



THE MATERIALS SOURCEBOOK FOR DESIGN PROFESSIONALS

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Thames & Hudson

COMMERCIAL TYPES AND USES

The wood comes from two species (*M. excelsa* and *M. regia*). There does not appear to be any significant difference between the two. It is prized for its appearance and inherent durability. Applications include garden furniture and decking. It is also utilized in construction, such as for window frames, sills, doors and cladding.

It is often found in countertops, in particular in laboratories and science classrooms. This is because iroko performs very well in continually damp or chemically hazardous situations. And it is hard enough to tolerate everyday use.

Its chemical resistance, in particular its resistance to acids, is the reason why it has been utilized in chemical storage tanks. Nowadays, these are much more likely to be produced from rotation-molded polyethylene (PE) (page 108), polypropylene (PP) (page 98) or similar low-cost synthetic material.

It is used in river and sea constructions, such as jetties, piers, pontoons and locks. Other large-scale construction projects include timber frame houses and bridges. It is applied as solid lumber, or converted into engineered timber (page 296), such as glued laminated timber (glulam). This allows for much greater spans to be achieved. However, engineered timber manufactured from iroko will be significantly more expensive than products manufactured from softwoods, such as the more commonly used spruce, pine and fir (page 304). Also, it is not recommended to use iroko untreated in applications where it will be in continuous contact with the ground.

Iroko is often compared to teak (page 370) and other durable tropical hardwoods. The two are similar in terms of grain structure, density and colour. Teak is very expensive and in short supply owing to variety of trade restrictions. Iroko is not as strong, stiff or durable, but is suitable for many of the same situations and remains affordable (around one-third of the price of teak). In Europe, iroko is steadily gaining popularity. In the USA, it has not been quite so successful; as long as teak is available it remains the material of choice for such things as boatbuilding.

It is also compared to oak (page 342). These two timbers, from opposite sides of the world, do share some similarities. Like iroko, white oak can be used outdoors untreated; iroko is a similar weight (although oak can be a little heavier), responds well to steam bending and costs about the same. As a result, they are used for many of the same applications, such as furniture, countertops and cladding. Oak has a more figured appearance, in particular quarter-sawn white oak, which is covered with silvery ray flecks. The colour of iroko, on the other hand, appears to ripple, an effect that is a result of the alternating spiralled grain. So, even when stained the same colour, they have a quite different appearance.

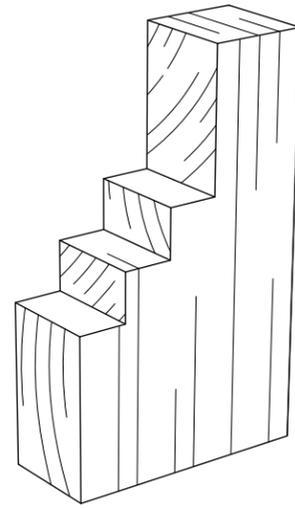
SUSTAINABILITY

It is available from certified forests. It grows rapidly and is ready for harvesting after around 50 years.

In the wild it is listed as vulnerable, because it has been extensively logged and the species is in decline. Tropical rainforests are regarded as extremely sensitive ecosystems and it can take decades, or even centuries, to recover from heavy logging activity. Africa contains around 20% of the world's tropical forests. Agricultural practices, logging and development projects are reducing the size of the forests by around 1% annually. In some parts of Africa, only around one-fifth to one-quarter of the forests remain. As a result, these trees have protected status in a number of the countries where they grow. Countless schemes and plantation initiatives have been launched to try to counter the problem.

In addition, the illegal logging of iroko has been linked to conflicts in regions where it grows. Along with other valuable tropical hardwoods, gemstones (page 476) and precious metals, there is evidence that sales help to fund armed groups.

Exposure to the dust may lead to health problems, such as asthma, dermatitis and nettle rash. It is recommended to wear protective breathing equipment when working the timber. In less responsible forestry operations and sawmills, workers may not be adequately protected.



Interlocked grain

Many of the tropical hardwoods feature an interlocked grain. Examples include iroko, mahogany (page 372), African mahogany, sapele, bossé, rosewood and padauk (see Exotics, page 374). Some of the northern hardwoods can also have an interlocking grain, such as elm (page 358), sycamore and maple (page 330). This illustration represents a quarter-sawn sample (the cut radiates out from the centre of the log). The long edge faces towards the centre, from where the growth rings originate. New fibres are laid down in a spiral around the axis of the tree (this is different from straight-grained wood, such as ash [page 354], oak and wengé [see Exotics]). Interlocking grain is caused by these spirals periodically changing direction (the reason for this is not known). In other words,

CNC-carved box This vanity tissue box by Greek contemporary product design studio Greece is for Lovers is CNC-milled from solid

each year the slope of the grain switches from left to right. This results in an interesting optical effect known as ribbon-stripe: the colour shifts from dark to light depending on the angle of view. This is caused by the different angles of the fibres exposed on the surface. It is most noticeable in quarter-sawn boards, because the growth rings are at right angles to the face of the board. This can present some challenges when working with the timber, as the grain is prone to tearing out during planing and similar surface operations. It does not have a significant affect on the strength of the wood. Other grain disturbances – such as figured grain and knots – might, because the strength of wood is greatest along the grain. Therefore, significant deviations mean less of the grain runs in parallel.

iroko. A layer of wax is applied to the surface, which fills the grain and results in a smooth, lustrous finish. Photo by Nikos Alexopoulos.

