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Front cover photographs: (top to bottom) • Mahogany (*Swietenia macrophylla*) plantation Guadalcanal, Solomon Islands. • Portable sawmill cutting a mahogany log. • The finished product, furniture (dining table) manufactured from plantation-grown mahogany.

Acknowledgments. Solomon Islands Timber was compiled and prepared for publication by Peter J. Eddowes, Asia Pacific Timber Consultants Queensland, Australia, on behalf of IRS Australia Pty Ltd. 2005. IRS is the Australian Managing Contractor of the Solomon Islands Forestry Management Project, an Australian Government, AusAID initiative.
Foreword

Vision

To develop a strong export sector in value added timber products based on the high quality natural and plantation species grown in the Solomon Islands.

Solomon Islands is blessed with a range of high quality, naturally occurring tropical hardwood timbers. These timbers have properties that make them ideal for a range of uses, including valuable structural and appearance grades, across the full spectrum of environmental conditions. Over the last twenty years, expanding areas of plantation have also meant that the country has a range of high quality tropical hardwood timbers that are already well known around the world.

Through the Solomon Islands Forest Management Project II, AusAID is helping to expand domestic processing in the Solomon Islands and establish export markets for timber products other than logs. This handbook forms part of that program by providing technical data for potential buyers on a range of key species that grow naturally and in plantations within Solomon Islands. This information will assist buyers to understand the unique properties and attributes of these timbers. Already some Solomon Islands species such as rosewood, kwila and vitex are well known and have good export markets. However, many other timbers grown in Solomon Islands have similar, and in some cases better, appearance, structural and handling properties than these timbers. This manual will assist those looking to develop the potential of all the timbers available from the Solomon Islands.

Value added timber products will bring many benefits to the people of Solomon Islands, including greater revenue to the country, new business activities and employment, a more sustainable industry and more direct value to landowners from their natural and plantation resources. This manual will assist in further developing the small, but strong processing industry within Solomon Islands.

Dan Raymond,
Team Leader, Forestry Management Project II
Solomon Islands
Definition and Discussion of Terms

The twenty timber species described in this manual have been selected on the basis of occurrence and availability and as being of current commercial importance. Of the timbers included, there are fourteen indigenous species (natural forest growth) and six exotic species (introduced) as plantation grown species. Of the fourteen indigenous species, two species namely Carpinus buxifolia and Gmelina arborea, have also been introduced into plantations with some success.

The physical and mechanical properties of the timbers together with their workability and seasoning properties are shown on the back page (page 2) of each species sheet.

1. Properties

1.1 Density
The density is expressed in kilograms per cubic metre (kg/m³) at 12% moisture content (seasoned).

1.2 Colour
Colour of wood is a subjective matter; it varies from species to species and within a species. Colour is based on the true heartwood.

1.3 Texture
The texture of wood is defined by the size, uniformity and distribution of the wood cells and by variation in wood structure e.g. ring-porous as in Spotted Gum and teak. Lustral (as included under Texture) is the property of wood enabling it to reflect light and/or to have a distinct sheen.

1.4 Grain
Grain in wood refers to the direction of growth in the wood fiber. As wood is cellular in structure and made up of fibres, the direction of the grain is simply the direction of the wood fibers. The major types of grain encountered are:

1.4.1 Straight Grain
The wood fibres run parallel to the longitudinal axis of the piece of wood.

1.4.2 Interlocked Grain
The fibres are at an angle to the longitudinal axis of a piece of wood, an angle which changes or reverses periodically in successive layers. Alternate helical or spiral grain in growth layers is a special case of interlocked grain.

1.4.3 Tension Wood
Tension wood occurs in trees subject to prolonged stress as in leaning trees or those exposed to strong prevailing winds. Tension wood is invariably present in branch wood of hardwood trees.

1.5 Figure
Figure in wood originates from its anatomical features or from variations in the natural colour, grain and texture patterns, and in the presence and composition of soft tissue. Wood with interlocked grain e.g. Calophyllum, produces a broad, striped or ribbon effect when quarter-sawn. Back-sawn wood produces a highly decorative cathedral or flame-like effect e.g. khaya.

1.6 Durability
The natural durability of wood is based on the heartwood and in its ability to resist the attack of decay fungi when in-ground contact. The durability of heartwood is governed by the amount of chemical substances, often referred to as extractives, deposited within the heartwood during its growing stages. Durability ratings indicate a longer life expectancy in temperate climates as opposed to humid tropical conditions. Timbers exposed to the weather, but not in contact with the ground, can also be expected to have a much longer service life.

Table 1 - Durability Classification - Untreated Heartwood

<table>
<thead>
<tr>
<th>Class</th>
<th>Probable in-ground service life</th>
<th>Probable above-ground service life</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt;25 years</td>
<td>&gt;40 years</td>
</tr>
<tr>
<td>2</td>
<td>15 to 20 years</td>
<td>15 to 40 years</td>
</tr>
<tr>
<td>3</td>
<td>5 to 15 years</td>
<td>7 to 15 years</td>
</tr>
<tr>
<td>4</td>
<td>0 to 5 years</td>
<td>0 to 7 years</td>
</tr>
</tbody>
</table>

(Source: AS4624 - 1993)

Class 1 - Very durable. Suitable for long term use in structures exposed to the weather and in contact with the ground.

Class 2 - Durable. Suitable for use in the ground and for unprotected exterior use under normal conditions.

Class 3 - Moderately durable. Suitable for protected exterior work. Not suitable for use in contact with the ground.

Class 4 - Non-durable. Not suitable for exterior use unless treated with preservatives.

1.7 Permeability
Based on the ease of penetrating the heartwood with preservatives, under pressure, at 1380 kilopascals.

1.8 Lyctid Susceptibility
Lyctid borers attack the sapwood of many party-dried hardwoods. They do not attack heartwood. Susceptibility is based on the starch content of the sapwood and on the pore or vessel size having a diameter greater than 0.09mm; insufficient to allow the adult female borer to insert her ovipositor to lay her eggs.
2. Workability
The working properties of wood are subject to a number of factors. The properties as listed are based on fully seasoned (10-12% m.c.) timber. The presence of silica or silicam dioxide (SiO2), can cause rapid blunting of saw teeth and cutting edges. Specially hardened saw teeth and cutter edges (stellite tipped) alleviate many difficulties.

3. Mechanical Properties
The mechanical properties, as listed, are from test data undertaken on Papua New Guinea and Solomon Island timbers by the Commonwealth Scientific and Industrial Research Organisation of Australia (CSIRO) and other sources.

