

# BALAU

## USES

- DECKING
- DOOR & WINDOW FRAMES
- BRIDGES
- WHARVES
- PLANK
- BEAMS
- BOAT FRAMING
- HEAVY DUTY FLOORING
- HEAVY DUTY FURNITURE

standard name  
Balau

botanical name  
*Shorea* spp.

family  
Dipterocarpaceae

classification  
Heavy Hardwood

distribution  
Found widely throughout the dipterocarp forests of Malaysia, except in the peat swamp forests. Abundant in hilly areas.



# BINTANGOR

**standard name**  
Bintangor

**botanical name**  
*Calophyllum* spp.

**family**  
Guttiferae

**classification**  
Light Hardwood

**distribution**  
Widely distributed from lowland forests to upper montane forests, as well as in some peat swamp forests.

## USES

- FLOORING
- PARTITIONING
- PANNELLING
- JOINERY
- FURNITURE
- SPARS& MASTS FOR BOATS
- VENEER
- PLYWOOD





# DARK RED MERANTI

## USES

- DOOR & WINDOW FRAMES
- JOINERY
- FURNITURE
- PLYWOOD
- INTERIOR FITTINGS
- PANNELLING
- PARTITIONING
- MOULDINGS
- FANCY DOORS
- BOAT CONSTRUCTION
- VENEER

**standard name**  
Dark Red Meranti

**botanical name**  
*Shorea* spp.

**family**  
Dipterocarpaceae

**classification**  
Light Hardwood

**distribution**  
Found widely in well drained forests, on low hills, the tops and upper slopes of ridges and occasionally in peat swamps



# KELAT

standard name  
Kelat

botanical name  
*Syzygium* spp.

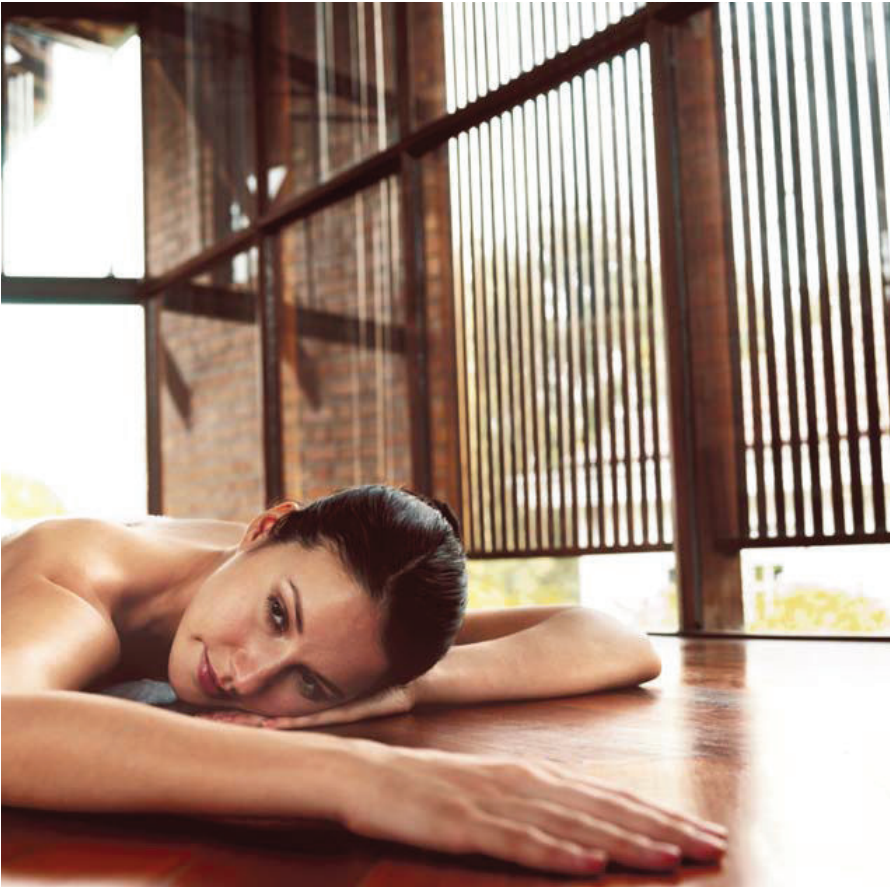
family  
Myrtaceae

classification  
Medium Hardwood

distribution  
Found at all altitudes from sea level to mountain tops.

