

Timber Quality Advice – Sapele

Sapele is a popular choice for construction and external furnishings, but it is important to reiterate that **all solid timbers are organic materials** and therefore constantly change relative to their environment.

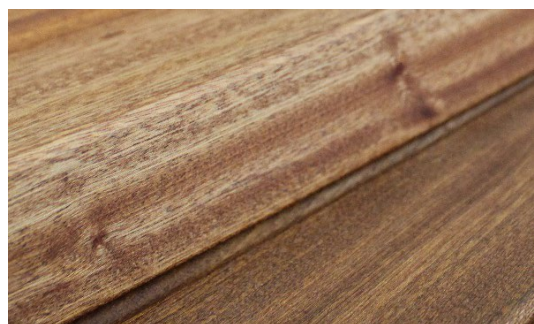
Surface Features

When specifying Sapele timber for your project you should expect the following natural features in the face and end grain of the pieces.

These features should not be considered defects and the extent of many surface features in the timber will change seasonally, sometimes closing up entirely due to natural expansion or shrinkage:

Knots

Although not as common in this species, knots do feature and cause dark blemishes on the surface of the timber – these can become more prominent when stained.



Splits/Checks

During the initial drying process, the outside of the wood dries quicker than the interior, which causes differential stresses to develop. The combined effect of these drying stresses in wood often results in the formation of a check or a split.

Sapele beams will sometimes have small or partial splits/checks visible on the end grain but unless they run the entire length of the piece, pose minimal structural concerns for application in non-load bearing exterior furnishings.



Shake

Shakes are lengthwise separations of wood along the grain usually occurring between or through the rings of annual growth. Shakes are commonly most noticeable on the end grain of a piece.



Grain Patterns

Sapele is known for a wide variety of grain patterns, such as: pommele, quilted, mottled, wavy, beeswing, and fiddleback. These contribute to a variation in colour.



Colour

Subtle variations in colour are to be expected given the nature of the species. Storage and treatment also play a large role in the colour of Sapele. See **Delivery & Storage** for more information.



Leaching

Sapele contains fewer tannins than woods known for significant leaching, but like all timber, it can still release tannins when exposed to precipitation. These tannins—natural compounds found in the wood's sap—will gradually leach out over time, and heavy or prolonged rainfall can accelerate this process. Rainwater may wash tannins from the wood's surface, lightening its colour and potentially staining nearby ground-level finishes. As tannins are water-soluble, any surface staining should gradually fade.

Sapele tannins can also react with certain materials—especially steel—and may leave dark marks on the wood that can only be removed through planing, heavy sanding, or chemical treatment. For this reason, leaving metal based tools or steel banding straps on sapele during or after installation can result in unwanted discolouration.

The experiment below illustrates how sapele behaves when submerged in water;



A one-inch cube of newly cut Sapele.



The cube submerged in 1/3 cup of cold water for 6 days.



Dried and then placed in a fresh 1/3 cup of cold water for another 6 days

This experiment was designed to demonstrate how the water-soluble organic substances leach out of newly milled Sapele.

Dimensional Tolerance & Movement

The sawmills and suppliers of our timber products will generally work to a rough-sawn dimensional tolerance of $\pm 6/-0$ mm. They will then ensure pieces are planed flat and cut to final size with all faces and ends square, with tolerances as close as $\pm 0.4/-0.4$ mm.

Sapele will also be subject to seasonal movement and other environmental factors, and dimensions are likely to change slightly from sawmill to our assembly plant to delivery on site.

As a general rule, a board/beam of 300mm can shrink/expand across its width as much as 6mm. This will dictate minimum distance adjacent timbers are spaced on a product as any contact between expanding pieces could have a severe effect on the integrity of the support or fixings. Longer Sapele pieces will also expand and contract at different rates along their length resulting in lines originally cut perfectly straight becoming wavy over time. It is important to allow the timber to move without restriction to avoid failure.

We can advise on any design changes/limitations to be set to minimise these issues.



Surface Treatments and Protection

As standard **we do not treat Sapele timber** for street furniture – Weathering is a natural process where physical change is exhibited with exposure to outside elements. Moisture, Sunlight, heat/cold, chemicals, abrasion, etc all factor in the natural weathering process.

Weathering after 1 year

September 2021



September 2022



<i>Natural</i>	<i>Danish Oil 1 coat</i>	<i>Danish Oil 2 Coats</i>	<i>Danish Oil 3 Coats</i>	<i>Sadolin Burma Teak 1 coat</i>	<i>Sadolin Burma Teak 2 Coats</i>
B1	B2	B3	B4	B5	B6

Greying – Eventually whether treated or untreated, Sapele will naturally turn grey. The time this takes can vary from site to site and product type, mainly due to the exposure to sunlight and the elements.



