

Red Balau



Family: DIPTEROCARPACEAE (angiosperm)
Scientific name(s): *Shorea guiso* * (see note)
Shorea kunstleri * (see note)
Shorea spp. * (see note)

Commercial restriction: no commercial restriction
Note: * Shorea sub-genus Rubroshorea with specific gravity between .78 and .95

WOOD DESCRIPTION

Color: red brown
Sapwood: clearly demarcated
Texture: medium
Grain: interlocked
Interlocked Grain: slight

Note: Wood light to dark red brown or purplish red brown to grey brown. Canals filled with white resin.

LOG DESCRIPTION

Diameter: 31.5 – 47 inches
Thickness of Sapwood: 1.2– 3.15 inches
Floats: no
Log Durability: moderate (treatment recommended)

PHYSICAL PROPERTIES

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

	<u>Mean</u>	<u>Std. Dev.</u>
Specific Gravity*:	0.87	
Janka Hardness (lbs):	1,600	
Volumetric Shrinkage:	15.7%	
Total Tangential Shrinkage (TS):	10.1%	
Total Radial Shrinkage (RS):	5.5%	
TS/RS Ratio:	2.3	
Fiber Saturation Point:	27%	
Stability:	Moderately stable	

Note: Specific gravity varies from 0.78 to 0.95. Hardness varies from fairly hard to hard.

MECHANICAL/ACOUSTIC

	<u>Mean</u>
Crushing Strength*:	10,280 lbf
Static Bending Strength*:	17,259 lbf
Modulus of Elasticity*:	2,457,000 lbf

Musical Quality Factor: 111.9 measured at 2441 Hz

*At 12% moisture content.

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. E.N. = Euro Norm

Funghi (According to E.N. standards):	class 3-4 – moderately to poorly durable
Dry Wood Borers:	class D - durable (sapwood demarcated, risk limited to sapwood)
Termites (According to E.N. standards):	class M – moderately durable
Treatability (according to E.N. standards):	class 4 - not permeable
Use class ensured by natural durability:	class 2 – inside or under cover (dampness possible)
Species covering the use class 5:	no

Note: This species is listed in the European standard NF EN 350-2. Variable treatability.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks:	does not require any preservative treatment
In case of risk of temporary humidification:	requires appropriate preservative treatment
In case of risk of permanent humidification:	use not recommended

DRYING

Drying Rate: slow
Risk of Distortion: high risk
Risk of Casehardening: no
Risk of Checking: high risk
Risk of Collapse: no

Note: Must be dried carefully in order to reduce defects in particular warps on backsawn and end checks.

Possible Drying Schedule: 4

M.C. (%)	Temperature (°F)		
	Dry-Bulb	Wet-Bulb	Air Humidity (%)
Green	108	102	82
50	118	109	74
40	118	109	74
30	118	109	74
15	129	115	63

This schedule is given for information only and is applicable to thickness lower or equal to 1.5 in. It must be used in compliance with the code of practice. For thickness from 1.5 to 3 in, the air relative humidity should be increased by 5% at each step. For thickness over 3 in, a 10% increase should be considered.

SAWING AND MACHINING

Blunting Effect: fairly high
Sawteeth Recommended: stellite-tipped
Cutting Tools: tungsten carbide
Peeling: not recommended or without interest
Slicing: not recommended or without interest

Note: Requires power. Planed surfaces present a variable luster. Sometimes, difficulties due to high interlocked grain.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct (for interior only)
Note: Risks of splits

END-USES

Outdoor decking
Vehicle or container flooring
Industrial or heavy flooring
Heavy Carpentry
Ship building (ribs)
Ship building (planking and deck)
Stairs
Flooring
Bridges (parts not in contact with water or ground)
Current furniture or furniture components
Cooperage
Exterior joinery
Musical instruments
Boxes and crates

Note: Filling is recommended to obtain a good finish.

MAIN LOCAL NAMES

Country	Local Name
Indonesia	Balangeran Balau Merah
Peninsular Malaysia	Empenit-Meraka Semayur Seraya Sirup
Malaysia (islands)	Balau laut merah Damar Laut Merah Selimbar Balau Membatu
Philippines	Guijo Gisok
Thailand	Makata Chan Khah

Works Cited:

CIRAD'S *Biomass, Wood, Energy, Bioproducts Research Unit (BioWooEB)*
 Meier, E. (2015), Wood, United States of America