## USES

- POSTS, BEAM S & JOIST S
- RAFTERS
- JOINERY
- DOOR & WINDO W FRAMES
- BRDGES
- WHARVES
- AGRICULTURAL MPLEMENTS





# KEMBA NG SEM A NG KOK

## USES

- DECORATIVE PLYW OOD
- FLOORNG
- INTERDR FNISHNG
- FURNITURE
- PANELL NG
- PART IT DNING

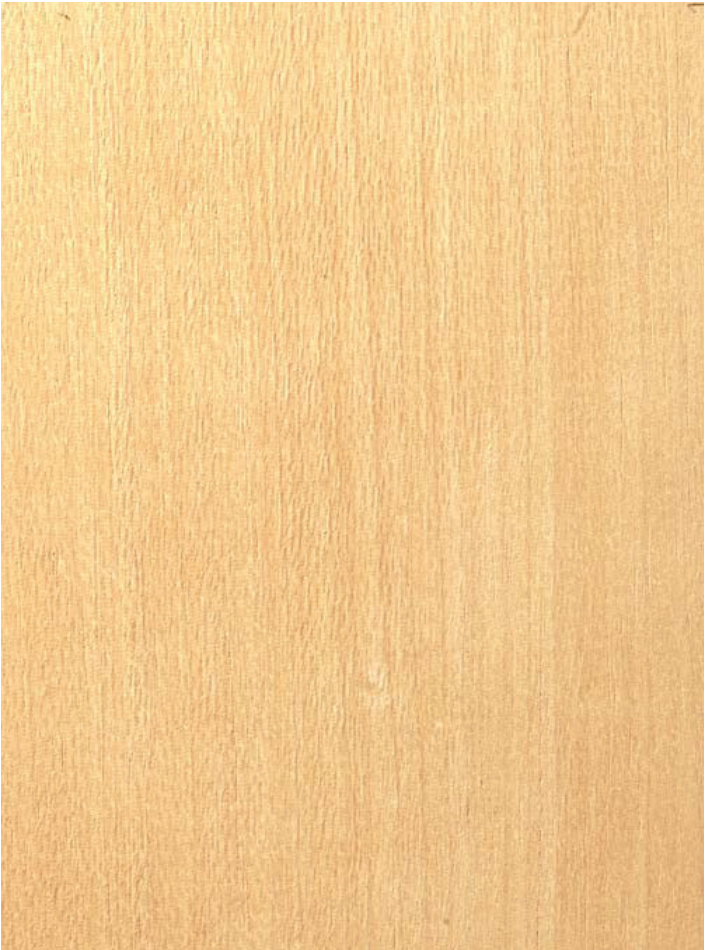
**standard name**  
Kembang Semangkok

**botanical name**  
*Scaphium* spp.

**family**  
Sterculiaceae

**classification**  
Light Hardwood

**distribution**  
Mainly scattered in lowland forests;  
grows on well-drained undulating  
land and ridges.



# KEMPAS

standard name  
Kempas

botanical name  
*Koompassia malaccensis*

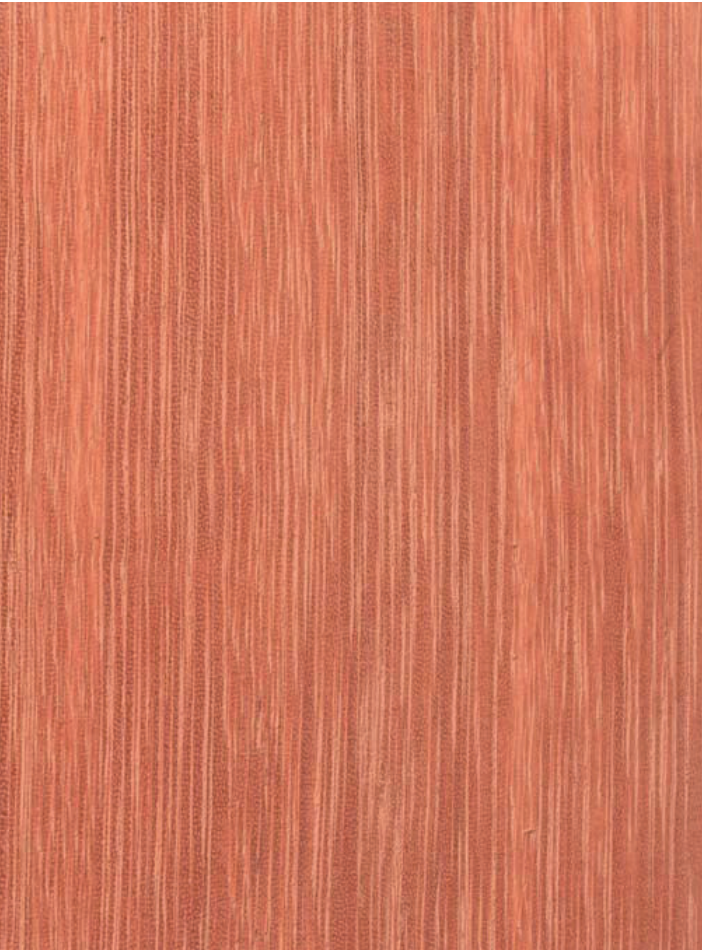
family  
Leguminosae

classification  
Medium Hardwood

distribution  
Abundant in all lowland forests and in the mountains, often found in peat and freshwater swamps.

