www.greenoakcarpentry.co.uk | 01730 892049

Enquiries@greenoakcarpentry.co.uk

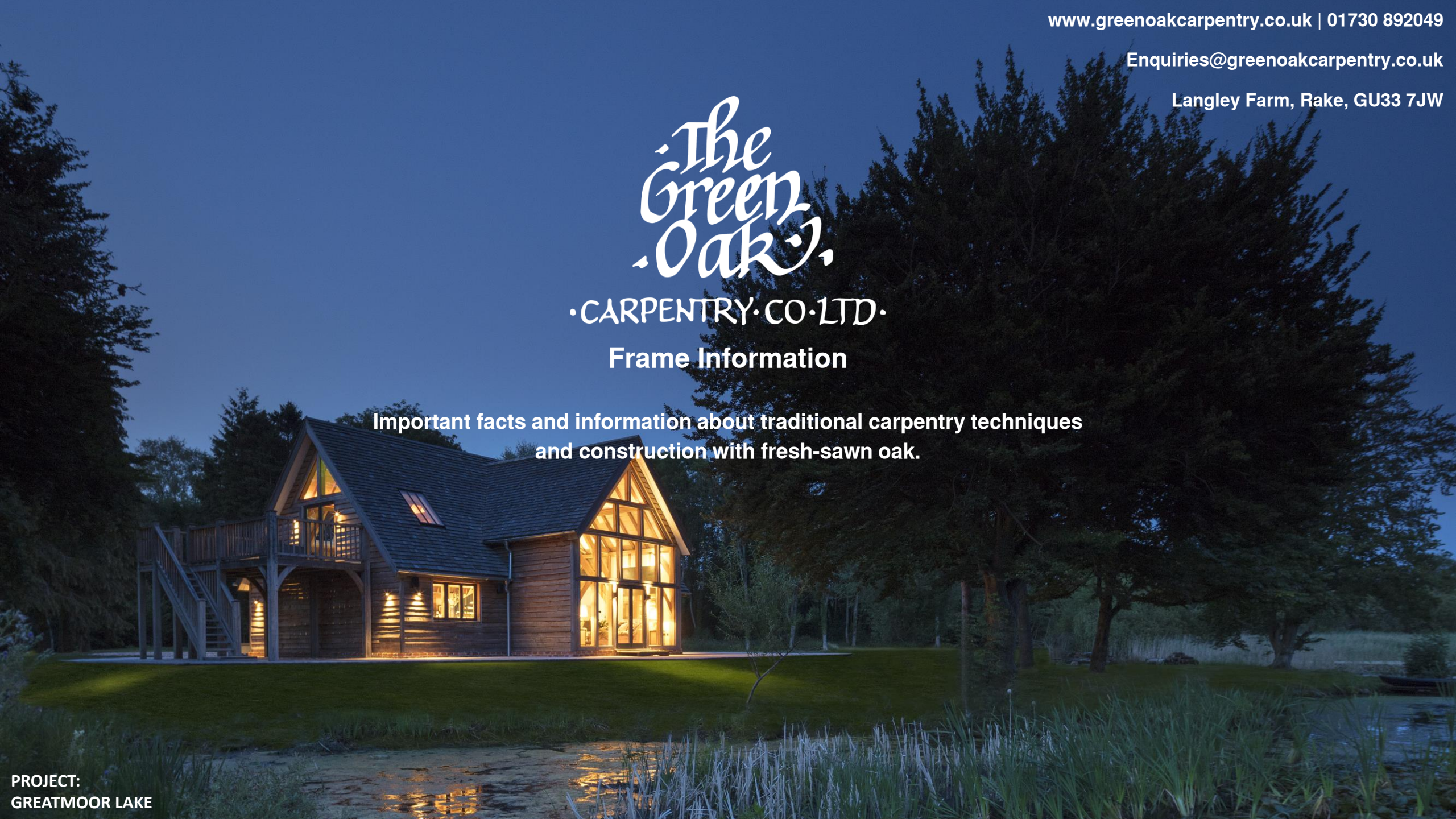
Langley Farm, Rake, GU33 7JW

The Green Oak

CARPENTRY CO LTD

Frame Information

Important facts and information about traditional carpentry techniques and construction with fresh-sawn oak.



