

Teak

Family. Lamiaceae

Botanical Name(s).

Tectona grandis

Continent. Africa, Latin America, Asia, Oceania

CITES.

This species is not listed in the CITES Appendices (Washington Convention 2023).

Notes. Native to South-East Asia, this species has been widely planted throughout the tropical and subtropical world.

Description of logs

Diameter. From 50 to 100 cm

Thickness of sapwood. From 2 to 6 cm

Floats. No

Log durability. Good

Description of wood

Colour reference. Yellow brown

Sapwood. Clearly demarcated

Texture. Coarse

Grain. Straight

Interlocked grain. Absent

Notes. The wood darkens and presents golden glints with age. Sometimes black brown veins. Oily to the touch.

Physics and mechanics

The properties indicated are for mature wood. These properties may vary significantly depending on the origin and growing conditions of the wood.

Property	Average value
Specific gravity ¹	0.67
Monnin hardness ¹	4.2
Coefficient of volumetric shrinkage	0.34 % per %
Total tangential shrinkage (St)	4.7 %
Total radial shrinkage (Sr)	2.6 %
Ratio St/Sr	1.8 %
Fibre saturation point	24
Thermal conductivity (λ)	0.22 W/(m.K)
Lower heating value	19,270 kJ/kg
Crushing strength ¹	56 MPa
Static bending strength ¹	98 MPa
Modulus of elasticity ¹	13,740 MPa

¹ At 12 % moisture content, with 1 MPa = 1 N/mm



Quarter sawn



Flat sawn

Notes. The properties of timbers grown in plantation or in nature forest are often similar, except for durability.

Natural durability and preservation

Resistance to fungi. Class 1 - very durable

Resistance to dry wood borers. Class D - durable (sapwood demarcated, risk limited to sapwood)

Resistance to termites. Class M - moderately durable

Treatability. Class 4 - not permeable

Use class ensured by natural durability.

Class 4 - in ground or fresh water contact

Notes. The durability of teak wood from plantation is much lower than that of the teak from natural forest. It is moderately resistant to fungi and classified as sensible to durable against termites. This species is listed in the standard NF EN 350 (2016) which makes a difference between the Teak from Asia (meaning natural forest) and the teak planted in Asia and other countries; the first one is classified in the natural durability class 1 towards fungi and in natural durability class M towards termites; the second is in the natural durability class 1-3 towards fungi and in natural durability class M-S towards termites. The use class mentioned in Tropix is given for teak from natural forest. According to the European standard NF EN 335 (2013), performance length might be modified by the intensity of end-use exposition. This species naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water) due to its high silica content.

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Does not require any preservative treatment

In case of permanent humidification. Does not require any preservative treatment

Drying

Drying rate. Slow

Risk of distortion. No risk or very slight risk

Risk of casehardening. No known specific risk

Risk of checking. No risk or very slight risk

Risk of collapse. No known specific risk

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	50	87	17.0
Prewarm 2	4	> 50	50	86	16.5
Drying		> 50	53	83	15.2
		50 - 40	53	80.0	14.1
		40 - 35	54	80.0	13.9
		35 - 30	55	75.0	12.5
		30 - 27	57	70.0	11.0
		27 - 24	58	61.0	9.4
		24 - 21	59	51.0	7.9
		21 - 18	60	47.0	7.3
		18 - 15	61	39.0	6.1
		15 - 12	62	35.0	5.6
		12 - 9	62	30.0	5.0
		9 - 6	62	26.0	4.4
Conditioning	8		55	(3)	(2)
Cooling	(1)		Arrêt	(3)	(2)

(1)) Cooling: until the temperature inside the kiln no longer exceeds external temperature by more than 30 °C.

(2) UGL = final H% x 0,8 to 0,9.

(3) Subtract RH from the UGL determined in (2) and temperature, using the Hailwood-Horrobin equation.

Sawing and machining

Blunting effect. High

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Not recommended or without interest

Slicing. Good

Notes. Variable silica content. Sawdust may cause skin irritations.

Assembling

Nailing and screwing. Good but pre-boring necessary

Notes. Pre-boring recommended due to a slight tendency to split when nailing. Satisfactory gluing on surfaces freshly machined or sanded just before application of the adhesive (the wood contains oleoresins).

Commercial grading

Appearance grading for sawn timbers.

Grading depending on origin of woods and final uses. Grading rules for Teak from Myanmar depend on quality and geometric criteria for logs, sawn products and veneers. Four grades of log are defined for sliced veneers and six grades for sawn products, from SG1 to SG6 according to the number of defects.

Fire safety

Conventional French grading.

Thickness > 14 mm: M3 (moderately inflammable)

Thickness < 14 mm: M4 (easily inflammable)

Euroclasses grading. D-s2, d0

Default grading for solid wood, according to requirements of European standard EN 14081-1+A1 (August 2019).

It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

End-uses

- Arched goods
- Bridges (parts in contact with water or ground)
- Bridges (parts not in contact with water or ground)
- Cabinetwork (high class furniture)
- Cooperage
- Decking
- Exterior joinery
- Exterior panelling
- Flooring
- Interior joinery
- Interior panelling
- Light carpentry
- Open boats
- Poles
- Rolling shutters
- Ship building (planking and deck)
- Sliced veneer
- Stairs (inside)
- Stakes
- Turned goods



U Bein Bridge: the longest teakwood bridge in the world. It is 1.2 km long and was built in 1849 with timber reclaimed from a former royal palace - Mandalay, Burma (© Patrick Mignot).

Main local names

Country	Local name
Brazil	Teca
Costa Rica	Teca
Côte d'Ivoire	Teck
France (importated tropical timber)	Teck
Germany (importated tropical timber)	Java teak
Germany (importated tropical timber)	Teak
Ghana	Teak
India	Sagwan
India	Teak
Indonesia	Jati
Indonesia	Tek
Italia (importated tropical timber)	Teck
Laos	May sak
Myanmar	Kyun
Netherlands (importated tropical timber)	Teak
Thailand	May sak
Thailand	Teak
Togo	Teck
United Kingdom (importated tropical timber)	Teak
Viet Nam	Giati