Common name:	COCOTIER
Family:	ARECACEAE
Scientific name(s):	Cocos nucifera
Note:	COCONUT TREE is a monocotyledon. The material of the stipe (trunk) is falsely called wood by analogy with Gymnosperms' and Angiosperms' wood. It has neither sapwood nor heartwood. Only the outlying crown has wood characteristics.

LOG DESCRIPTION

Diameter:	from 30 to 60 cm
Thickness of sapwood:	from to cm
Floats:	No information available
Durability in forest :	Low (must be treated)
Note:	Beige to pinkish beige, punctuated with or criss-crossed by red-brown to dark brown fibres, whatever the stock orientation. Proportion of fibre grows from the heart to the outer of the stem.

WOOD DESCRIPTION

Colour:	Red brown
Sapwood:	Absent
Texture:	Coarse
Grain:	Straight to entangled
Interlocked grain:	Absent

PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	mean	standard deviation
Density *:	0.90 g/cm3	
Monnin hardness*:	8.3	
Coef of volumetric shrinkage:	0.52 %	
Total tangential shrinkage:	6.1 %	
Total radial shrinkage:	5.6 %	
Fibre saturation point:	23 %	
Stability:	Moderately stable	

MECHANICAL PROPERTIES

	mean	standard deviation
Crushing strength *:	60 MPa	
Static bending strength *:	82 MPa	
Modulus of elasticity *:	13800 MPa	

(* : at 12 % moisture content ; 1 MPa = 1 N/mm2)

Note: Stem with a very soft and fibrous heart with a great variation of density (along with other properties) from the heart to the periphery (in a ratio of 1 to 5 for density). The material giving the best properties is at the periphery of the stem. This peripheral part has the same end-uses as wood. The indicated values are those of the material taken from this zone.

NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate.
Except for special comments on sapwood, natural durability is based on mature heartwood.
Sapwood must always be considered as non-durable against wood degrading agents.

Fungi:	Class 5 - not durable
Dry wood borers:	Susceptible
Termites:	Class S - Susceptible
Treatability:	2-3 - poorly to moderately permeable
Use class*:	1 - inside (no dampness)
Note:	Durability and permeability to preservative products vary greatly with density: wood is denser at the periphery, more durable but less permeable to preservative products.

* ensured by natural durability (according EN standards).

MAIN LOCAL NAMES

Countries	Local names
Brazil	COQUEIRO
Spain	COCOTERO
France	COCOTIER
Gabon	MBANGA
Indonesia	KELAPA
Malaysia (islands)	KELAPA
Mexico	COCOTERO
Philippines	NIOG
Portugal	COQUEIRO
United Kingdom	COCONUT
U.S.A.	COCONUT
U.S.A.	COCOWOOD
Vietnam	DUA

COCOTIER

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks:	Requires appropriate preservative treatment
In case of temporary humidification risk:	Requires appropriate preservative treatment
In case of permanent humidification risk:	Use not recommended

DRYING

Drying rate:	Slow
Risk of distortion:	High risk
Risk of casehardening:	No
Risk of checking:	Slight risk
Risk of collapse:	Yes

Possible drying schedule

M.C. (%)	Temperature (°C) dry-bulb	wet-bulb	Air humidity (%)
Green	42	39	82
50	48	43	74
40	48	43	74
30	48	43	74
15	54	46	63

This schedule is given for information only and is applicable to thickness < 38 mm.
It must be used in compliance with the code of practice.

Note: Risks of collapse is usually localised in the central area.

SAWING AND MACHINING

Blunting effect:	High
Sawteeth recommended:	Stellite-tipped
Cutting tools:	Tungsten carbide
Peeling:	Not recommended or without interest
Slicing:	Not recommended or without interest
Note:	Variable density from the heart (<0,25), which is unusable, to the periphery (>1). The log turning sawing with unique taking of the peripheral stocks is compulsory to obtain pieces with homogeneous characteristics. The rate of silica may be very high. It is hard to have a careful finish because of the entanglement of the fibres.

ASSEMBLING

Nailing / Screwing:	Good but pre-boring necessary
Gluing:	Correct

END-USES

Main known end-uses; they must to be implemented according to the code of practice.
Important remark: some end-uses are mentionned for information (traditional, regional or ancient end-uses).

Note: Only the heart, very soft and very fibrous, can be used for isolation.

Flooring
Interior panelling
Wood-ware
Turned goods
Cabinetwork (high class furniture)
Industrial or heavy flooring
Interior joinery
Light carpentry
Current furniture or furniture components
Blockboard
Shingles
Insulation