PROJECT:
GREATMOOR LAKE

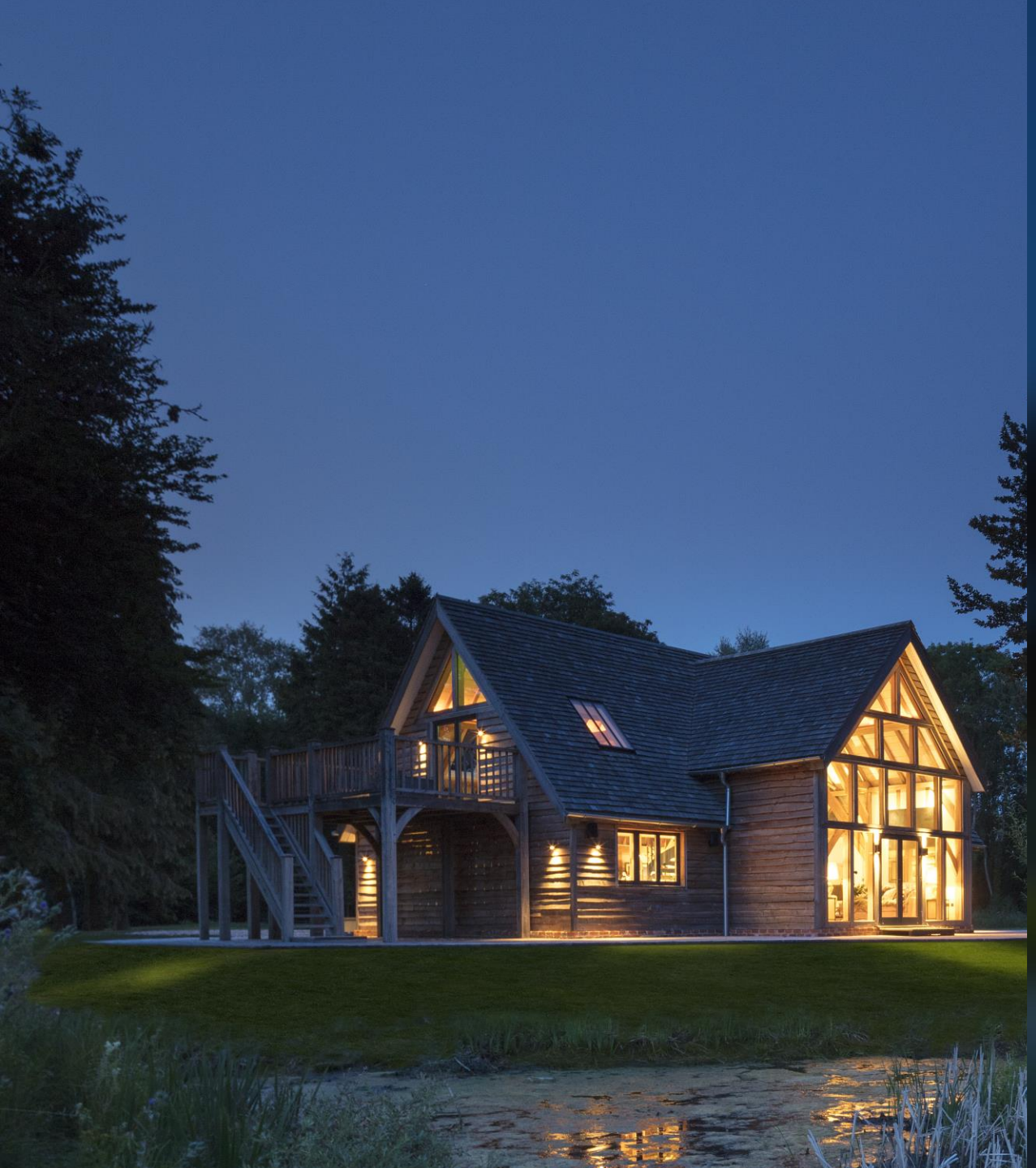
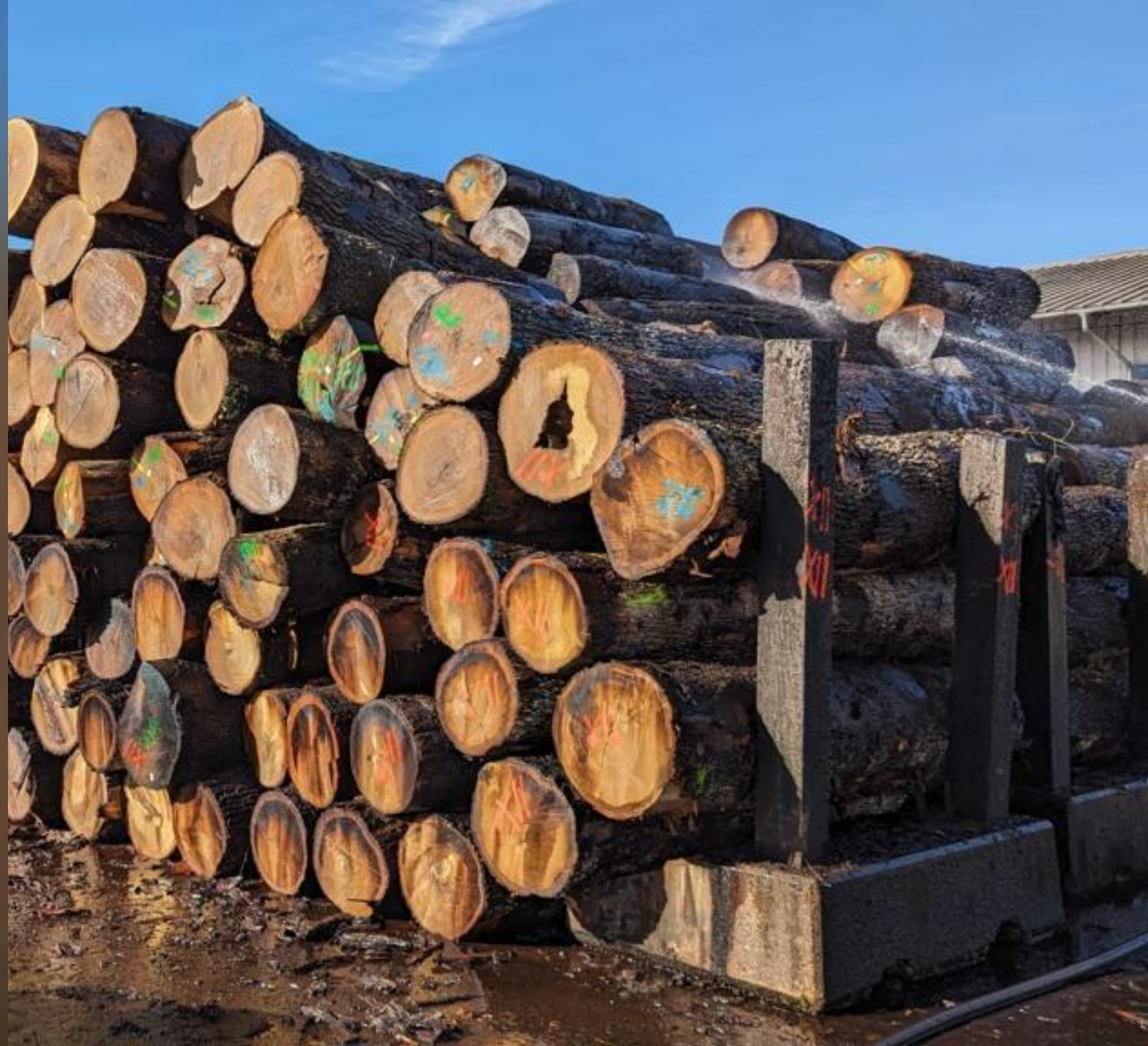


