

European Oak Expectations Briefing

When using European Oak, it is important to understand its natural characteristics, especially how it behaves when exposed to the elements.

This briefing document will cover off key elements that the user may notice when using the Oaken luminaire.

- 1. Tannins
- **2.** End grain fissures
- 3. Colour change

1. Tannins

European Oak contains high levels of tannin, a natural water-soluble compound that leaches out as the timber is exposed to moisture, typically rainwater. Whether the Oak is freshly cut (green) or already dried, using it externally will cause tannin to wash out over time.

Tannin acts as a natural dye and can stain nearby materials such as brick, concrete, and paving. These stains typically appear as brown water marks and can spread wherever water from the timber flows. Although unsightly, the stains often fade over time as the tannins wash away. On some porous materials, however, light cleaning may be needed to fully remove any residual marks.

If immediate stain removal is required, treat the affected area with a solution of warm water mixed with oxalic acid. Spray the solution on the stain, allow it to sit briefly, then rinse with a hose or pressure washer.



Fig.1 – Example Oak tannin (brown) stain on galvanised column



2. End Grain Fissures

As the European Oak adjusts to its environment, you may observe small fissures or surface cracks developing. This is a completely normal and expected part of the wood's natural acclimatisation process. These fissures will occur due to humidity fluctuations, further drying and due to movement in service of the timber. As moisture evaporates from the timber, it causes slight shrinkage across the grain (rather than along it). This creates tension which leads to surface fissures. This is particularly prevalent at the end grain, where it is most susceptible to rapid moisture fluctuations.

It is important to understand that these fissures are superficial and do not indicate a fault or flaw in the wood. They are purely aesthetic and have no impact on the Oak's structural integrity, strength, or performance. In fact, this behaviour is so well understood in timber construction that we proactively design with it in mind, taking steps to minimize end grain exposure wherever possible such as orienting cuts strategically or using design details that protect the grain from excessive weathering.

In essence, these minor cracks are part of how natural hardwoods like Oak respond to outdoor conditions, which can also be seen on Oak sleepers and Oak framed buildings.



Fig.2 – Expected end-grain fissures



3. Colour Change

European Oak undergoes a natural and visually appealing ageing process when used outdoors. Initially, the timber has a warm, golden-brown or honey coloured appearance, showcasing its rich grain patterns and distinctive character. However, as the Oak is exposed to sunlight (UV rays), air, and moisture, over time its surface undergoes a transformation.

This weathering process causes the Oak to gradually fade to a silver-grey or silvery patina. This change is purely cosmetic and does not affect the wood's strength or durability. The speed of this transformation depends on environmental conditions such as sun exposure, rainfall, and wind. Areas with intense sunlight and frequent moisture will see the greying effect more quickly, sometimes within just 6–12 months.



Fig.3 - Initial warm natural colour vs. aged silver-grey colour

For additional information on the expected performance of European Oak, please contact <u>info@trtlighting.co.uk</u>.