



GLOBAL TIMBER



By: Per Friis Knudsen

The topic of wood science is a large one and something I will dive into several times in the coming year. We will explore the world of wood; what is wood, which wood for which uses and why we chose wood. My aim is to show how wood is more than just a business and an industry; to show how we all can benefit from wood. Wood has become more popular given its sustainable qualities and it has become the environmentally correct choice as it ties up CO². All this and much more while still being an elegant and warm choice of natural material. Sustainability is in high demand and new products are constantly being developed that help the “green wave” on its way. In coming articles, it can be technical at times, but I’ll also give some examples and cases of how wood is used in a way I would never have thought could be possible.

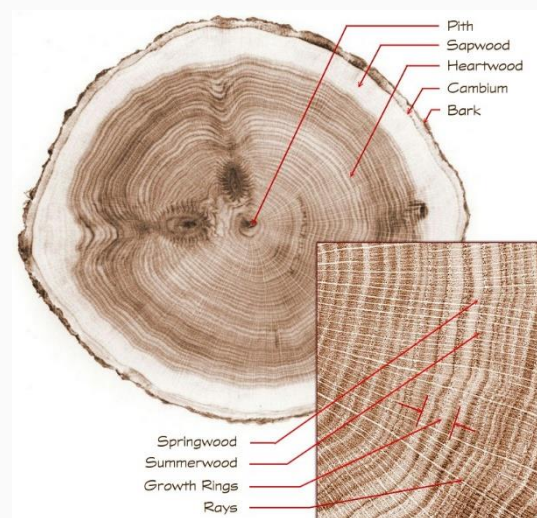
Let's dive deeper into the science behind wood. Which wood species our industry choose to work with changes consistently. It is based on important factors like world market, sustainability, political elements, competition, trends, and finally prices. In past years, factors such as world health, world economy, and global logistic factors have come into play. All this impact which kind of wood is in demand.

Our main business is hardwood. Hardwood comes from deciduous trees, which lose their leaves annually. Sometimes these are also called flowing plants. Hardwood is obtained through e.g. oak, beech, ash and walnut. These tend to be slower growing, which means that the wood is usually denser than e.g. softwood. Softwood comes from conifer trees which usually have needles and usually remains evergreen throughout the year. Softwood examples are spruce, pine, fir, larch, and cedar. In tropical regions, hardwood is also evergreen, but they do shed their leaves one by one once a year. In

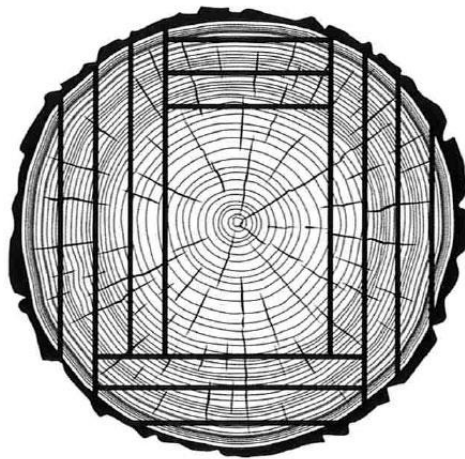
Global Timber, we do supply some species of softwood such as radiata pine timber and spruce, douglas fir and pine logs, so don't be shy to ask for softwood as well, especially if you are in need of logs.

Let's focus on hardwood. The trend of exported species changes from beech to oak one year, and from ash to walnut the next year. The supply of some species was better some years back whereas the same species might be more difficult to source today. For example, American hardwood was a much larger part of our business just two years ago. There has also been a change in the demand for quality. Before lower qualities were in high demand, but now we see a movement towards higher quality wood. But as time changes and we change with it, demand will follow, so I believe the supply will continue to change depending on the market. We have already seen an increase in American hardwood in the last few months again in all qualities. In contrast, the African supply has become more of a challenge recently.

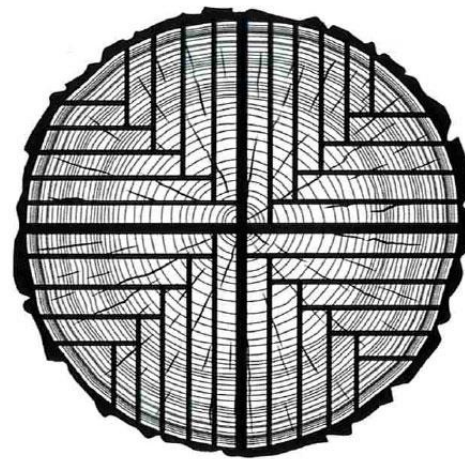
So, what is wood exactly? All types of hardwood consist mainly of cellulose and hemicellulose fibers that together give wood its strength and lignin that bond the fibers together (a glue-like substance). This makes up approx. 96% of heart and sap in the wood (see illustration). In addition, 4% is inorganic and organic substances (e.g. cambium that is known for making the rays in e.g., oak and sycamore wood). The tree produces new sapwood and dries up the old sapwood and turns it into heartwood. Then mineral compounds from the soil form the cell walls. This makes the wood turn darker and gives the characteristic color for the given specie.