3.1 Strength
A system of strength grouping has been developed by the CSIRO and is designed to assist in marketing and in the appropriate use of timber for structural purposes. Each species is assigned to one of seven or eight strength groups depending on whether it is being used green or seasoned. Green timber has seven strength groups (S1 to S7); seasoned timber has eight strength groups (S1 to S8).

Table 2 gives the minimum standard test values of bending strength (modulus of rupture), stiffness (modulus of elasticity), compression parallel to grain (maximum crushing strength) for green material in each of these groups. Table 3 gives the seven values for seasoned timber. All strength values quoted are based on testing of small clear specimens. The techniques used in strength grouping have been documented by the Standards Association of Australia (1979).

Table 2 - Minimum values of strength groups for green timber Megapascals (MPa)

<table>
<thead>
<tr>
<th>Property</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of Rupture</td>
<td>80.3</td>
<td>63.6</td>
<td>52.2</td>
<td>43.5</td>
</tr>
<tr>
<td>Modulus of elasticity</td>
<td>19000</td>
<td>14000</td>
<td>12600</td>
<td>10700</td>
</tr>
<tr>
<td>Maximum crushing strength</td>
<td>52</td>
<td>43</td>
<td>31</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 3 - Minimum values of strength groups for seasoned timber Megapascals (MPa)

<table>
<thead>
<tr>
<th>Property</th>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
<th>No. 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of Rupture</td>
<td>39.0</td>
<td>38.0</td>
<td>34.0</td>
<td>30.0</td>
</tr>
<tr>
<td>Modulus of elasticity</td>
<td>2500</td>
<td>1650</td>
<td>1600</td>
<td>1550</td>
</tr>
<tr>
<td>Maximum crushing strength</td>
<td>80</td>
<td>70</td>
<td>61</td>
<td>54</td>
</tr>
</tbody>
</table>

3.2 Structural Grade
The grades, into which structural timber is sorted, are called stumps grades. A stress grade may be defined as the classification of a piece of timber for structural purposes by means of visual or mechanical methods to indicate primarily the basic working stress in bending, for purpose of design, and, by implication, the basic working stresses for other properties normally used in engineering design. The stress grade is designated in a form such as F14, which indicates a basic working stress in bending of 14 MPa. The grade as given for each species is based on No. 1 Structural (select grade). Seasoned.

Table 4 - Unseasoned Timber

<table>
<thead>
<tr>
<th>Strength group</th>
<th>No. 1 Structural</th>
<th>No. 2 Structural</th>
<th>No. 3 Structural</th>
<th>No. 4 Structural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F 45</td>
<td>F 34</td>
<td>F 27</td>
<td>F 22</td>
</tr>
<tr>
<td></td>
<td>F 34</td>
<td>F 27</td>
<td>F 22</td>
<td>F 17</td>
</tr>
<tr>
<td></td>
<td>F 23</td>
<td>F 22</td>
<td>F 17</td>
<td>F 14</td>
</tr>
<tr>
<td></td>
<td>F 22</td>
<td>F 17</td>
<td>F 14</td>
<td>F 11</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 14</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 14</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
</tbody>
</table>

Table 5 - Seasoned Timber

<table>
<thead>
<tr>
<th>Strength group</th>
<th>No. 1 Structural</th>
<th>No. 2 Structural</th>
<th>No. 3 Structural</th>
<th>No. 4 Structural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F 45</td>
<td>F 27</td>
<td>F 22</td>
<td>F 17</td>
</tr>
<tr>
<td></td>
<td>F 34</td>
<td>F 27</td>
<td>F 22</td>
<td>F 17</td>
</tr>
<tr>
<td></td>
<td>F 27</td>
<td>F 17</td>
<td>F 14</td>
<td>F 11</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 14</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
<tr>
<td></td>
<td>F 17</td>
<td>F 17</td>
<td>F 11</td>
<td>F 8</td>
</tr>
</tbody>
</table>

3.3 Izod Value
The Izod value is a measure of resistance to the impact of sudden shock loads.

3.4 Janka hardness
Janka hardness measures the resistance of wood to denting. Hardness in dry timber is generally higher than in green timber though not invariably so.
3.5 Maximum Crushing Strength
Maximum crushing strength is a measure of the maximum stress a timber can sustain under a load applied parallel to the grain. It indicates the relative suitability of timber for columns.

3.6 Modulus of Elasticity
Modulus of elasticity is a measure of the stiffness or rigidity of wood within its elastic limit. The modulus of elasticity is thus a measure of its resistance to deflection e.g. as a beam.

3.7 Modulus of Rupture
Modulus of rupture is the measure of the maximum compression or tension stress in the fibres at the point of fracture. It is a direct measurement of the strength of wood in bending when loaded as a beam.

4. Seasoning
4.1 Movement
Timber in service will equilibrate with the moisture in the atmosphere. In most instances this will be between 12% - 20%. In this range, the change in dimension which is known as hygroscopic movement, is proportional to the moisture content. Three classifications are referred to: Low, Medium and High.

4.2 Shrinkage
Timber shrinks by different amounts in the three cardinal directions; in the longitudinal direction, shrinkage is usually insignificant. Shrinkage in the tangential direction, for most species, is about twice as great as in the radial direction. Five classifications are referred to: Very Low, Low, Medium, High and Very High (see Table 8).

<table>
<thead>
<tr>
<th>Shrinkage Classification</th>
<th>Shrinkage from Green to Oven Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tangential (%)</td>
</tr>
<tr>
<td>Very Low</td>
<td>0 - 3.5</td>
</tr>
<tr>
<td>Low</td>
<td>3.6 - 5.0</td>
</tr>
<tr>
<td>Medium</td>
<td>5.1 - 6.5</td>
</tr>
<tr>
<td>High</td>
<td>6.6 - 8.0</td>
</tr>
<tr>
<td>Very High</td>
<td>8.1 &amp; over</td>
</tr>
</tbody>
</table>

4.3 Kiln Drying Schedule
Guidelines for conventional kiln drying are for 25mm thick material. These schedules are based on experimental work by the CSIRO and from other sources including, Eddowes P.J. (Wood in Papua - unpublished MS ed., and Commercial Timbers of Papua New Guinea - 1977). Some schedules may prove to be conservative, however, they should provide a starting point for later modification as may be desirable.

Q (mm) = Timber thickness in millimeters
5.5 = Sawing profile
M = Mixed (back-sawn & quarter-sawn)
B = Back-sawn
Q = Quarter-sawn
m.c change = Progression in moisture content points from green condition to final m.c.
DT = Dry bulb temperatures
WBD = Wet bulb depression
Native Forest Timbers

Satinash
( Syzygium spp.)
Akwa

**Recommended Uses (Major/specifc)**

- **Building Construction** (F17)
- **Roofing & staircase materials.**
- **Beefitler (joinery: cut-out joints)** including screening, pote-teacher, decking, quonset, pergolas.
- **Furniture including custom made and production line.**
- **Shipbuilding: including ribs, planking.**
- **Speciality items: Musical Instruments, including piano frames.**
- **Insect: including joinery, door joints.**

**Akwa • Pometia pinnata**

Akwa is one of the major commercial timber species of the Solomon Islands. **Medium to large size trees are found** throughout the South West Pacific region. Akwa is readily available as a sawn timber in a full range of sizes.