## USES

- PA RQUET
- FLOORNG
- BEAM S & JOIST S
- WHARVES
- FENCE POSTS
- HEAVY DUTY FURNITURE
- HEAVY DUTY PALLET S
- RA LWAY SLEEPERS





# KERUNG

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

Woods of Keruing

standard name  
Keruing

botanical name  
*Dipterocarpus* spp.

family  
Dipterocarpaceae

classification  
Medium Hardwood

distribution  
Abundant in low lying, undulating dipterocarp forests, with a few species occurring in swampy regions.

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

uses

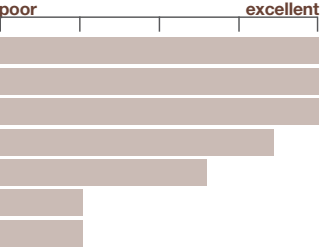
uses

uses

uses

uses

uses



# MENG K U L A N G

standard name  
Mengkulang

botanical name  
*Heritiera* spp.

family  
Sterculiaceae

classification  
Medium Hardwood

distribution  
Common in lowland forests, and in rare instances, on limestone hills.

## USES

- PLYW OOD
- FURN ITURE
- FLOORNG
- SUPERDR JONERY
- DOOR & WIND O W FRAMES
- BOAT FR AMING
- INTERDR FINISH NG
- PANELL NG





# MERBAU

## USES

- FLOORING
- DECORATIVE WORK
- INTERIOR FINISHING
- PANNELLING
- SUPERDRONERY
- CABINET MAKING
- DOOR & WINDOW FRAMES
- FURNITURE

**standard name**  
Merbau

**botanical name**  
*Intsia spp.*

**family**  
Leguminosae

**classification**  
Heavy Hardwood

**distribution**  
Widely distributed, mainly in the lowland areas and along rivers.



# MERSAWA

standard name  
Mersawa

botanical name  
*Anisoptera* spp.

family  
Dipterocarpaceae

classification  
Light Hardwood

distribution  
Widely scattered, found mainly in peat swamp forests, low flat land and hills.

## USES

- PLYWOOD
- PURLINS
- DOOR & WINDOW FRAMES
- FLOORING
- CEILINGS
- WEATHER BOARDS





# NYATOH

## DESCRIPTION

### CHARACTERISTICS

### PROPERTIES

### USES

- FURNITURE & FURNITURE COMPONENTS
- PANNELLING
- MOULDINGS & SKRTINGS
- SUPERDRONERY
- PLYWOOD

standard name  
Nyatoh

botanical name  
*Ganua, Palaquium* and *Payena* spp.

family  
Sapotaceae

classification  
Light Hardwood

distribution  
Widely spread, and can be found in the lowlands, freshwater swamps, on the coasts and mountains.

	poor	excellent
ease of planing		
quality of planing finish		
ease of boring		
quality of boring finish		
ease of turning		
quality of turning finish		
nailing		



# RED BALAU

standard name  
Red Balau

botanical name  
*Shorea* spp.

family  
Dipterocarpaceae

classification  
Heavy Hardwood

distribution  
Found sporadically throughout  
Malaysia on low lying, undulating  
land and hills.

## USES

- DEC K NG
- POSTS, BEAM S & JOISTS
- FRAMES FOR W AGONS,  
TRUCKS & LORRES
- HEA VY DUTY FLOORNG
- HEA VY DUTY FURNITURE
- DOOR & W ND O W FRAMES
- RA LWAY SLEEPERS





# RUBBERWOOD

HEVEA BRASILIENSIS

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

1923

## USES

- FURNITURE
- PANNELLING
- PARQUET FLOORS
- STAIRCASES
- UTILITY ARTICLES
- BLOCKBOARD
- MDF

standard name  
Rubberwood

botanical name  
*Hevea brasiliensis*

family  
Euphorbiaceae

classification  
Light Hardwood

distribution  
Throughout Malaysia in rubber plantations.

	poor			excellent
ease of planing				
quality of planing finish				
ease of boring				
quality of boring finish				
ease of turning				
quality of turning finish				
nailing				



# SEPETR

standard name  
Sepetir

botanical name  
*Sindora* spp.