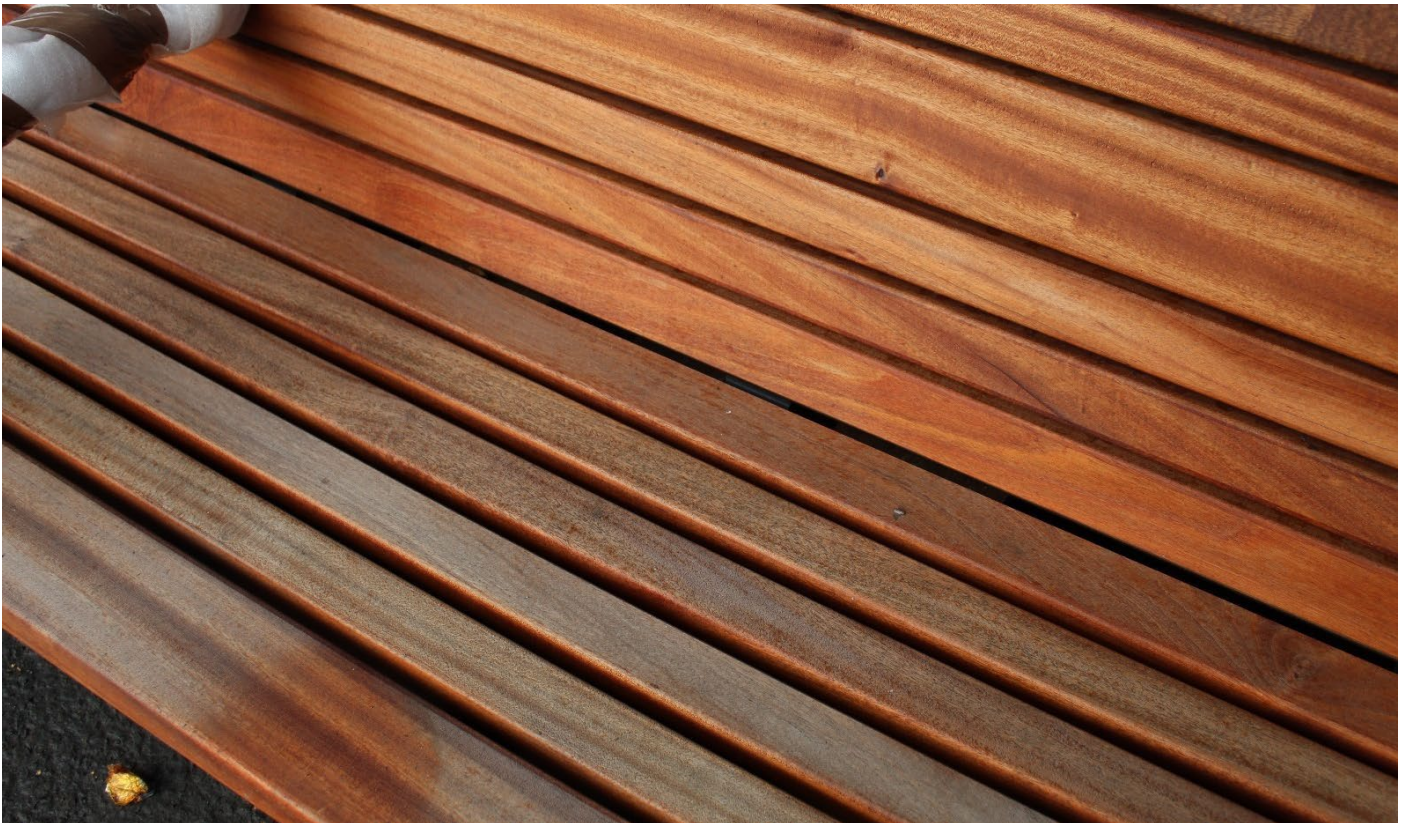
Delivery & Storage

We often deliver timber products to site strapped and wrapped for secure shipping and we are aware that products are commonly stored on site for weeks or months before installation:

If products are left tightly bound/strapped any natural movement may be restricted, leading to severe, uneven dimensional changes and even failure of the timber or fixings. **All strapping must be removed or loosened immediately following delivery to site.**

If products are left wrapped in shipping materials, they may be subject to much higher temperature and humidity than the surrounding environment, which will lead to moisture being drawn out from the wood at a high rate, potentially causing severe dimensional changes. As this moisture will have nowhere to go the products will accumulate a large amount of condensate, which can stain the timber and even damage steelwork; the timber may also begin to rot if left in this state for too long. **All wrapping must be removed immediately following delivery to site.**