- A popular timber in Japan for production-line furniture since it stains uniformly to a colour of choice. The timber has good moulding and finishing properties and has been used in Japan for piano frames.
- The timber ranges in colour from a pale pinkish-brown through to a reddish-brown. Some trees produce a fiddleback type figure, similar to that of *sapele* (*Entandrophragma cylindricum*) of West and Central Africa, thus making it an attractive and appealing timber for architects, furniture designers and furniture manufacturers.
- A very good multi-purpose timber, ideal for general building and construction purposes including beams and joists. Due to its availability in large sections, it makes an excellent timber for staircase materials as well as for flooring. It also has excellent steam-bending properties, and is used in boat-building for a number of purposes, including ribs and planking.
- The timber can be kiln dried satisfactorily. However, preliminary air drying is recommended to alleviate degrade. All material should be quarter-sawn.
- When working with seasoned timber, sander dust may irritate the mucous membranes. Workshops should be well ventilated and staff should wear face masks or respirators.

**Other names:**
- **Trade Names:** taun
- **Local Name:** ake, dawa

For further information: [www.solomonntimbers.com.sb](http://www.solomonntimbers.com.sb)
Akwa - Pometia pinnata

**Properties**

- **Density**: 680 kg/m³ (40%) @12% MC.
- **Colour**: Finely brown to pale reddish brown.
- **Texture**: Medium, slightly uneven; well lustrous.
- **Grain**: Usually straight, sometimes wavy.
- **Figures**: Cathedral-like figure on butt-sawn faces. Ribbon or banded figure on quarter-sawn faces.
- **Durability**: Durable in exterior situations out of the ground.
- **Penetrability**: Heartwood, resistant to pressure impregnation.
- **Cyclic Swell/ shrink**: Susceptible.

**Workability**

- **General**: Good working and finishing properties.
- **Sawing**: Readily sawn with little blunting effect.
- **Planing**: Reduction in cutting angle to 20° recommended.
- **Blunting**: Low.
- **Drilling**: Good characteristics. Some slight burning may occur.
- **Turning**: Good characteristics, producing sharp arrow; finish sometimes slightly fibrous.
- **Nailing**: Nails well, but pre-drilling advisable to prevent splitting on bored ends.
- **Gluing**: Goes well with all adhesives.
- **Finishing**: Polishes very well, giving a lustreous surface.

**Mechanical Properties**

- **Strength**: 590 (measured).
- **Structural Grade**: 117 (select grade).
- **Toughness (G2a)**: 142 (seasoned), 54 (unseasoned).
- **Reduction (Zulka)**: 6.54% (measured), 4.92% (unmeasured).
- **max. Crushing Strength**: 60 MPa (seasoned), 31 MPa (unseasoned).
- **Modulus of Elasticity**: 14 GPa (seasoned), 11 GPa (unseasoned).
- **Modulus of Rupture**: 106 MPa (seasoned), 67 MPa (unseasoned).

**Seasoning**

- **General**: Season very well but some collapse can occur. A high humidity re-conditioning treatment needs to be applied.
- **Movement**: Medium.
- **Shrinkage**: Medium.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>%</th>
<th>S.P.</th>
<th>MC Change Points (%)</th>
<th>60°C (°C)</th>
<th>W.D. (%)</th>
<th>S.R. (2%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>N</td>
<td>Green</td>
<td>50</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
<td>50</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
<td>55</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>55</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>60</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>65</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>70</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 - 40%</td>
<td>70</td>
<td>10</td>
<td>4 - 6</td>
</tr>
</tbody>
</table>
Amoora

Amoora  is a large tree, widespread throughout the lowland rainforests from Papua New Guinea to the Solomon and Santa Cruz Islands. It does not occur in large volumes but small sawn parcels can be made available.

- Amoora is a very attractive wood, somewhat similar to dark-red meranti and Philippine mahogany (Shorea spp.). It produces a first class peeler log and had been much sought after for face veneer in plywood manufacture in Japan, South Korea and Taiwan.

- The timber is fairly uniform in colour with a straight or slightly interlocked grain. It saws readily and works well with both machine and hand tools to a smooth surface. Sands to a fine finish and takes a high polish, giving a satiny lustre. Glues, screws and nails well.

- Quarter-sawn material seasons well with little degrade. Back-sawn material has a tendency to cup and/or twist especially in wide boards. Close sticker/ing of boards at 800mm intervals and weighting tops of stacks during preliminary air-drying and subsequent kiln drying is advisable.

- Amoora is suitable for high quality furniture and cabinet work. In its 'finished' state, boards cut on the full quarter and highly polished, bear a striking resemblance to African sapele (Entandrophragma cylindricum), with its dark red colouring and attractive ribbon grain figure. It is also suitable for joinery, including window frames, door jambs, decorative (VJ) wall linings, mouldings, turning and outdoor (oil treated) screens; and makes an attractive flooring for light traffic.

**Recommended Uses (Major/species):**
- Building Construction (F1/F2).
- Flooring and staircase materials.
- Timber joinery, including screening.
- Splicing; including custom made and production line, cabinet work.
- Skirting; including mouldings and architraves, window and door frames, and linings.
- Window joinery.

Other names:
- Trade Name: Pacific maple
- Local Name: uluwalo

For further information:  www.solomontimbers.com.sb
**Density** 550 kg/m³ @ 12% MC
**Colour** Reddish-brown to deep brick-red.
**Texture** Medium, slightly uneven; lustrious.
**Grain** Straight or slightly interlocked.
**Figure** Striped or ribbon figure on quarter-sawn faces.
**Durability** Moderately durable in protected situations.
**Peevishness** Heartwood non-peevish to pressure impregnation. Sapwood also boasts poorly.
**Lytic susceptibility** Susceptible.

**Workability**
- **General** Good working and finishing properties.
- **Sawing** Easy to saw with little blunting effect.
- **Planing** Excellent characteristics; produces smooth surface.
- **Blunting** Low.
- **Boring** Good.
- **Turning** Very good characteristics producing sharp angles.
- **Nailing** Nails well.
- **Gluing** Glues well with all adhesives.
- **Finishing** Takes a high polish giving a lustrous surface.