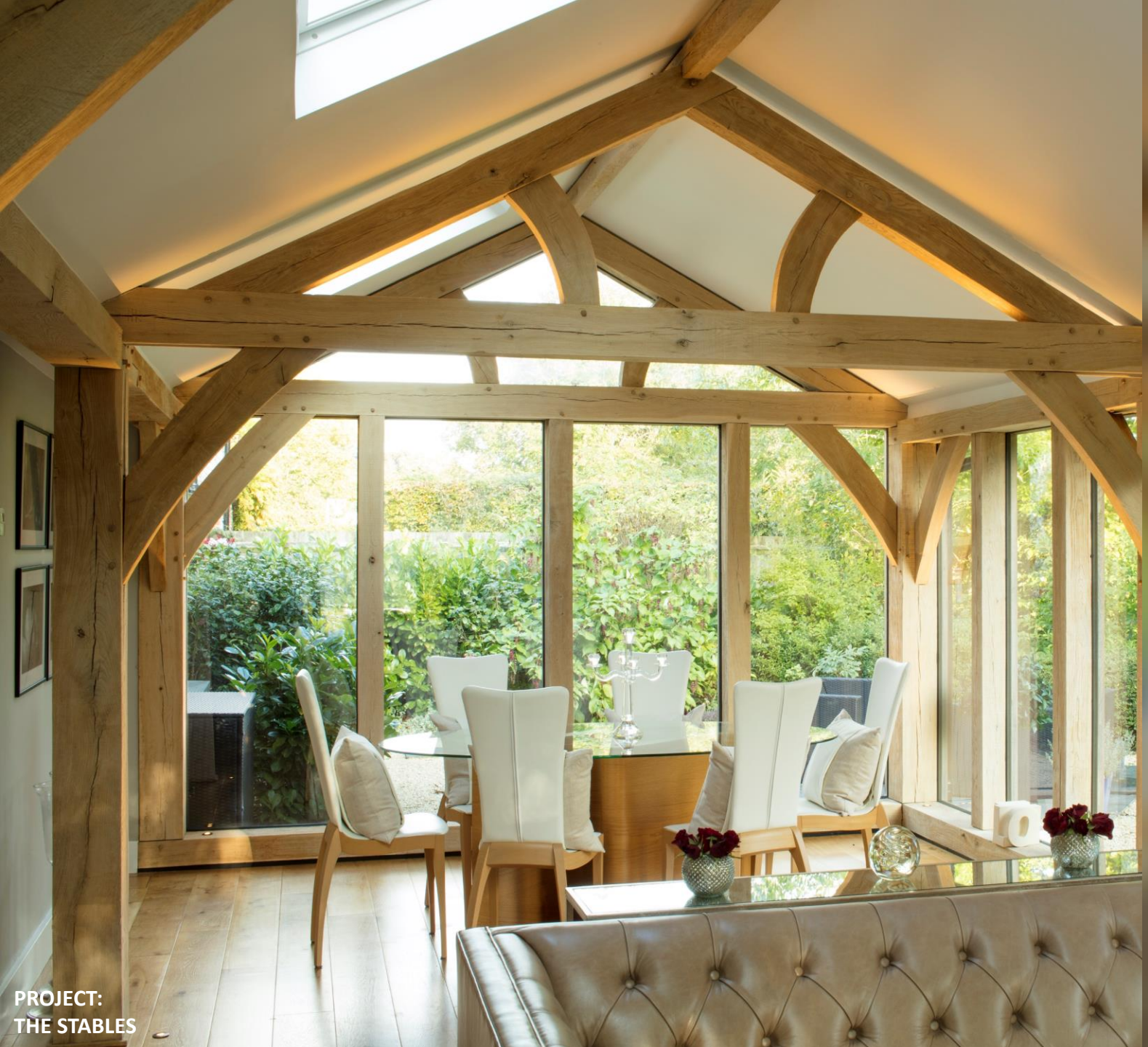
Table of Contents

Why Green Oak

The strength and durability of oak is well known as a natural building material which has been used for hundreds of years.

- Oak possesses a natural elegance that never goes out of style. It's warm tones and distinctive design capabilities add character and charm to any space, making it a preferred choice for both traditional and contemporary designs.
- Oak is renowned for its strength and resilience. When properly maintained, oak frames can last for generations, making them a valuable long-term investment.
- As advocates of sustainable practices, we prioritise using environmentally friendly materials. Oak is a renewable source that reduces the carbon footprint of your project.
- Oak frames offer versatility in design, enabling us to create intricate structures with curved elements, dramatic vaulted ceilings and open-plan living spaces.
- The structural integrity of oak frames is exceptional, providing stable and secure constructions that require minimal maintenance.
- Incorporating an oak frame into your property can significantly enhance its value and desirability in the real estate market.



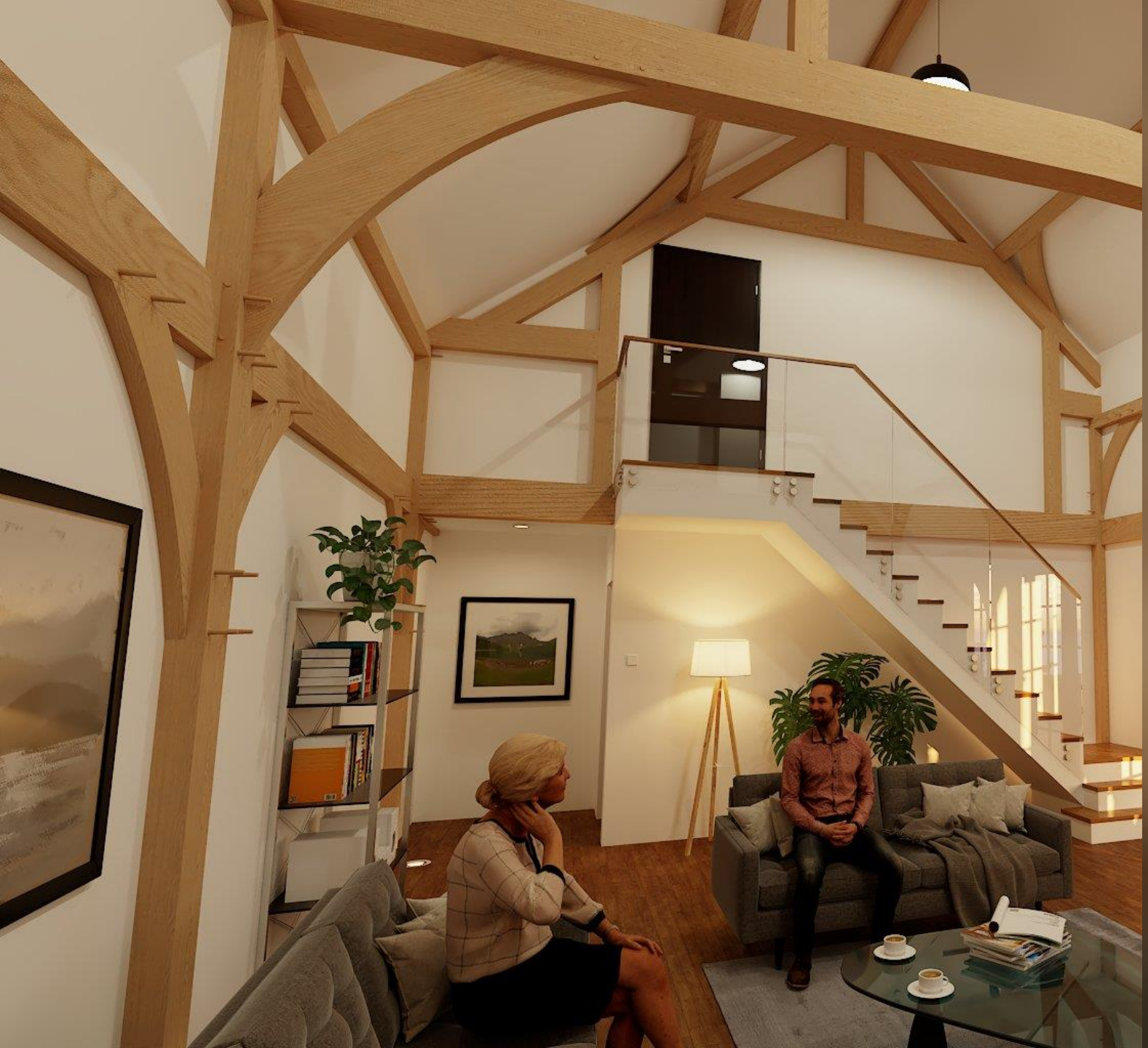


PROJECT:
THE STABLES

Why Oak-Frame Construction

There are a growing number of discerning people who are choosing to have their homes designed by professionals and built by craftspeople. Not only can the character and integrity of an oak frame add to the resale value of a property, but the build process and end result have distinct advantages over alternative building methods:

- Being lighter than masonry means an oak frame can often require fewer substantial foundations
- Raising a prefabricated oak frame is much faster than masonry construction, in a few exciting and rewarding days on-site an entire building is formed before you in beautiful oak.
- The builder can achieve a wind-and weather-tight shell in a fraction of the time.
- An oak frame has great benefit in its flexibility to be designed to suit almost any vernacular and meet local regulations and requirements when it comes to planning.
- The environmental and aesthetic appeal of oak-framed buildings is often favoured by conservation officers who champion historically sensitive materials.



Estimating

Start your projects with our seasoned team of estimators, who will work side by side with you to assist sculpting the initial stages of your project, engaging in detailed discussions, and employing tools such as SketchUp to produce preliminary 3D visualizations. We specialize in developing and defining the precise scope of your oak frame, ensuring a harmonious blend of design and functionality.

