitor Centre



## Fire Retardant Timber Treatment Project Overview

Forge Mill Farm is a Government-run visitor centre in West Bromwich open for families, schools and colleges to learn more about animals, food and the environment. This brand new farm building is the new indoor play area for the visitor centre as well as having a cafe and classroom space for educational use. The exterior of the building is clad with Thermowood, a modified redwood product. The cladding has been supplied by Vincent Timber, a leading cladding supplier in the UK.

As part of the project, Vincent Timber supplied 18 cubic metres of the thermowood cladding to their customer which has been treated with FireWright® natural fire-retardant timber treatment. FireWright® were contacted by Vincent Timber to treat 6,786 linear metres of Thermowood for this Forge Mill Farm project. As per the specification, the design of the building benefits from a stunning natural appearance, with cladding to all elevations of the building and, after utilising FireWright's treatment, the building's cladding now meets Euroclass B s1, d0.

Thermowood cladding offers several benefits for building exteriors. The modification process improves the cladding's stability while reducing the risk of warping, cracking, or shrinking. This gives a longer lasting material life for the cladding. The thermal aspect of the modification process gives the appearance of a slightly darker colour enhancing its look while turning a natural grey colour after a prolonged period of time.

# Orsett Heath Academy



## Fire Retardant Timber Treatment Project Overview

Set in Grays, Essex, the Orsett Heath Academy is a co-ed secondary school academy. It is the newest member of the South-West Essex Community Education Trust and was built under the leadership of nearby William Edwards School.

McAvoy, an offsite manufacturing specialist with over 50 years experience, was appointed by the Department for Education to deliver a new 8,610sqm secondary school to accommodate up to 1,200 pupils aged 11-16. The large building was specified to have timber cladding on all facades of the building.

Working with cladding supplier for the project, Vincent Timber, FireWright® were instructed to treat the thermo-ayous timber cladding for them with our 100% natural and biodegradable fire-retardant solution. Our treatment was impregnated into the cell structure of 70.35m<sup>3</sup> the thermos-ayous timber cladding.

Working with Vincent Timber, we were able to treat the cladding and return the material back to them on a timely schedule to enable them to provide McAvoy with a regular delivery of the cladding material for installation.

Upon completion of the treatment for Vincent Timber, they were issued with a Declaration of Performance, Constancy of Performance and Fire Classification Report for all treated material. This gives full traceability and provides customers with confidence in the treated material's performance.

Credited: McAvoy & Miru Visuals



FireWright®



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