**Mechanical Properties**

- **Strength** 505
- **Structural Grade** F17 (select grade).
- **Toughness (Bole)** 112 (seasoned), 88.82 (unseasoned).
- **Hardness (Stained)** 3.38M (seasoned), 2.74M (unseasoned).
- **Max. Crushing Strength** 44MPa (seasoned), 25MPa (unseasoned).
- **Modulus of Elasticity** 12GPa (seasoned), 0.75GPa (unseasoned).
- **Modulus of Rupture** 85MPa (seasoned), 60MPa (unseasoned).

**Seasoning**
- **General** Seasons well with little degrade.
- **Movement** Low.
- **Drying Rate** Medium.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>°F</th>
<th>%RH</th>
<th>MC Change Points</th>
<th>55%</th>
<th>59%</th>
<th>25% to 12%</th>
<th>FROM GREEN</th>
<th>FROM 25% Gumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>M</td>
<td>Green</td>
<td>55</td>
<td>30</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>55%</td>
<td>55</td>
<td>55</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25 - Final</td>
<td>60</td>
<td>55</td>
<td>6</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

**Amoora - Amoora cucullata**

**Properties**

**SOLOMON ISLANDS TIMBER**
Brown Terminalia

**Recommended Uses**

- **Building Construction (F14):** Including light framing.
- **Specialties:** Including casing, sliced veneer (exotic growth).
- **Furniture:** Mission made, cabinet work (plantation grown).
- **Interior:** Stained mouldings.

**Brown Terminalia** *Terminalia brassii*

**Brown terminalia** is common in the Solomon Islands where the tree can reach a large size and form nearly pure stands. It is also a suitable plantation species. It prefers wet conditions including fresh water swamps.

- Both Japan and South Korea have imported large volumes of the timber from Papua New Guinea and the Solomon Islands mainly for rotary peeling and plywood manufacture. However, it also produces general purpose, lightweight, utility sawn wood for light construction and mouldings.

- Native forest timber is a pale brown with a pale yellowish caste. Chains of traumatic gum canals are often evident on sawn faces. The timber has similar properties and end uses to that of the paler coloured meranti group of timbers (*Shorea* spp.) at the lower end of their density range for which it could be considered as a suitable substitute.

- Material should be quarter-sawn to alleviate twist, cupping and surface checking. 25mm boards can be readily kiln dried from green. 38mm and 50mm thick material needs to be air-dried first to avoid degrade. Drying stacks need to be well stickered at 450mm intervals and stacks should be heavily weighted. Treatment is required at the point of felling and immediately after sawing to prevent blue stain and pinhole borer attack.

- Plantation grown material produces a much denser and more attractive heartwood with an irregular banded pattern and marked with fine black lines closely resembling walnut in appearance. It is suitable for decorative work including, furniture, cabinet work and sliced veneer. The heartwood is used by local artisans for the production of artefacts including decorative carved bowls.

**Other names:**
- **Local Name:** dafo

**For further information:** [www.solomonntimbers.com.sb](http://www.solomonntimbers.com.sb)
**PROPERTIES**

- **Density**: 459-550 kg/m³ @ 12% m.c
- **Colour**: Pale brown with pale yellowish caste (natural growth).
- **Texture**: Course and somewhat uneven.
- **Grain**: Interspersed; sometimes wavy. Spiral or cross-grain may be present.
- **Figure**: Ribbon or banded figure on quarter-sawn face.
- **Durability**: Non-durable.
- **Permeability**: Heartwood, untreated.
- **Cyclidal susceptibility**: Susceptible.

**WORKABILITY**

- **General**: Satisfactory; care required due to grain irregularities.
- **Sawing**: Saws well with little difficulty; sawn surface often woolly.
- **Planing**: Grain can chip or tear.
- **Blunting**: Low.
- **Boiling**: Fibrous.
- **Turning**: Satisfactory, but rather woody and soft.
- **Netting**: Netts easily and well.
- **Gluing**: Glues well with all adhesives.
- **Finishing**: Timber needs to be well seasoned to achieve good quality finish. Very sharp tools essential.

**MECHANICAL PROPERTIES**

- **Strength**: 506
- **Structural Strength**: F14 (select grade).
- **Toughness (tend):** 8.32 (seasoned), 8.02 (unseasoned).
- **Hardness (Static):** 2.86% (seasoned), 2.54% (unseasoned).
- **Max. Crushing Strength**: 3704N (seasoned), 2310N (unseasoned).
- **Modulus of Elasticity**: 8.96/2 (seasoned), 8.16/2 (unseasoned).
- **Modulus of Rupture**: 68/4% (seasoned), 64/4% (unseasoned).

**SEASONING**

- **General**: All timber should be quarter-sawn.
- **Movement**: Medium.
- **Grainורange**: Low.

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>%</th>
<th>M.c</th>
<th>M.D</th>
<th>DIF</th>
<th>MB</th>
<th>% FROM 14% TO 12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Mea.</td>
<td>90</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>60</td>
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<td>90</td>
<td>11</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>20</td>
<td>90</td>
<td>12</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

11
Calophyllum

Calophyllum is represented in the Solomon Islands by a number of species, the most common of which are: *C. neo-ebudicum*, *C. leleanii*, *C. peekeltii* (formerly *C. kajawski*) and *C. souliattri*. They are usually large-sized trees with long, clear cylindrical boles. The wood is available in sawn parcels and in a wide range of sizes.

- The timber is popular in Japan for a variety of end uses including furniture manufacture and cabinet work as well as for veneer and plywood manufacture. Large sawn volumes have been exported to New Zealand and some to Australia for manufacture of furniture, joinery, mouldings and turnery.

- The timbers range in colour from a pale pinkish-brown to pale red-brown to pale red. Quarter-sawn boards produce a distinct striped or ribbon effect, whilst back-sawn material is nicely figured with a fine tracery pattern.

- The timbers can be dried satisfactorily. Quarter-sawn material dries well with little degrade. Back-sawn material has a tendency to cup and twist especially in wide boards. Drying stickers should be spaced at 450mm intervals along each row of boards and stacks heavily weighted to alleviate warp.

- *Calophyllum* is a useful, general purpose timber. Due to its wide range in density, its mechanical properties can be variable. It is suitable for a wide range of end uses including; furniture and cabinet work, interior joinery, mouldings, architraves, door jambs, general building construction, flooring and exterior cladding, including weatherboards. It is often compared to light red *meranti* (Malaysia) or red *lauan* (Philippines). It can substitute for this group of species.

**Other names:**

- Trade Name: kaloflillum
- Local Name: ba'ula, gwarogwaro

For further information: www.solomontimbers.com.sb
Calophyllum • Calophyllum spp.

**PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>475-650 kg/m³ (83% MC)</td>
</tr>
<tr>
<td>Colour</td>
<td>Pale finish-brown to pale yellow.</td>
</tr>
<tr>
<td>Texture</td>
<td>Moderately course and slightly uneven.</td>
</tr>
<tr>
<td>Grain</td>
<td>Intercrossed</td>
</tr>
<tr>
<td>Figure</td>
<td>Ribbon or striped effect on quarter-sawn faces.</td>
</tr>
<tr>
<td>Durability</td>
<td>Moderately durable.</td>
</tr>
<tr>
<td>Reactivity</td>
<td>Heartwood resistant to pressure impregnation.</td>
</tr>
<tr>
<td>Lignin susceptibility</td>
<td>Some species susceptible.</td>
</tr>
</tbody>
</table>

**WORKABILITY**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting</td>
<td>Reasonably good working and finishing properties.</td>
</tr>
<tr>
<td>Sawing</td>
<td>Readily sawn; some boards a little fibrous in nature.</td>
</tr>
<tr>
<td>Planing</td>
<td>Generally planes well dependent on grain and cutting angle. A reduction of cutter angle (20°) will assist.</td>
</tr>
<tr>
<td>Blunting</td>
<td>Low.</td>
</tr>
<tr>
<td>Drilling</td>
<td>Good characteristics; may be a little fibrous.</td>
</tr>
<tr>
<td>Turning</td>
<td>Generally good; may be a little fibrous.</td>
</tr>
<tr>
<td>Nailing</td>
<td>Pre-drilling on board ends advisable to prevent splitting.</td>
</tr>
<tr>
<td>Gluing</td>
<td>Glues very well with all adhesives.</td>
</tr>
<tr>
<td>Finishing</td>
<td>With care, smooth finish obtainable. Polishes very well.</td>
</tr>
</tbody>
</table>

**MECHANICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td>500</td>
</tr>
<tr>
<td>Structural Grade</td>
<td>517 (select grade).</td>
</tr>
<tr>
<td>Toughness (Zodi)</td>
<td>122 (seasoned), 103 (unseasoned).</td>
</tr>
<tr>
<td>Hardness (Janka)</td>
<td>4.6N (seasoned), 3.6N (unseasoned).</td>
</tr>
<tr>
<td>Max. Crushing Strength</td>
<td>53MPa (seasoned), 34MPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>164GPa (seasoned), 115GPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Rupture</td>
<td>102MPa (seasoned), 55MPa (unseasoned).</td>
</tr>
</tbody>
</table>

**SEASONING**

| General | Seasoning readily and well providing proper drying practices are adhered to viz. air-drying and weighting of kilns. |
| Movement | Medium.                                                                 |
| Shrinkage | Medium.                                                                 |

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>T (°C)</th>
<th>S.P.</th>
<th>H.C. Change Points</th>
<th>DRY (°C)</th>
<th>W.D. (°C)</th>
<th>Air Time to 12%</th>
<th>From Green (min)</th>
<th>From 25% (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>M</td>
<td>40</td>
<td>55</td>
<td>60</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

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13
**Camnosperma** • *Camnosperma brevipetiolarata*

*Camnosperma* is a medium to large tree, common throughout the North Solomons and the Solomon Islands, where it has also been introduced into plantations. There is potential for the timber to be made available in sawn parcels and in good volumes.

- The timber has considerable market potential. Its fine texture and pale colour make it much in demand for veneer and plywood, especially in Japan, where it is considered to be a substitute for *ramin* (*Gonylypus*). It was also imported into Australia (from Papua New Guinea) as veneer since it met face grade requirements for the manufacture of drawing boards and blackboards.

- Air dries readily, although tension wood causes bow and twist, especially in plantation-grown timber. It should be treated immediately after felling and sawing to prevent blue stain and insect attack, especially pinhole borer. 25mm boards can be kiln dried from the green condition. Thicker stock needs preliminary air drying to 25% m.c before kiln drying.

- A soft, pale-coloured wood of low density, having the same properties and uses as that of *Malaysian Camnosperma*, (*toevering*). It is suitable for a number of uses since it produces wide, clean boards and can be pressure treated. Specific uses include mouldings, drawer sides, chopsticks, match splints, low cost furniture and blockboard and, because it can be pressure treated, it is suitable for exterior cladding.

- The bark exudes a sparse, whitish sap, which may cause skin irritation when logs are milled. Gloves should always be worn and safety goggles to protect eyes when milling.

**Other names:**

- **Local Name:** ketekete

**For further information:** [www.solomontimbers.com.sb](http://www.solomontimbers.com.sb)
Campospermum -
Campnospermum brevipesialata

PROPERTIES

Density
400-450 kg/m³ @ 12% m.c.

Colour
Pinkish-grey sometimes with mauve tinge.

Texture
Very fine and even; silky.

Grain
Usually straight; occasionally slightly interlocked.

Figure
Small, 'keyhole' on quarter-sawn face.

Durability
Non-durable.

Permeability
Heartwood, permeable to pressure impregnation.

Yield susceptibility
Resistant.

WORKABILITY

General
Reasonably good; care required to get high class finish.

Sawing
Tension wood, when present, can clog up saw gullets.

Planing
Reasonably good; some boards slightly fibrous.

Blunting
Moderate.

Boring
Good characteristics with当 class holes.

Tuning
Poor; due to timber softness and fibrous nature.

Nailing
Nails easily and well.

Gluing
Gives very well with most adhesives.

Finishing
With care, a high quality, smooth finish, obtainable.

MECHANICAL PROPERTIES

Stiffness
507

Structural Grade
F11

Toughness (tool)
83 (seasoned), 63 (unseasoned).

Hardness (tool)
44N (seasoned), 1,544N (unseasoned).

Max. Crushing Strength
39MPa (seasoned), 17.5MPa (unseasoned).

Modulus of Elasticity
8.5GPa (seasoned), 7.6GPa (unseasoned).

Modulus of Rupture
60.5MPa (seasoned), 37MPa (unseasoned).

SEASONING

General
Dries readily; care required in stockpiling to avoid decay.

Movement
Low.

Shrinkage
Low.

KILN DRYING SCHEDULE

<table>
<thead>
<tr>
<th>%</th>
<th>%P</th>
<th>W.D. Change</th>
<th>Green</th>
<th>0%</th>
<th>15%</th>
<th>25%</th>
<th>30%</th>
<th>4 - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>50</td>
<td>30</td>
<td>20</td>
<td>10</td>
<td>4 - 5</td>
</tr>
</tbody>
</table>
Dillenia • *Dillenia salomonensis*

Dillenia is widespread as a medium to very large tree, represented by a number of species. It is fairly common in the lowland forests of Papua New Guinea, Bismarck Archipelago, Vanuatu, Fiji, the North Solomons and the Solomon Islands but is absent from the Santa Cruz Islands. It is an important timber species of the Solomon Islands and can be made available in sawn parcels in a full range of sizes.