When it comes to cutting the wood, European and African logs are most often band-sawn "through and through" (live sawn = American term). It gives wider boards which we call "unedged"; this means that the edge of the boards is not square. It gives the boards their crown-grains (Cathedral) or irregular shapes in the middle and quarters-grains towards the edges. In America, sawmills tend to band-saw their logs into square-edged boards. You can say that the log is opened or sawn from one side first, they then turn and flip the log from side to side to produce the best yield possible and cut each board with square edged. This style often produces plain-sawn boards where some parts may go a little into quarter-sawn boards (see illustration below). This can be rather fascinating to watch, when a skilled worker uses modern bandsaw machinery to get the absolute best yield from every log. The process is often the difference between turning a profit or not.



Plainsawing



Quartersawing

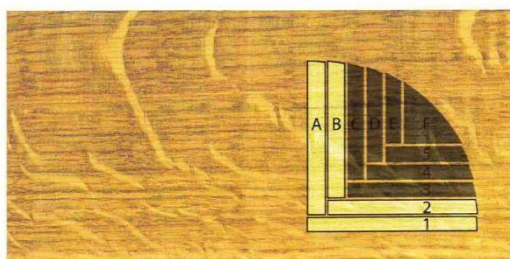
However, there is always a BUT because wood is an organic material; a natural composite of cellulose fibers. Wood has characteristics and grains because trees are not always straight and grown in perfect locations. Some logs are grown near a river, some are grown on hillsides. Some in areas with more mineral soil that can give a variation in color called mineral streaks. Some grow faster in warm or slower in cold areas – or maybe sloping to the side if grown in very windy areas. All of the above have an impact as to how the tree grows and, ultimately, how the wood will end up looking. The wood will have a different look depending on the level of stones, sands, or mud in the underground or even the temperature variations. All of these scenarios make wood so interesting.

Quartered boards exhibit the most pronounced figure, generally having growth rings at a 60-90 degree angle to the face of the board.

Rift boards exhibit a straight-grained and less-figured appearance, with growth rings at a 30-60 degree angle to the face of the board.

As shown below, quartered boards are typically the first two boards from each face of a quarter log (A, B, 1, 2).

As shown in the image below, rift boards typically come from the other boards in a quartered log, showed here as cuts C, D, E and 3, 4, 5.



If we go further down in the scientific explanation, we come to the medullar rays in the wood. They are formed by the activity of cambium (as mentioned earlier). They appear as radial planar structures, perpendicular to the growth rings and are visible to the naked eye. Some manufacturers want to enhance the use of rays and, therefore, buy quarter-sawn lumber. Others might not want to see rays and, therefore, buy rift-cut lumber, where the cutting direction is supposed to minimize the appearance of rays.

These specific cuttings are slow to produce and give a lot less yield than plain-sawn lumber. Some mills specialize in this style of cutting and the price goes without saying at a very premium price. A few sawmills still produce true rift-cut lumber but at a very VIP premium price and seldom in larger

volumes such as container loads. Typically, a true rift-cut hardwood is mostly done in the higher grade of FAS while in 1 common and 2 common qualities most times rift- and quarter-cut stays together instead of being separated. That mean customers get the best of both worlds from the full production, the rift, and the quarter at less of a price than a pure rift. In our Asian office, I have chosen to install both rift and quarter-sawn oak flooring to show visitors the difference in characteristics that wood grains can offer. It has all kinds of characteristics except for knots (see photo below).

Hopefully, these explanations have helped to shed a little more light into the scientific world of wood. As mentioned, the topic of wood science will occur several times in the coming year, so I hope you enjoyed the beginning of this series.



The new flooring of the Global Timber Office in Asia. There both rift and quarter-sawn flooring has been installed to showcase the differences.



By: Petra Postolache

As the world's attention has been directed towards COP26 Climate Conference in Glasgow, we are using this opportunity to reflect upon Global Timber's own impact in the world. Our goal is to go beyond compliance and assume a more active role in protection of the forests and reducing carbon emissions.