We offer our initial estimating services free of charge, so feel free to get in touch and we will help make your project a reality.

Design Development & Engineering

Our team of draughtsmen and frame designers use CAD (Computer Aided Design) modelling to create a timber framed building unique to you and your project needs. In deciding to build an oak frame it is important to consider as many of the features that a well-designed oak frame can offer you. These include galleried floors and mezzanines, integral conservatories, glazed areas of roof to create light wells, open plan living spaces and so on.

In specialist areas, such as raised tie trusses tying into masonry or hard finishes where damage can be caused through spreading, suitable detailing must be accounted for in the initial design stages. An early meeting is free, so please come and share in our knowledge and enthusiasm.

Timber Specification and Selection

Published by TRADA (Timber Research and Development Association), now known as Timber Development UK, *Green Oak in Construction* is the go-to reference book which specifies the standards for building with green oak. Co-authored by our company founder Andrew Holloway, it is the industry standard and the benchmark used by framing companies and engineers alike.

Timber quality is vital in producing frames of high quality. In general, we use best quality QPA / QP1 grade timber throughout our frames, occasionally to a higher specification where required. It is worth bearing in mind that it is not necessary to use joinery grade timber; to specify knot and sapwood-free would not only require trees of a size which do not exist but incur huge waste and unnecessary costs.

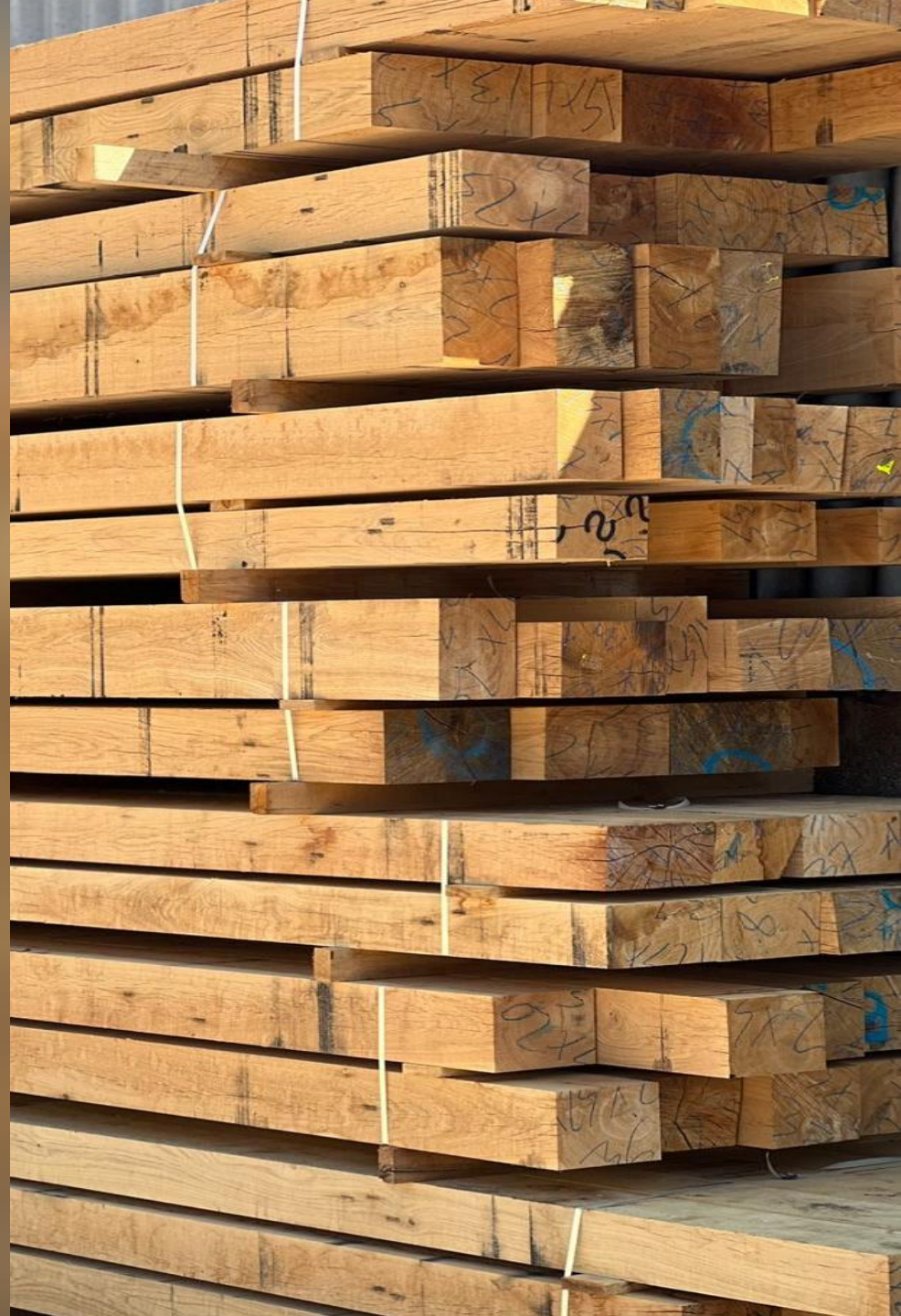
The natural features of timber add character to buildings and in most cases can be carefully controlled. Our carpenters ensure that each individual piece of timber is suitable for the structural purpose it is to perform.