- Round logs have, in the past, been exported to Japan, South Korea and other Asian countries, where they have been used for plywood and furniture manufacture. Sawn parcels have also been exported to New Zealand for a range of uses including furniture and cabinet work. The timber’s full market potential is yet to be realised.

- The wood is reddish-brown in colour, sometimes with a faint, purplish caste. It has an attractive silvery ‘oak-like’ figure on radial faces, due to the timber's broad rays. Sometimes it has black bands on quarter-sawn faces. The wood is moderately coarse, but even in texture and slightly lustrous. Grain, straight or with slight interlock.

- The timber can be difficult to dry. It has a high shrinkage and requires great care in stacking and drying so as to alleviate distortion and degrade. All timber should be quarter-sawn since back-sawn boards are prone to severe twist, bow, cupping and checking. However, quarter-sawn boards tend to spring immediately after sawing.

- An attractive and decorative timber suitable for a range of end-uses. It has been successfully rotary-peeled for veneer and plywood. Slices very well producing an attractive and decorative face when cut on the full quarter. Suitable for flooring, furniture and cabinet work and interior wall linings. Its permeability to pressure Impregnation renders it suitable for exterior joinery, posts and beams, and for boat-building. It is prone to blue stain and termite attack and requires a prophylactic treatment after milling.

Other names:
- Trade Name: simpoh
- Local Name: mudu

For further information: www.solomontimbers.com.sb
**Dillenia • Dillenia salomonensis**

**Properties**
- **Density**: 530-600 kg/m³ @ 12% moisture
- **Colour**: Red-brown; sometimes with purpleish caste
- **Texture**: Moderately coarse but even; slightly lustreous
- **Grain**: Straight or slightly interlocked
- **Figure**: Highly decorative; small 'dot-like' figure on radial faces due to presence of broad rays
- **Durability**: Non-durable
- **Penetration**: Variable in its uptake of saliva under pressure
- **Lyptal susceptibility**: Seldom is easily susceptible

**Workability**
- **General**: With care, the timber works well
- **Sawing**: Sawn without undue difficulty. Tendency for saw dust to stop the saw progress
- **Plaining**: Good characteristic; slight roughness on radial faces
- **Blunting**: Moderate
- **Boring**: Relatively easy but much finish
- **Tinning**: Turns well to smooth finish
- **Nailing**: Pre-drilling advisable when nailing near board ends
- **Gluing**: Satisfactory
- **Finishing**: With care, takes an excellent high polish

**Mechanical Properties**
- **Strength**: 50%
- **Structural Grade**: F22 (select grade)
- **Toughness (Loud)**: 152 (seasoned), 93 (unsawned)
- **Hardness (Tank)**: 6.5% (seasoned), 4.2% (unsawned)
- **Max. Creep Strength**: 45MPa (seasoned), 25MPa (unsawned)
- **Modulus of Elasticity**: 12500 (seasoned), 10500 (unsawned)
- **Modulus of Rupture**: 60MPa (seasoned), 50MPa (unsawned)

**Seasoning**
- **General**: Careful stacking and drying is essential
- **Air-dry**: Medium
- **Shrinkage**: Very high

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>%F</th>
<th>%G</th>
<th>MOC</th>
<th>DRIE</th>
<th>WD</th>
<th>%T</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>M</td>
<td>55</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
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<td>M</td>
<td>75</td>
<td>20</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

**Kiln Drying Schedule**
- **%F**: From green
- **%G**: From 25%
Kauri Pine

**Recommended Uses (Major/Specific)**
- Flooring: including domestic flooring (wide boards).
- Furniture: including cabinet work.
- Boat building: including decks, beams, varn, planking, deck etc.
- Specialty uses: including musical instruments, pianos, viols, artificial (parch), pattern-making.
- Slices: including lining boards, doors, mouldings, architraves.

**Kauri Pine • Agathis macrophylla**

Kauri pine, as represented by a number of species, is a very large conifer (softwood). It occurs from Irian Jaya to Papua New Guinea, Bismark Archipelago, Fiji, Australia, New Zealand and the Solomon Islands. In the Solomons, *A. macrophylla* is confined to the Santa Cruz Islands where it forms nearly pure stands of commercial proportions.

- **Kauri pine** is, arguably, one of the world's finest softwoods. It has been a popular timber for many years since it produces large wide boards, free of any defect, uniform in colour and free of tainting chemicals. Markets exist in Australia, New Zealand and Japan.

- The timber is a pale straw-brown to a honey-brown in colour often with darker streaks. A cathedral-like figure is sometimes evident on back-sawn faces and with a characteristic 'ray-fleck' pattern on quarter-sawn faces.

- The timber seasons readily with little degrade. Sawn material needs to be well stickered and stacks weighted to alleviate cupping. The timber has a very low shrinkage and very little movement in service.

- Due to the timber's excellent working properties, ease of drying, pale uniform colour and very fine and even texture, it is suitable for a wide range of uses including specialty applications. It is in demand in countries such as Japan for internal joinery and flooring, where accent is placed on pale coloured woods of uniform colour especially in traditional housing and condiments. It is also used for furniture, wall linings, cabinet work and cupboard doors. In Australia and New Zealand it has always been a popular and traditional timber for boat building including, masts, spars, oars, planking and decking.

- Its specialty applications include, musical instruments (violin and guitar bellies), pattern-making and artificial limbs. Due to its non-tainting properties it is suitable for bee-hives, bench tops and kitchen utensils (food preparation) and storage vats.

Other names:
- Trade Names: agathis, Vakiloko kauri
- Local Name: kauri

For further information: www.solomontimbers.com.sb
Kauri Pine - *Agathis macrophylla*

Kauri pine, as represented by a number of species, is a very large conifer (softwood). It occurs from Irian Jaya to Papua New Guinea, Bismarck Archipelago, Fiji, Australia, New Zealand and the Solomon Islands. In the Solomons, *A. macrophylla* is confined to the Santa Cruz Islands where it forms nearly pure stands of commercial proportions.

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Other names:
- Trade Names: agathis, Vanikolo kauri
- Local Name: kauri

For further information: www.solomontimbers.com.sb
**Kauri Pine - Agathis macrophylla**

**Properties**
- **Density** 450-550 kg/m³ @ 12% m.o.
- **Colour** Straw brown.
- **Texture** Very fine and even; slightly distinctive.
- **Grain** Straight.
- **Figure** Distinct 'keyhole' on quarter-sawn faces.
- **Durability** Non-durable.
- **Permeability** Heartwood is permeable to pressure impregnation.
- **Lignotuber** Resistant.

