Challenges of Oak Timber – Fungi

Oak, like all other timber is occasionally susceptible to attack by fungus, which lives on the wood and can eventually break down its structure. The severity of the attack can vary between simply discolouration of the wood, to eventual breakdown of the strength of the wood.

Beefsteak Fungus (*Fistulina Hepatica)*

This is one of the most common fungi to attack oak. It does not attack timber once it is sawn, as it lives on trees. Its effects can be frequently seen as a discolouration of the normally light brown oak, to a deeper colour. This would not normally be an issue, especially if the amount of colouring is small, but care should be taken if using timber structurally, that it is carefully examined.

It can be frequently seen as 'tiger oak' or darker and lighter stripes.

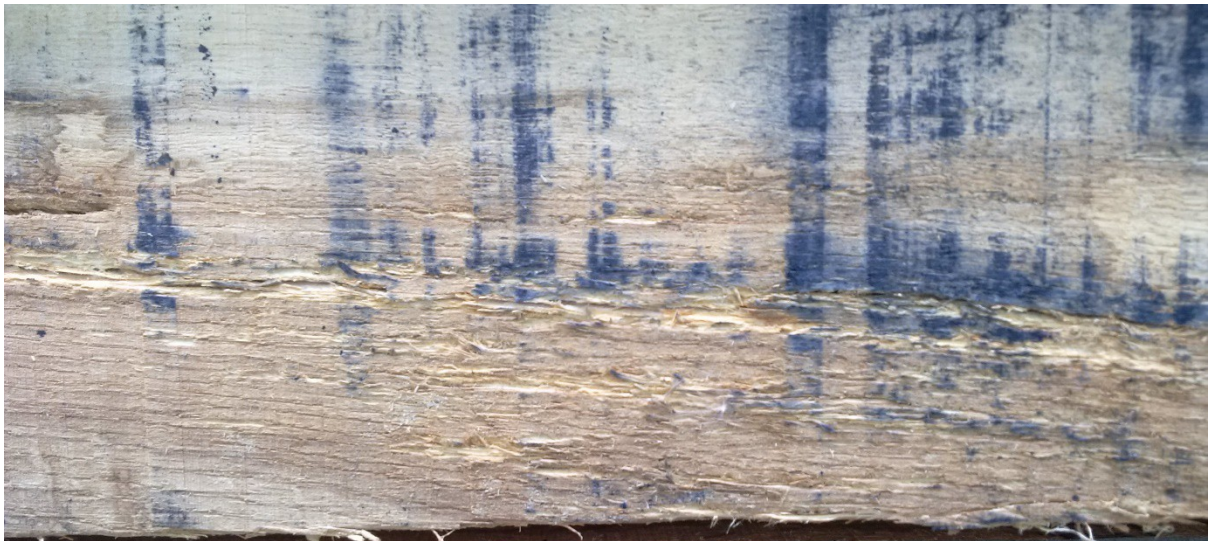
There is no treatment for this other than ensuring the wood is kept reasonably dry.

Striped fresh sawn oak from Beefsteak fungus

Brown rot (*Laetiporus Sulphureus*)

This is a fungus that attacks standing oaks. Again like the Beefsteak, it discolours the wood, although with the brown rot there is also present white fungi strands.

Also like the Beefsteak, drying the wood effects the cure, as this fungus needs 30% moisture content or more.



Laetiporus fungi present in oak timber, the white fungus can be seen in the cavities.

Dry Rot (*Serpula Lacrymans*)

The familiar dry rot can damage oak if it comes into contact with it. It will however be more resistant than most structural timber due to its inherent strength and high tannic acid content.

The dry rot fungus forms large white fruit bodies sometimes with patches of yellow or lilac, and give off rust red spores. It can exude beads of water, this is the basis of its latin name - lacrymae ‘tears’

Small white fluffy fruit body in very early stages growing on softwood timber.

A mature fruit body would become larger, with orange patches as it gives off spores. In drier conditions it would spread across the wood like a soft felt covering.

It has a feared reputation, as the rot can spread strands across other materials such as masonry and steel to infect timber beyond. It can also pass through porous masonry such as mortar and plaster.

Eventually the dry rot will break down the timber into brittle cubic sections, as below.

The treatment of dry rot has been widely researched, but very briefly it consists of removing all infected wood, up to 3'/900mm away from the nearest infected timber. Removal of masonry to the same distance is also advisable.

Of key importance, as with all fungi, is removal of the source of dampness, which can often be breached damp-course or leaking plumbing or roofing. Most fungi needs a moisture content of at least 20% or more. Once this is complete chemical sterilisation and replacement with treated timber is normally done.

Cellar Fungus (*Coniophora puteana*)

This is a fungus attacking timber in consistently moist or unventilated conditions. The attack and eventual breakdown of the wood is very similar to Dry Rot, but unlike dry rot it cannot pass through or over steel or masonry. Treatment would be very similar to dry rot - eliminate the source of damp, cut out affected timber elements, replace the timber with preservative treated timber and treat the area.

Oak timber that is put straight into the ground, with no elevation from damp will degrade over time at ground level. It will take a considerable time before it becomes structurally weak, but the discolouration may be unsightly. The wood below ground level will remain solid, and structurally sound.

Oak street bollard after 14 years showing signs of considerable degrade at ground level.

Another thing that can cause discolouration in oak timber is the presence of ferrous metal, which reacts with the oak to produce blue staining. This will often come from nails, fencing wire or old war debris.

Blue staining from metal deep in the wood.

Treatment generally is made by cleaning the affected area with oxalic acid, which is normally effective at cleaning the blueing.