



# STANDARD NAME

## BALAU

(Heavy Hardwood)

(Also known as Selangan Batu in Sabah and Sarawak)

# FAMILY

Dipterocarpaceae

# BOTANICAL NAME

*Shorea* spp., *Barbata* and *Ciliata* (section *Eushorea Brandis*) sub-groups

# DISTRIBUTION

Widely distributed throughout the country except in peat swamp forests. They are especially abundant in the hilly areas.

## GENERAL DESCRIPTION

The sapwood is moderately well-defined and lighter in colour than the heartwood. The colour of freshly cut heartwood is yellow-brown, brown or brown with reddish tinge weathering ultimately to a deeper shade of brown or reddish dark brown.

**Grain** is interlocked, often giving rise to faint strip figure.

**Texture** is fine and even.

**Vessels** are medium-sized, moderately few and with simple perforations, mostly solitary with a few radial or oblique groups of two to three. They are fairly evenly distributed, but with a tendency to form short, oblique lines and are mostly filled with tyloses.

**Wood parenchyma** is of both apotracheal and paratracheal types; the apotracheal type consist mainly of irregularly spaced concentric bands with occasional short tangential lines or diffuse strands, while the paratracheal type occurs as incomplete vasicentric.

**Rays** are fine, just visible to the naked eye on the cross-section.

**Vertical resin canals** are usually with white contents, occur characteristically in concentric lines on the end surface but the wood is not resinous.

## BALAU

## HEAVY HARDWOOD

### PHYSICAL PROPERTIES

Air-Dry Density	:	850 – 1,155 kg/m <sup>3</sup>
Shrinkage Radial	:	1.7 – 2.1 %
Tangential	:	3.5 – 3.9 %
Seasoning	:	Dries very slowly and care is needed to avoid end-checks and splitting
Recommended Kiln Schedule	:	B

### MECHANICAL PROPERTIES

Strength Group	:	SG 1
Static Bending MOE	:	20,100 N/mm <sup>2</sup>
MOR	:	142 N/mm <sup>2</sup>
Compression Strength		
Perpendicular to Grain	:	9.79 N/mm <sup>2</sup>
Parallel to Grain	:	76.00 N/mm <sup>2</sup>
Shear Strength	:	15 N/mm <sup>2</sup>

### DURABILITY

Very durable

### TREATABILITY

Very difficult

### WORKING PROPERTIES

Planing	: Slightly difficult to difficult	Finish	: Smooth to moderately smooth
Boring	: Slightly difficult	Finish	: Smooth
Turning	: Easy	Finish	: Smooth
Nailing	: Very poor		
Gluing	: Slightly difficult		
Finishing	: Easy		

### USES

Suitable for all forms of heavy construction, bridges, wharves, railway sleepers, piling, transmission posts, beams, keels, keelsons, framework of boats, dock blocks, fenders, framework of carriages, wagons, lorry and truck bodywork, door and window frames, heavy-duty flooring and heavy-duty furniture.