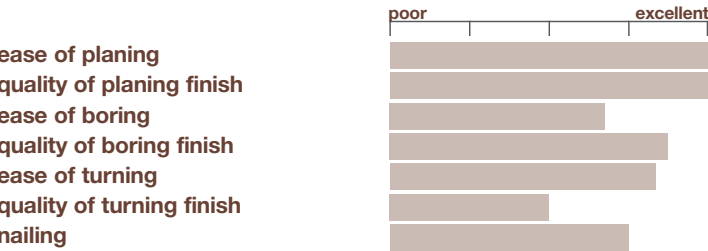
family  
Leguminosae

classification  
Light Hardwood

distribution  
Widely distributed in lowland forests as well as in the hills.

## USES

- FURNITURE
- PLYWOOD
- DECORATIVE FINISHING
- INTERIOR FINISHING
- JOINERY
- PANNELLING
- FLOORING





physical properties

species	air-dry density (kg/m³)	shrinkage tangential (%)	seasoning
American Red Maple	540	8.2	Fairly fast
American Western Hemlock	500	7.9	Drying defects may occur and care should be taken
American White Oak	750	9.6	Slowly and may split, check or honeycomb
Balau	850 – 1,155	3.5 – 3.9	Very slowly and care should be taken to avoid end-checks and splitting
Bintangor	465 – 865	2.0 – 3.7	Fairly slowly with slight degrade
Black Maple	630	9.0	Slowly with little degrade
Dark Red Meranti	560 – 865	2.9 – 4.4	Fairly fast with no defects
Douglas Fir	530	6.6	Rapidly with little warping
European Ash	690	8.3	Requires care in order to minimise degrade
European Beech	670 – 720	8.6 – 18.2	Difficult to dry
European Scots Pine	500	7.7	Fairly fast
European Spruce (Norway Spruce)	390 – 480	7.8	Easily with little shrinkage or checking
Kelat	495 – 1,010	3.3	Very slowly with little degrade
Kembang Semangkok	515 – 755	3.0	Fairly rapidly with very slight degrade
Kempas	770 – 1,120	3.0	Slow with few or no defects
Keruing	690 – 945	3.3 – 7.4	Seasons well without serious defects
Mengkulang	625 – 895	3.0 – 3.8	Fairly rapidly with few or no defects
Merbau	515 – 1,040	1.6	Slowly without any degrade
Mersawa	515 – 735	3.2 – 3.8	Slowly with slight degrade
Nyatoh	400 – 1,075	1.9 – 4.3	Dries at an average rate with little or no degrade
Radiata Pine	480	6.7	Rapidly with medium shrinkage
Red Balau	800 – 880	3.2 – 3.6	Slowly with slight degrade
Rubberwood	560 – 640	1.9	Fairly rapidly, but care should be taken to avoid warping and splitting
Sepetir	530 – 785	2.9	Dries moderately without degrade

**note** Information on the physical and mechanical properties of the foreign timbers mentioned is sourced from MatWeb, FPCWA, NPLVL, USDA, NZFRI, AHEC and World of Wood.

mechanical properties

species	static bending (MPa)		compression strength (MPa)		shear strength (MPa)
	modulus of elasticity	modulus of rupture	perpendicular to grain	parallel to grain	
American Red Maple	9,790	54	3.6	17	7.5
American Western Hemlock	8,200	76	4.7	43	5.6
American White Oak	8,620	101	9.1	48 – 51	13.5
Balau	20,100	142	9.8	76	15
Bintangor	14,300	74	3.2	37	10.8
Black Maple	9,170	55	4.1	23	7.8
Dark Red Meranti	11,200 – 13,900	74 – 77	2.9 – 5.0	39 – 45	8.0 – 8.7
Douglas Fir	13,600	88	3.1	50	9.5
European Ash	13,130	118	10.8	51	12.5
European Beech	13,500	118	7.9	54	14.0
European Scots Pine	10,700	89	7.5	46	11.2
European Spruce (Norway Spruce)	9,100	64	4.1	30	5.3
Kelat	17,600	116	6.0	59	12.8
Kembang Semangkok	17,000	92	5.4	50 – 52	9.1 – 10.1
Kempas	18,600	122	8.0	66	12.0
Keruing	12,900 – 22,300	76 – 133	4.3 – 9.2	43 – 68	9.2 – 12.3
Mengkulang	15,990	91	5.4	52	10.8
Merbau	15,400	116	9.2	58	12.5
Mersawa	9,200 – 12,600	49 – 54	5.5 – 5.6	26 - 29	7.1 – 7.4
Nyatoh	12,200 – 18,300	79 – 129	4.5 – 9.2	44 – 65	11.0 – 11.9
Radiata Pine	10,000	81	12	42	11.3
Red Balau	14,800 – 17,000	99 – 100	5.5	55	9.9 – 12.0
Rubberwood	9,240	66	4.7	32	11.0
Sepetir	13,600	92	5.9	46	13.6