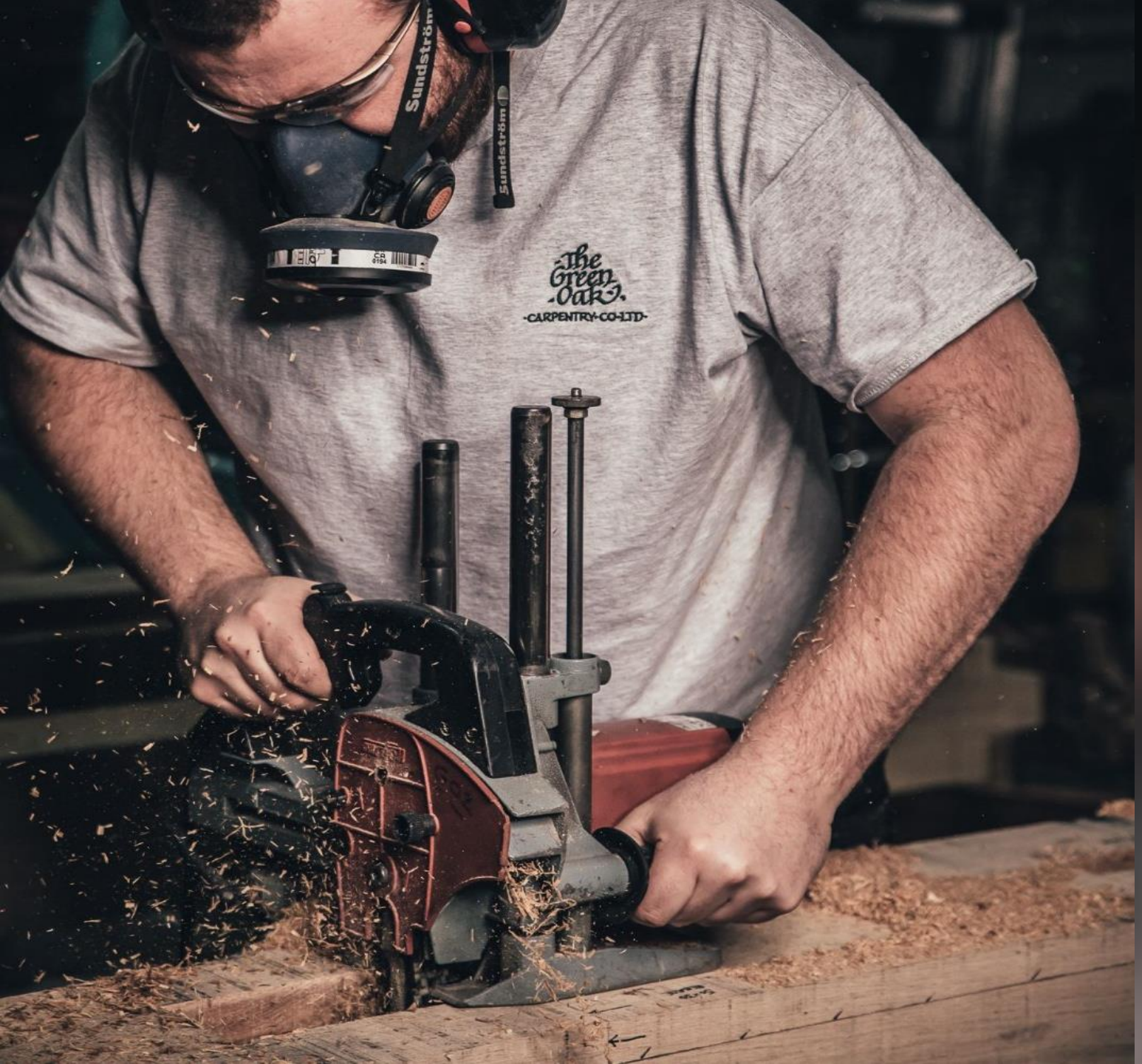
Sourcing and Environmental Consideration

Though native to the UK, very few of our home-grown oak trees have the suitable characteristics needed for post-and-beam timber frame construction. Most of the oak we use comes from France, where forests have been specifically managed over hundreds of years to provide excellent construction timber.

With a continued history of growing tall, straight trees of exceptional quality specifically for building purposes, our company directors have direct and close relationships with sawyers and sawmills to ensure we always receive timber of the highest quality for our oak frames.

All timber is sourced from forests that adopt the highest standards in environmental management and predominantly where PEFC accreditation can be provided. Talking of ‘wood miles’, a sea crossing is much more environmentally friendly than road miles and is comparatively low from Normandy to our yard on the Hampshire Sussex borders.





Fabrication

Our frames are hand-crafted by our team of carpenters who have developed the skills practised since the Middle Ages of scribing together the naturally shaped components into buildings. It is our view that the ability to create a finely crafted, feature rich frame at the hands of an experienced carpenter, practising considerate craftsmanship and diligent timber selection results in a far higher quality product than anything coming out of CNC (Computer Numerical Control) machines.

As a result of these standards, our company has won the prestigious Gold Wood Award a record three times - no other company has managed to achieve this accolade more than once. Several examples of what can be achieved can be found on our website along with or delighted customers testimonies.

Assembly

Every team that fabricates a frame in our workshops, also assembles the frame on site, meaning each team member knows the frame inside out by the time it is ready to be assembled on site. The assembly phase of the project happens very quickly with a large house frame typically being assembled in as little as 1 week. This is due to 90% of the carpentry work being done in our workshops with traditional prefabrication techniques that have been used for hundreds of years.

Most assemblies require a crane due to the weight and size of the timber, however this is all taken care of by us in coordination with you or your main contractor. All of our carpenters have specific CPCS qualifications in the use and supervision of cranes and lifting equipment.

Finishing

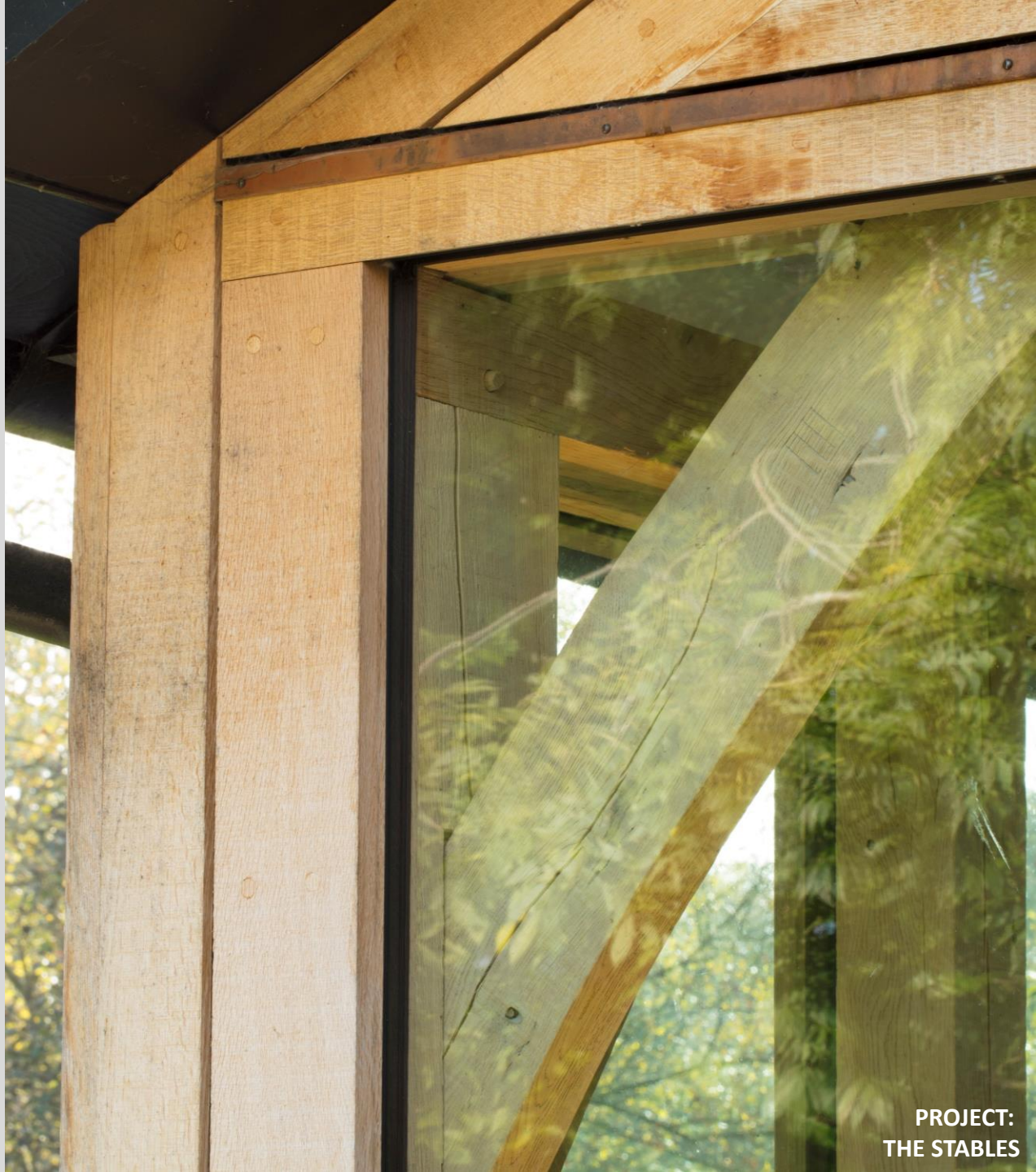
We strongly recommend sandblasting the finished frame to remove any residual assembly marks and stains. Sandblasting raises the grain, giving an attractive uniform finish throughout which fits well into most schemes. The ideal time to sandblast is after covering in and before the completion of other finishes susceptible to damage by this process.