**Workability**
- **General** Excellent all round characteristics.
- **Sawing** Sawed easily and well.
- **Planing** Excellent characteristics.
- **Blunting** Very low.
- **Boring** Excellent characteristics; clean exit holes.
- **Tuning** Excellent characteristics; producing sharp milled edges.
- **Nailing** Excellent nailing and 'holding' ability.
- **Gluing** Glues very well with all adhesives.
- **Finishing** Takes an excellent polish, no filler required; high finish.

**Mechanical Properties**
- **Strength** TBD.
- **Structural Grade** F11 (select grade).
- **Toughness (Joule)** 4.33 (seasoned), 8.13 (unseasoned).
- **Hardness (Janka)** 2.4KN (seasoned), 2.6KN (unseasoned).
- **Max. Crushing Strength** 435MPa (seasoned), 215MPa (unseasoned).
- **Modulus of Elasticity** 3.06GPa (seasoned), 7.36GPa (unseasoned).
- **Modulus of Rupture** 679MPa (seasoned), 458MPa (unseasoned).

**Seasoning**
- **General** Excellent drying characteristics. Subject to blue stain if not treated.
- **Movement** Very low.
- **Shrinkage** Very low.

**Drying Schedule**

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>%P</th>
<th>M.E.</th>
<th>80%</th>
<th>60%</th>
<th>40%</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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<td>60</td>
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<td>40</td>
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</tr>
<tr>
<td>80</td>
<td></td>
<td>70</td>
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<td>45</td>
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<tr>
<td>100</td>
<td></td>
<td>65</td>
<td>55</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

- **Time to 4% Moisture** 5-6 years
- **Time to 12% Moisture** 3 years
Kwila

\textit{Intsia bijuga}

Kwila is a medium to large tree, widespread throughout the South Pacific. It can be found throughout the Solomon Islands mainly in coastal forests although it is not of major occurrence. Small sawn parcels are available in a full range of sizes.

- **Kwila** is a high quality, strong, durable hardwood. It has been a popular timber in Europe for many years where it finds a specialised use in yachts and sailing boating. It has also become popular in Australia and New Zealand where it is in demand for high quality applications including exterior joinery. It is a good substitute for teak (\textit{Tectona grandis}) and is closely related to the well known \\textit{dousi} (\textit{Albizia spp.}) of West Africa.

- The timber is either a yellowish-brown or dark brown in colour, darkening on exposure to light. In exterior situations it weathers slowly to a silver-grey colour. Contrary to popular belief, kwila is not very durable, and as the extractives, which contribute to its durability, are prone to leaching. This leaching process leads to the timber ‘bleeding’ and imparting a dark brown stain which mars the contact surface. A sailant should be applied to the timber if it is to be in "contact" situations e.g. window sills, when exposed to the weather.

- The timber seasons very well with little degrade. Preliminary air-drying to 25% moisture content is preferable before kiln drying. Board ends need to be heavily sealed with wax emulsion to avoid end splitting and surface checking during drying. After seasoning, it is a very stable timber with low hygroscopic movement.

- Kwila is suitable for superior joinery including staircase materials, handrails, balustrading and posts. It produces high quality, hard wearing flooring and is also used for furniture (indoor and outdoor) and decking. It is a popular timber for boat and ship-building.

Other names:

- Trade Name: merbau (Malaysia)
- Local Name: Kula

For further information: www.solomontimbers.com.sb
Kwila • Intsia bijuga

PROPERTIES

Density  850 kg/m³ @ 12% r.h.
Colour  Yellow-brown or dark brown.
Texture  Medium but even texture.
Grain  Straight or slightly interlocked, sometimes wavy.
Figure  Ribbon figure evident on quarter-sawn faces when interlocked grain present. Cathedral-like figure on back-sawn faces due to soft tissue.
Durability  Durable out of the ground in exterior situations.
Permeability  Heartwood, non-permeable to pressure impregnation.
Lytic subcutability  Sapwood is susceptible.

WORKABILITY

General  Very good working and finishing properties.
Sawing  Saws well but saw blades may 'burn-off' after prolonged sawing.
Planing  Excellent planing characteristics, cutter edges may 'burn-off' after prolonged planing.
Blunting  Low
Boring  Additional power required; some burning may occur; clean exit holes.
Turning  Good turning properties; smooth with sharp tools.
Nailing  Pre-drilling recommended to alleviate splitting on board ends.
Gluing  Care required to get satisfactory bonding due to the timber's natural oiliness.
Finishing  Takes a high polish; lustrous surface.

MECHANICAL PROPERTIES

Strength  502
Structural/Grade  FAH (select grade).
Toughness (Resil)  142 (seasoned), 183 (unseasoned).
Hardness (Scler)  8.6KHN (seasoned), 7.8KHN (unseasoned).
Max. Crushing Strength  83Mpa (seasoned), 155Mpa (unseasoned).
Modulus of Elasticity  185GPa ( seasoned), 195GPa (unseasoned).
Modulus of Rupture  147PMa (seasoned), 103PMa (unseasoned).

SEASONING

General  Season well with little degrade.
Movement  Very low.
Shrinkage  Very low.

KILN DRYING SCHEDULE

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>S.P.</th>
<th>MC</th>
<th>CPP</th>
<th>DOR (°C)</th>
<th>WBP (°C)</th>
<th>KD TIME</th>
<th>CB</th>
<th>BD SHR (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>M</td>
<td>95</td>
<td>80</td>
<td>8</td>
<td>10</td>
<td>10.12</td>
<td>5.3</td>
<td></td>
</tr>
</tbody>
</table>
Pencil Cedar - *Pseudophyllum spp.*

Pencil cedar is represented by a number of species. Usually a large, well formed tree, it is scattered throughout the lowland rainforests of the region including Papua New Guinea, Bismarck Archipelago, Fiji, Vanuatu, Solomon Islands and North Queensland. It can be made available in small sawn parcels on a regular basis.

- **Pencil cedar** is a high quality hardwood. Due to its ease of working, uniform colour, fine texture and finishing characteristics, it is highly favoured in Japan for prestige cabinet work and custom-made furniture where it has been marketed successfully as 'royal cherry'.

- The timbers are pinkish-brown in colour. The grain is usually straight. The timbers may vary slightly in their density depending on species. Some silica (SiO2) is present but usually only in small quantities. This causes moderate bending of cutting edges. The timbers work well with both machine and hand tools and have excellent moulding characteristics producing a smooth, high class surface. Takes an excellent high polish, producing a lustrous finish.