This month we have a guest interviewee who brings another perspective on forestry. Krishnanunni Mavinkal Ravindran has a master in Sustainable Tropical Forestry from Copenhagen University and has joined our team as a freelance consultant. His research area revolves around sustainable livelihoods, tree-based landscape restoration, and hardwood supply chain. He is originally from India and has studied both in UK, Denmark, and Ghana.

What do you see as the biggest challenges for the existence and thriving of tropical forests?

Tropical forests are home to 80% of the total species on earth and cover 11% of its land area. However, these forests are now shrinking at an alarming rate. Agricultural expansion and over-exploitation of forests for forest products are the main reasons for this loss.

Wood is so close to mankind that we can't imagine a life without it. The global demand for industrial wood in the last six decades has increased by more than 800 million m³. This ever-increasing demand for wood has seen people cutting down forests beyond its capacity to regrow. Tropical forests are resourceful to meet the world's wood demand but overexploiting them without respecting their natural regenerating capacity would deplete the forests, which would leave both people and many industries

in crisis. However, through sustainable forest management, it is possible to strike a balance between our forest use and its protection.

What is the impact of logging on the livelihoods of local populations?

Logging has many positive as well as negative impacts on the livelihoods of people associated with it. Unsustainable logging can be seen as destructive to the local population. It could deprive the locals' rights to access forests for their basic needs and reduce the availability of some of the commonly used forest products. Also, illegal logging could later pave the way for forest invasion and other destructive land uses.

On a positive note, studies show that tropical forests form an important source of revenue and livelihoods for over 1.35 billion forest-dependent people around the globe. Sustainable logging operations would bring extra sources of revenue into local communities, create jobs, reduce inequalities, and empower them in many ways. It will also create a feeling of belongingness and encourage them to utilize the forests sustainably.

What changes did the COVID pandemic bring to the forestry sector?

With the pandemic disrupting the forest-related supply chains, there has been a sharp decline in timber imports and exports across the globe. As orders keep cancelling and postponing, many traders are not able to operate at their full capacity.

Also, the restrictions and curbs imposed to thwart the spread of COVID have impacted sustainable forest management in many ways. National forest institutions in Africa are struggling to maintain their staff due to a lack of funds. As a result, forest monitoring is affected in many places, paving the way for illegal timber and non-timber forest products extraction. Also, Covid has ceased many forest operations, which has left many people jobless. Many indigenous communities are retreating deeper into the forests for food, fuel, and shelter to safeguard themselves from the risks of COVID. There is a risk of increasing forest invasion and illegal cutting of trees that threatens the very survival of both the communities and the forests.

You have travelled in Africa and Asia; how would you describe the potential timber sector has to play in the life of local populations?

As a forest researcher, I can confidently say that the timber sector supports the local population in many ways. From state-managed to community-managed forests, I have seen how the timber sector engages the local population in their operations. It provides employment to people in the communities near the forests and drives many local industries. Furthermore, in state and communities managed forests, private companies initiate also development projects for the local population. These projects, sometimes part of their CSR initiatives, contribute to the overall development of the population, while also making them aware of the need to protect the forests for the future.

Intended to secure and sustain our forests, the international and national timber regulations have also added the responsibilities of the timber industries in order protect the forests. These regulations contain a social component that prescribes the timber sector to protect the livelihoods of the local populations. Furthermore, through forest certifications and taxations, the timber sector contributes significantly to rural development and its populace. Now with the EU putting forth the idea of 'deforestation-free commodities', the timber sector has an added responsibility to engage the local

population in their efforts to manage the forests sustainably. This would, of course, bring more employment and other benefits to the forest-dependent communities.

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In line with the opinions expressed above, we also think it is important to keep using sustainable tropical timber, as it is an important tool for development in the tropics. In the last 10 years, there has been an ongoing debate about the role of tropical timber in Europe. So far, the general agreement is that increasing the value of standing forests for the local population is a win-win solution, that conserves the forests and adds to the quality of life in producing countries. At Global Timber, we make our best to select the right sawmills, that do business in a responsible manner, while we also support and prioritize certified material. In this way, we strive to impact the local community and forestry in a sustainable and positive way to keep their forests healthy, which enables us to provide the global market with “green” building materials.

We got you covered!



As promised, during the entire 2021 we will continue to send you one e-mail per month with readings about Global Timber and the industry. We would also like to hear from you.

What are your challenges/concerns right now?

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 Forward

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