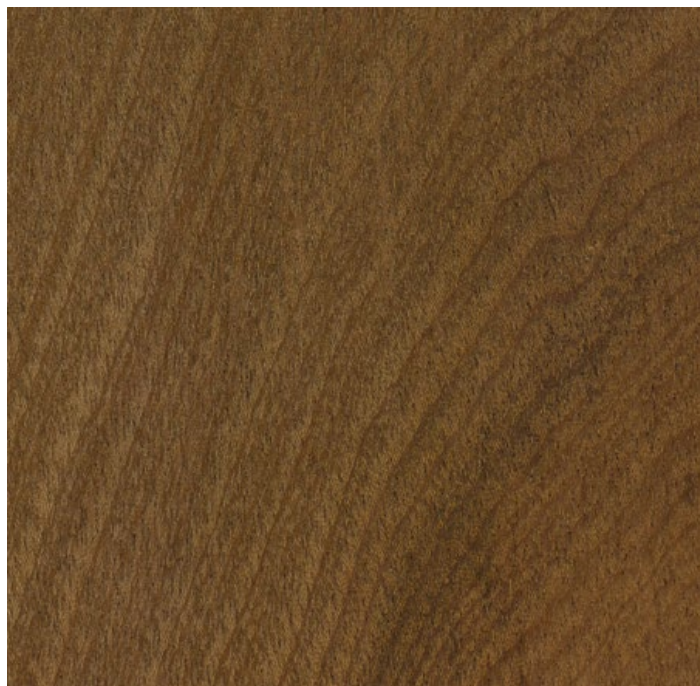
Consider assigning an outdoor, but covered area to store furniture products before final installation.



The workshop team at Bailey Street Furniture Group will assess every piece of timber to be used in your furniture product and will reject those that have excessive splitting, warping or potentially dangerous surface features.

Faces will be sanded to minimum 80 grit and all sharp corners softened unless instructed otherwise.

Sapele Details



Common Name(s):	Sapele, sapelli, sapeli mahogany
Scientific Name:	<i>Entandrophragma cylindricum</i>
Distribution:	Tropical Africa
Tree Size:	100-150 ft (30-45 m) tall, 3-5 ft (1-1.5 m) trunk diameter
Average Dried Weight:	41.6 lbs/ft ³ (665 kg/m ³)
Specific Gravity: (Basic, 12% MC)	0.56, 0.67
Janka Hardness:	1,360 lb _f (6,060 N)
Modulus of Rupture:	16,070 lb _f /in ² (110.9 MPa)
Elastic Modulus:	1,790,000 lb _f /in ² (12.35 GPa)
Crushing Strength:	8,540 lb _f /in ² (58.9 MPa)
Shrinkage:	Radial: 5.2%, Tangential: 7.2%, Volumetric: 12.9%, T/R Ratio: 1.4

Colour/Appearance: The heartwood ranges from a golden to a dark reddish-brown, and its colour generally darkens with age. In addition to the characteristic ribbon pattern seen in quartersawn boards, sapele is also recognised for a wide variety of other figured grain patterns, including: pommele, quilted, mottled, wavy, beeswing, and fiddleback.

Grain/Texture: Grain is interlocked, and sometimes wavy. Fine uniform texture and good natural luster.

Rot Resistance: Heartwood ranges from moderately durable to very durable in regard to decay resistance. Moderate insect/borer resistance.

Workability: Sapele can be troublesome to work in some machining operations, (i.e., planing, routing, etc.), resulting in tearout due to its interlocked grain. It will also react when put into direct contact with iron, becoming discolored and stained. Sapele has a slight blunting effect on cutters, but it turns, glues, and finishes well.

Pricing/Availability: Should be moderately priced for regular flatsawn or quartersawn lumber, though figured lumber and veneer can be extremely expensive, particularly pommele or quilted sapele.

Sustainability: This wood species is not listed in the CITES Appendices, but is on the IUCN Red List. It is listed as vulnerable due to a population reduction of over 20% in the past three generations, caused by a decline in its natural range, and exploitation.

Comments: It is usually pronounced (sah-PELL-ey) or (sah-PEEL-ey). Sapele is a widely exported and economically significant African hardwood species. It is sold both as lumber and veneer. It is occasionally used as a substitute for genuine mahogany and is sometimes referred to as 'sapele mahogany.'

Technically, the two genera commonly associated with mahogany are *Swietenia* and *Khaya*, while sapele belongs to the *Entandrophragma* genus—though all three are part of the broader Meliaceae (mahogany) family, so comparisons to true mahogany are not entirely unfounded.