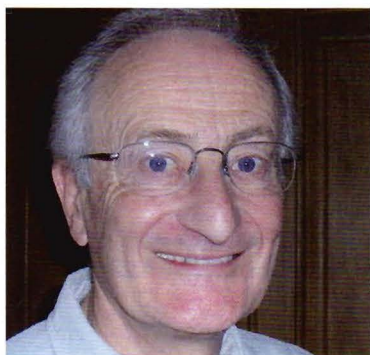


## TALKING TIMBER



## SOMETHING IN THE AIR

*Andrew True discusses the fine art of air drying timber*



#### Within Wood Technology

Society (WTS) circles a recent question has elicited a spate of emails: "is anything published to corroborate the rule of thumb 'an inch per year to air dry timber'. Or the variation of 'an inch per year to air dry hardwood, plus one extra year'?" The conclusion? Probably not!

These are sayings seemingly based on UK folklore, that have evolved over the centuries, although the origins of such

sayings are often based on factual experience of the time. And then, what is that 'inch'? An inch when measured from each face; in other words a two-inch board? Or an inch per year if 4in thick and over?

Looking at the two important UK species, Scots pine and oak, used in the Middle Ages for building: Holzwurm, a German source (where humidity is much less than in the UK), explains that it can take around 200 to 250 days to reach a 20% moisture content (sometimes referred to as shipping dry) for 100x100mm timbers. Alternatively, a US source (USDA) states that 25mm hardwood boards can be air dried in up to 200 days and softwoods up to 150 days. And 200x300mm? There is also some anecdotal 'evidence' that large cross-section timber never completely dries out.

Applying those approximates to the UK with its more humid climate does mean that it makes some sort of sense of the saying. However, as always, there are a few caveats: air drying is generally taken to be 12-20% moisture content. This is a wide range variation. It is relatively easy to get timber naturally to 20% mc, so one can assume that this was the level reached in the Middle Ages before using the timber for building purposes. But then, given that dry oak is infernally difficult to work with hand tools, it was likely always used green for heavy carpentry.

Wood also differs from species to species, from tree to tree, and, in fact, within a single tree. And clearly the thicker the piece, the longer the air drying time.

Is it sapwood or heartwood? Sapwood contains more moisture than heartwood, but generally dries faster than heartwood. However, as heartwood contains less moisture, then the overall drying time for a piece of wood containing both sapwood and heartwood is equalised. How is the wood sawn? Quarter sawn usually dries more slowly than flat sawn.

The time of year the tree was felled? In the UK winter when the sap is lowest is the best time to fell for air drying. This gives a shorter drying time. Is there even a moon effect? According to Thoma, Austria, "a tree felled during the waning moon has more moisture bound in its interior. Meaning it contracts more tightly during the drying process, and only shrinks (in size) to

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a marginal degree. This makes the wood denser, more resistant to compression and also more resistant to invasive fungi, insects and voracious flames. From a technical point of view, this is a significant improvement compared to non-moon wood". Imagine seeing that in a specification!

The importance of a local climate must not be underestimated. I came across the successful winter freeze drying of fibre in Alberta for SPF CLS production. The locality was flat with a constant wind, yielding a perfect air flow at a regular below zero temperature.

Sawmills can allow time for sawn wood to be air dried before further production. This is especially important where the logs of the same species vary in diameter, and age. Natural air drying permits the average moisture content to equalize, thereby reducing costs of production and subsequent kiln drying. Thus, there are substantial benefits to air drying. It is free – energy costs are slashed. There is certainly less stress on the fibre. Notwithstanding, it is a slower process than mechanical drying.

However, precautions must always be taken to avoid issues such as checks/splits/warp. Normally this involves intelligent sticking and protection of the packs.

Another 'saying' is that "wood for firewood should dry for three years" ... how very apposite! ■

*Below: Air drying wood for firewood*



## The Wood Technology Society

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