You may also wish to consider beam-planing the frame members whilst the frame is in the workshops, however we would still suggest making some allowance for cleaning after the assembly of the frame and the building envelope has been completed. These costs are not included in our estimate unless stated otherwise.

The majority of our clients prefer to leave the surface in its natural state, though some may wish to wax or oil the frame after assembly. The colour after oiling can be rather strong, so we would advise trying out some samples first. We do not recommend the sandblasting of external structures given oaks natural weathering to a silver-grey colour. We would be happy to further discuss any of these options with you.

Direct Glazing

Oak frames make wonderful structures combined with glazing, but care needs to be taken to ensure the glass panels can accommodate the movement of the frame. We have acquired much experience over the years and have created working details for you or your architect to adopt. Please note that whilst we offer these details in a spirit of cooperation, we cannot accept liability arising from their use.
Numerous companies offer direct glazing to oak frames, and we suggest you seek advice from them regarding your proposals. We will gladly produce a list of suppliers upon request.



Sapwood

This is the outer part of the tree found underneath the bark, usually 2 inches (50mm) wide. This is where nutrients have been carried and therefore is softer and more prone to insect attack

Within QPA grade, small quantities of sapwood are tolerated in converting round logs into square beam sections to be most economical, but inclusion is minimal. Even if attacked, structural strength remains unaffected

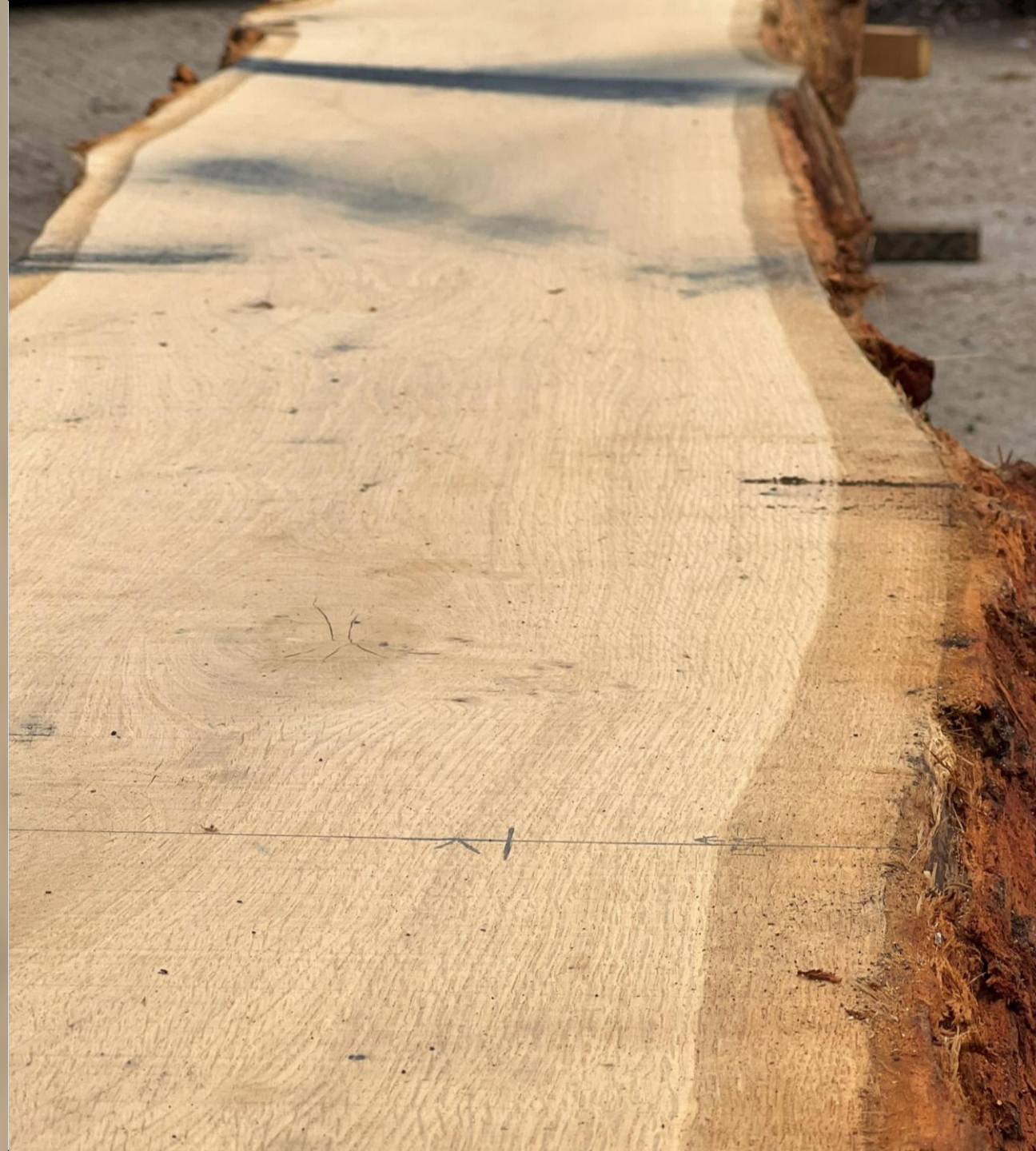
The timber we use is principally heartwood, which its own natural preservatives make extremely durable and resistant to insect attack and rot. Unlike sapwood, heartwood gets harder and harder with time

