Family: DIPTEROCARPACEAE (angiosperm)

Scientific name(s): Shorea negrosensis* (voir note)
Shorea polysperma* (voir note)

Commercial restriction: no commercial restriction

Note: * species belonging to the sub-genus Rubroshorea.
RED LAUAN species come from the Philippines.

WOOD DESCRIPTION

- Color: red brown
- Sapwood: clearly demarcated
- Texture: medium
- Grain: interlocked
- Interlocked grain: marked

Diameter: from 80 to 120 cm
Thickness of sapwood: from 5 to 6 cm
Flots: no
Log durability: moderate (treatment recommended)

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 - moderately durable
Dry wood borers: durable - sapwood demarcated (risk limited to sapwood)

Termites (according to E.N. standards): class M - moderately durable

Treatability (according to E.N. standards): class 3 - poorly permeable
Use class ensured by natural durability: class 2 - inside or under cover (dampness possible)
Species covering the use class 5: No

Note: Black holes quite frequent.

MECHANICAL AND ACOUSTIC PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Mean</th>
<th>Std dev.</th>
<th>Property</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity*</td>
<td>0.65</td>
<td>0.05</td>
<td>Crushling strength*</td>
<td>50 MPa</td>
<td>5 MPa</td>
</tr>
<tr>
<td>Monnin hardness*</td>
<td>2.7</td>
<td>0.5</td>
<td>Static bending strength*</td>
<td>90 MPa</td>
<td>6 MPa</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0.51 %</td>
<td>0.04 %</td>
<td>Modulus of elasticity*</td>
<td>13290 MPa</td>
<td>962 MPa</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>7.6 %</td>
<td>0.9 %</td>
<td>(*: at 12% moisture content, with 1 MPa = 1 N/mm²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>4.3 %</td>
<td>0.7 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>1.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>29 %</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Stability: moderately stable

Musical quality factor: 112.7 measured at 2255 Hz

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: normal to slow
Risk of distortion: slight risk
Risk of casehardening: yes
Risk of checking: slight risk
Risk of collapse: no

Note: Drying must be done with care to avoid risks of casehardening.

This schedule is given for information only and is applicable to thickness lower or equal to 38 mm. It must be used in compliance with the code of practice. For thickness from 38 to 75 mm, the air relative humidity should be increased by 5 % at each step. For thickness over 75 mm, a 10 % increase should be considered.

SAWING AND MACHINING

Blunting effect: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: nood

Note: Tendency to tear in planing. Keep sharp tools.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct

Note: Tends to split when nailing.

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to MGR grading rules (2009)
Possible grading: Prime, Select, Standard, Serviceable, Utility

FIRE SAFETY

Conventional French grading: Thickness > 14 mm : M.3 (moderately inflammable)
Thickness < 14 mm : M.4 (easily inflammable)

Euroclasses grading: D s2 d0
Default grading for solid wood, according to requirements of European standard EN 14081-1 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

END-USES

Veneer for interior of plywood
Sliced veneer
Formwork
Interior panelling
Exterior panelling
Moulding
Ship building (planking and deck)
Boxes and crates
Glued laminated
Rolling shutters

Veneer for back or face of plywood
Current furniture or furniture components
Interior joinery
Exterior joinery
Stairs (inside)
Cabinetwork (high class furniture)
Musical instruments
Light carpentry
Flooring
# MAIN LOCAL NAMES

<table>
<thead>
<tr>
<th>Country</th>
<th>Local name</th>
<th>Country</th>
<th>Local name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>RED LAUAN</td>
<td>Philippines</td>
<td>TANGILE</td>
</tr>
<tr>
<td>Philippines</td>
<td>TIAON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Specific Gravity

- **0.2** to **0.3**: Very light
- **0.3** to **0.4**: Light
- **0.4** to **0.5**: Medium
- **0.5** to **0.6**: Heavy
- **0.6** to **0.7**: Very heavy

### Monnin Hardness

- **1** to **2**: Very soft
- **2** to **4**: Soft
- **4** to **5**: Medium
- **5** to **6**: Hard
- **6** to **8**: Very hard

### Coefficient of Volumetric Shrinkage (%)

- **0.3** to **0.4**: Low
- **0.4** to **0.5**: Medium
- **0.5** to **0.6**: High

### Total Tangential Shrinkage (%)

- **4** to **5**: Low
- **5** to **6**: Medium
- **6** to **7**: High

### Total Radial Shrinkage (%)

- **2** to **3**: Low
- **3** to **4**: Medium
- **4** to **5**: High

### Crushing Strength (MPa)

- **0** to **20**: Low
- **20** to **40**: Medium
- **40** to **60**: High

### Static Bending Strength (MPa)

- **25** to **50**: Low
- **50** to **75**: Medium
- **75** to **100**: High

### Modulus of Elasticity (<1000 MPa)

- **6** to **8**: Low
- **8** to **10**: Medium
- **10** to **12**: High

### Resistance to Fungi

- Not durable
- Poorly durable
- Moderately durable
- Durable
- Very durable

### Resistance to Dry Wood Insects Borer

- Susceptible
- Durable

### Resistance to Termites

- Susceptible
- Moderately durable
- Durable

### Treatability

- Not permeable
- Poorly permeable
- Moderately permeable
- Easily permeable

### Stability

- Poorly stable
- Moderately stable
- Stable

### Fibers Saturation Point

- 15 %: Low
- 25 %: Medium
- 35 %: High
- 45 %: High