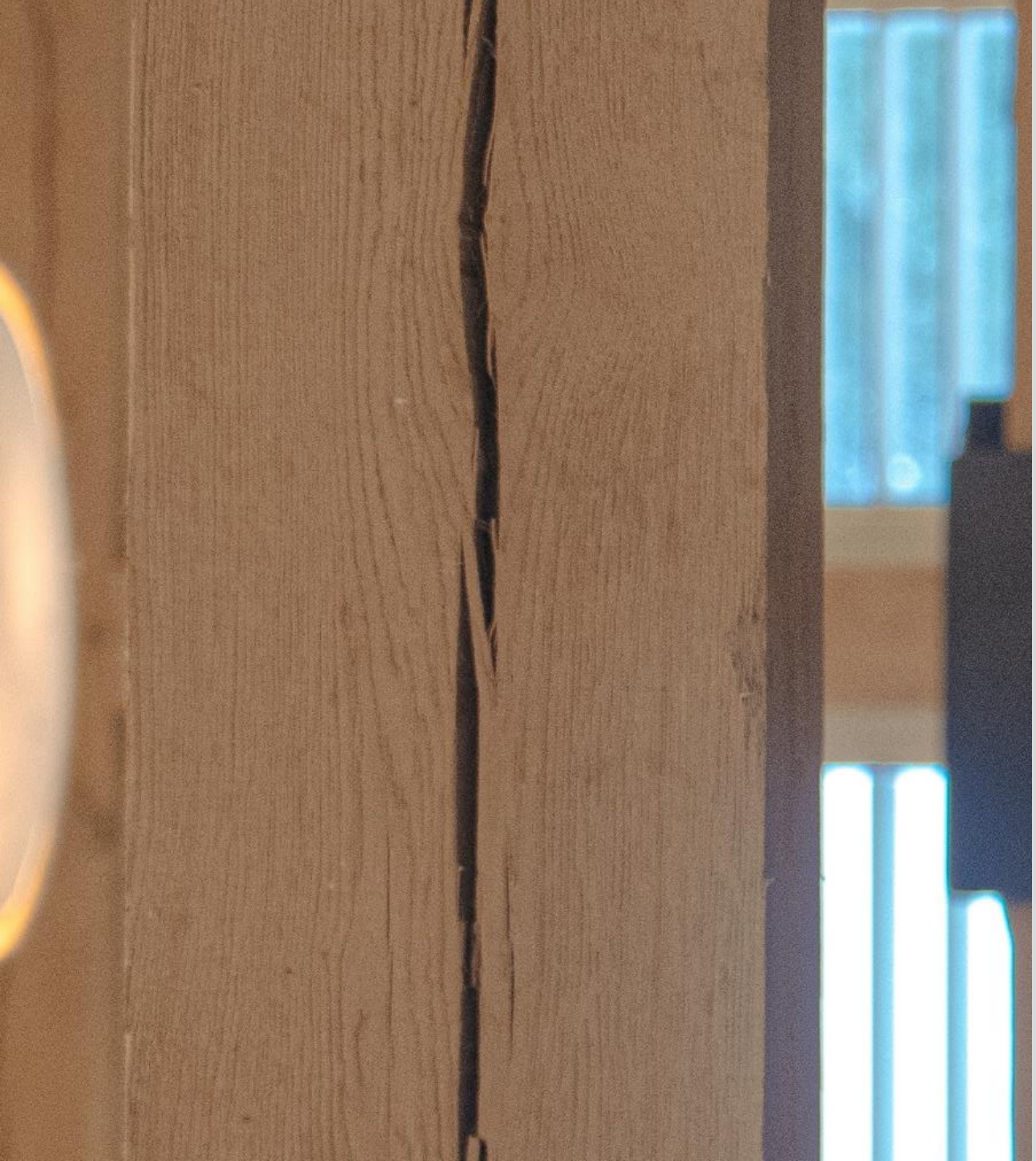
Tannic Acid

A natural substance contained within green oak which contributes to its durability. Oak takes on its silver-grey colour if these tannins are exposed to the elements

When exposed to moisture, some tannin washes out causing natural staining. Adequate protection should be used where vulnerable surfaces such as brick piers and light-coloured stone could come into contact with tannic acid run-off, which can leave unsightly stains

When tannins come into contact with ferrous material, a blue/black mark can be seen. All of the above is harmless to the timber and any staining will fade naturally over time





Shrinkage, Shakes & Drying

As components in an oak frame dry, they will naturally shrink across their width (and length, however this amount is negligible). This means that as a piece of oak settles it may lose up to 7.5% of its width, but its original cut length remains closely the same.

While drying, the fibres of the grain begin to straighten, and tension is created on the faces of the timber. This will result in checks and splits, which can vary from minor surface fissures to substantial cracks. It must be made clear this is very common throughout the drying process of an oak frame and it does not alter its structural integrity.

The drying process has many benefits to an oak frame, increasing its strength and rigidity. However, a key consideration in the aesthetic appearance of surface shakes and checking is the rate of drying. Timber subjected to extreme fluctuations in temperature will dry out faster, resulting in more movement in the frame, and individual surface checks and splits will occur with more severity.

Therefore, the gentler the drying process, the better. Occasionally frames are assembled and left in the weather for some years before being covered in. This does them no harm at all, quite the opposite in fact, as it allows the frame to air-dry gently. As the drying process develops, especially at fresh sawn brace joints, the shoulders tend to spread a little. We accurately fit and draw-bore all our mortice and tenons to mitigate this and we never take shortcuts.

These should all be seen as characteristics of a well-made, genuine oak frame and should be of no concern. If, for peace of mind, you would like some additional information or reassurance, feel free to get in touch.

Panel Infilling

Infilling frame apertures to create the look of an historic oak frame is popular but not without its drawbacks. Timber shrinkage and seasonal movement will cause the breakdown of seals at the panel edges and where oak frame joints are not watertight, they will be prone to leaking, especially on the weathering side of buildings (south and west elevations) if left exposed.

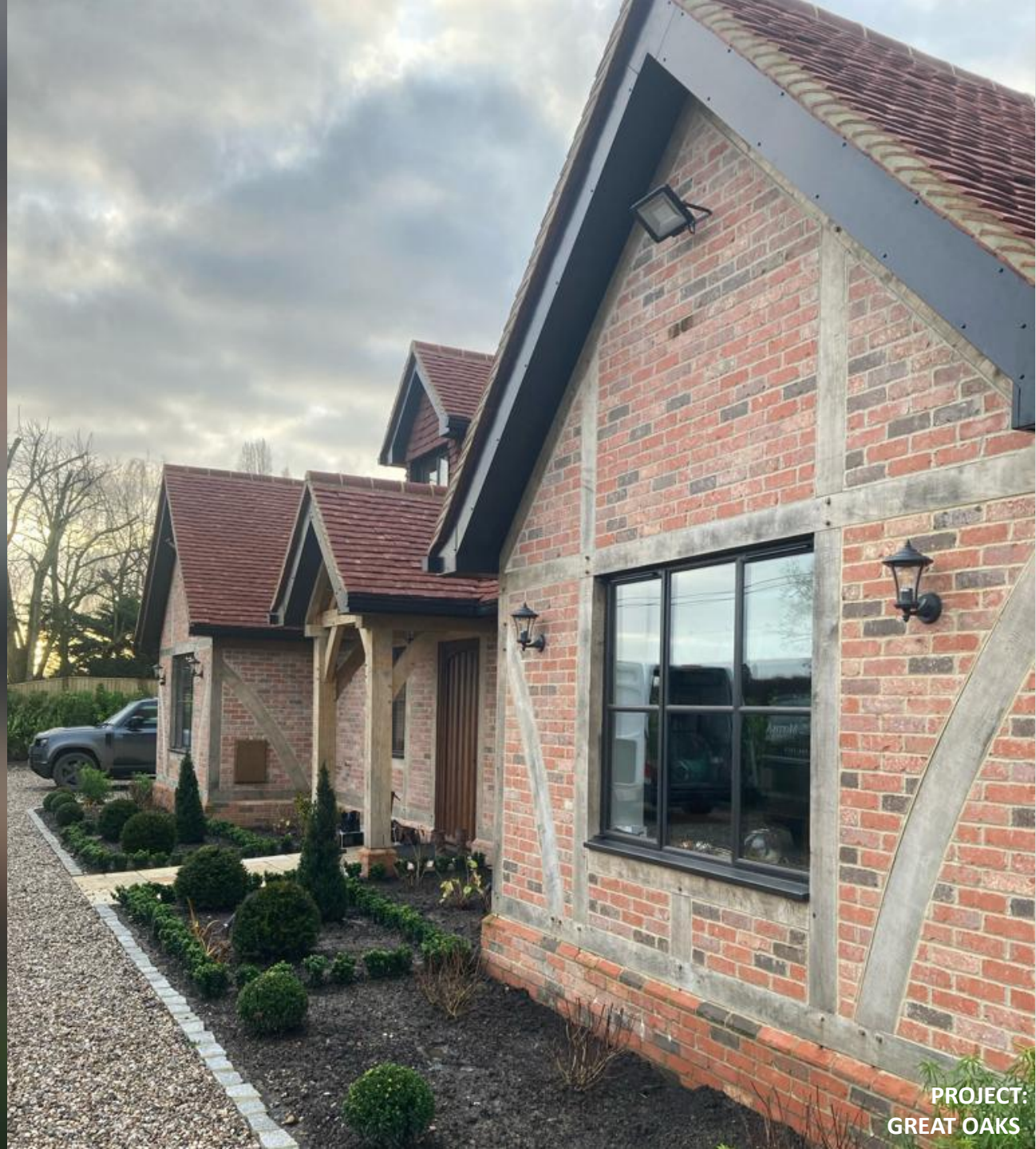
A good alternative to create the look of a historic oak frame is the fabrication of an external frame from 4 inch (100mm) thick beams to sit onto the outer leaf of construction. The panels may then be in-filled with render or brick without fear of ingress of water as the cavity maintained behind vents away any moisture, and the inner leaf gives the required air tightness and thermal performance.

An internally visible, structural oak frame may be created inside the building envelope avoiding thermal performance and weathering issues. Keeping the oak frame structure within the envelope is good practice and should be achieved wherever possible, with the notable exception of porches and balconies.

Structural Insulated Panels

Structural Insulated Panels (SIPs) combined with an oak frame offer a symbiotic blend of efficiency, durability, and aesthetic appeal. Prefabrication streamlines construction, and design options span from traditional to contemporary. Both materials are sustainable, aligning with eco-friendly building practices and despite potentially higher upfront costs, the long-term benefits of reduced energy consumption and maintenance expenses make the investment worthwhile. This combination appeals to those seeking quality, efficiency, and sustainability in construction, making SIPs with an oak frame an attractive choice for architects, builders, and homeowners alike.

Whilst we do not carry out SIPs work ourselves, we are seeing a large increase in the number of projects that involve SIPs. We are constantly learning new and improved methods of integration and adapting to the latest advancements whilst working alongside various SIPs companies.



www.greenoakcarpentry.co.uk | 01730 892049

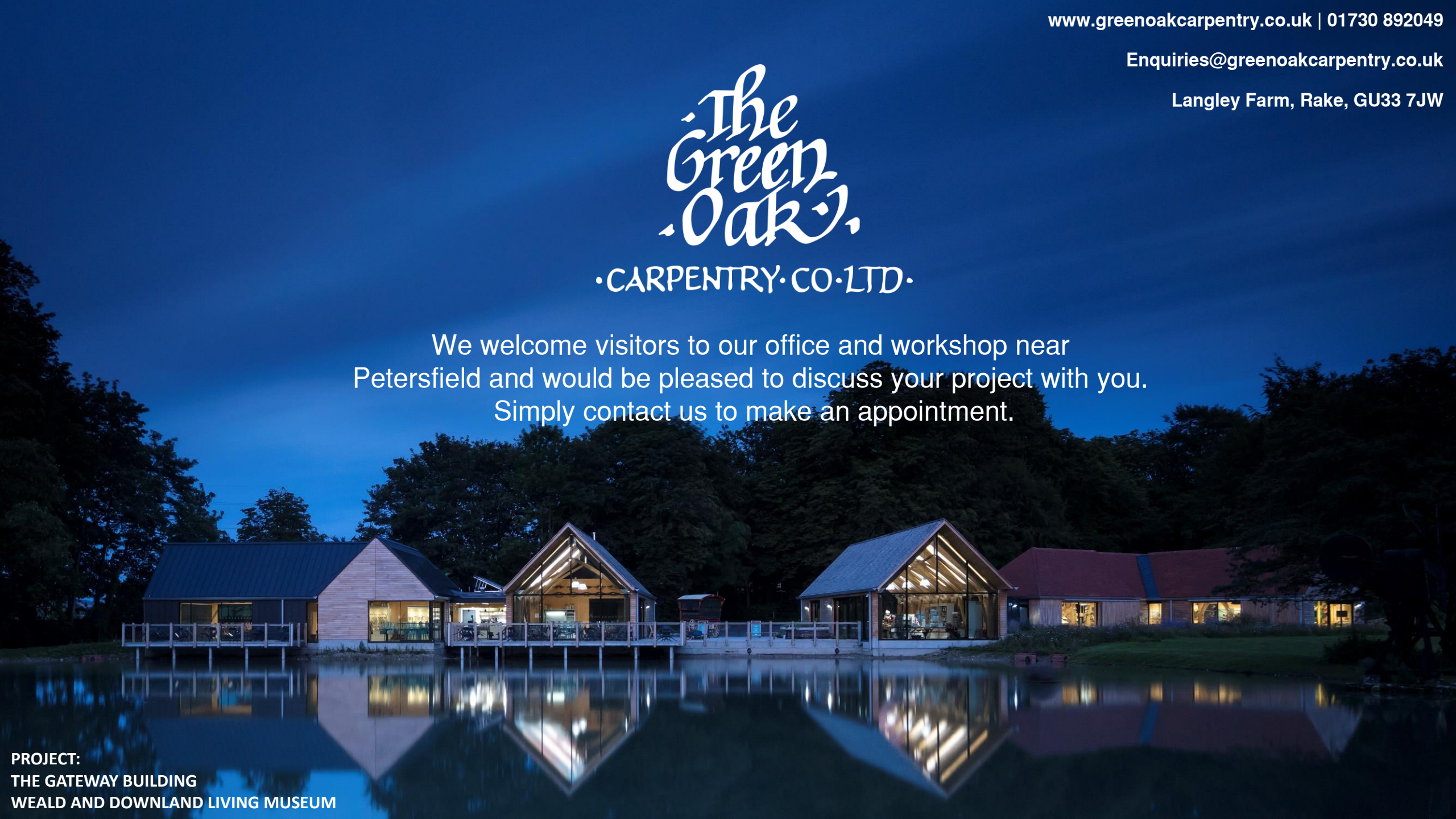
Enquiries@greenoakcarpentry.co.uk

Langley Farm, Rake, GU33 7JW

The Green Oak

CARPENTRY CO LTD

We welcome visitors to our office and workshop near Petersfield and would be pleased to discuss your project with you. Simply contact us to make an appointment.



PROJECT:
THE GATEWAY BUILDING
WEALD AND DOWNLAND LIVING MUSEUM