- The timbers season readily and well with little degrade. 25mm boards can be kiln-dried from the green condition. Back-sawn material has a tendency to cup or twist and stacks should be well stickeged at 450mm intervals and tops of stacks heavily weighted. Wood should be treated immediately after felling and sawing to prevent pinhole borer attack and blue stain.

- **Pencil cedar** is highly regarded for quality furniture and cabinet work as well as for premium mouldings. Due to the variation in density between species, its mechanical properties can be variable. It has been long recognised as a prime face material for plywood. Ideally suitable for high quality joinery including window and door frames, louvre blades, shutters, interior wall linings, mouldings and turning; and as a domestic flooring material. Also suitable for a number of boat-building applications including masts, spars and interior fit-outs.

Other names:
- Trade Names: red silkwood, nyatoh
- Local Name: maliolo

For further information: [www.solomontimbers.com.sb](http://www.solomontimbers.com.sb)
**Properties**

- **Density**: 550-750 kg/m³ at 12% moisture content.
- **Colour**: Finely brown.
- **Texture**: Medium and even; lustrous sheen.
- **Grain**: Straight.
- **Figure**: Cathedral-like figure on back-sawn faces with white bands of darker colour on quarter-sawn faces.
- **Durability**: Non-durable.
- **Air Drying**: Heartwood, non-acceptable to pressure impregnation.
- **Lytic Susceptibility**: Sapwood is susceptible.

**Workability**

- **General**: Excellent working and finishing properties.
- **Sawing**: Readily sawn with little dulling effect.
- **Planing**: Excellent characteristic; very smooth surface.
- **Blunting**: Moderate, dependent upon species and amount of silica present.
- **Boring**: Excellent characteristics.
- **Turning**: Excellent characteristics producing sharp edges.
- **Nailing**: Easy to nail.
- **Gluing**: Glues very well with all glues.
- **Finishing**: Takes an excellent high polish; lustrous surface.

**Mechanical Properties**

- **Strength**: 503 - 506
- **Structural Grade**: F14 - F17 (select grade).
- **Toughness (Elong)**: 103 (seasoned), 58 (greenwood).
- **Hardness (Birch)**: 4.04N (seasoned), 3.24N (unseasoned).
- **Max. Crushing Strength**: 42MPa (seasoned), 27MPa (unseasoned).
- **Modulus of Elasticity**: 12000 MPa (seasoned), 10600 MPa (unseasoned).
- **Modulus of Rigidity**: 7000 MPa (seasoned), 5800 MPa (unseasoned).

**Seasoning**

- **General**: Seasons readily and well with little degrade.
- **Movement**: Low.
- **Shrinkage**: Low.

**Film Drying Schedule**

<table>
<thead>
<tr>
<th>T (min)</th>
<th>SP</th>
<th>MC Change</th>
<th>Temp (°C)</th>
<th>WR</th>
<th>KD (%)</th>
<th>KD Time to 12% KD (%)</th>
<th>KD Time to 30% KD (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>N</td>
<td>Green</td>
<td>05</td>
<td>6</td>
<td>8</td>
<td>8 - 8</td>
<td>7 - 6</td>
</tr>
</tbody>
</table>
Pink Birch is the common name for a number of species which form a medium to large tree throughout the region from Papua New Guinea, Bismarck Archipelago to North Queensland and the Solomon Islands. It occurs in lowland and montane forest. In the Solomon Islands, it is represented by only one species, generally scattered but locally common. Small sawn parcels could be made available by special order.

- A light to medium hardwood with consistent colouring and very attractive figure when cut on the full quarter. It is a highly decorative wood suitable for niche marketing. An attractive and appealing timber for architects, furniture designers and furniture manufacturers.

- The timber is pinkish-brown in colour, lustrous and with a straight grain. Exhibits a fine ribbon or striped figure on quarter-sawn faces and a fine zig-zag tracery on back-sawn material. Excellent machining and finishing properties. Good strength to weight ratio.

- The timber seasons readily; 25mm quarter-sawn boards can be kiln-dried from green with little degrade. Back-sawn material is subject to twist and cupping. 38mm and 50mm stock should undergo preliminary air drying. Material should be quarter-sawn for optimum drying and for aesthetic reasons. Drying stacks should be well stickered (450mm intervals) and tops of stacks heavily weighted. Wood should be treated as soon as possible after felling and milling, to avoid blue stain and pinhole borer attack. Low shrinkage and stable in-service.

- Pink birch fits well into specialised markets due to its attractive figure, fine texture and ease of working. Suitable for a range of high quality end-uses including furniture and cabinet work, joinery, sliced decorative veneer, feature panels and cupboard doors. Also suitable for cooperage, coffin boards and for flooring in light traffic conditions.

Other names:
- Local Name: bea bea

For further information: www.solomontimbers.com.sb
**Pink Birch • Schizomeria serrata**

**Properties**

- **Density:** 650-650 kg/m³ @ 12% moisture content
- **Colour:** Pinkish brown
- **Texture:** Fine and uniform; lustrous
- **Grain:** Usually straight.
- **Figure:** Fine, decorative ribbon figure on quarter-sawn faces. Fine tracery pattern on back-sawn faces.
- **Durability:** Non-durable.
- **Reinforcement:** Heartwood is non-reinforced to pressure impregnation.
- **Fungal Resistance:** Sapwood is susceptible.

**Workability**

- **General:** Excellent working and finishing properties.
- **Sawing:** Saws well; some slight furring on face of green material.
- **Planing:** Excellent characteristics; clean, smooth finish.
- **Boring:** Minimal.
- **Drilling:** Good characteristics.
- **Turning:** Very good characteristics; sharp turns.
- **Nailing:** Nails well, good holding ability.
- **Gluing:** Glues well with all adhesives.
- **Finishing:** Takes stain and polish very well; finishes with a high polish and satin lustre.

**Mechanical Properties**

- **Strength:** 30 V
- **Structural Grading:** F17 (select grade).
- **Toughness (Timber):** 18.3 (seasoned), 9.83 (unseasoned).
- **Strength (Timber):** 5.0KN (seasoned), 4.0KN (unseasoned).
- **Max. Crushing Strength:** 13MPa (seasoned), 12MPa (unseasoned).
- **Modulus of Elasticity:** 16GPa (seasoned), 14GPa (unseasoned).
- **Modulus of Rupture:** 91MPa (seasoned), 65MPa (unseasoned).

**Seasoning**

- **General:** Very good seasoning characteristics.
- **Movement:** Low.
- **Shrinkage:** Low.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>S/P</th>
<th>MC ORIG (%)</th>
<th>BLK (%)</th>
<th>Wdf (%)</th>
<th>R.H. WHEN TD 12% (days)</th>
<th>R.H. WHEN TD 25% (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>M</td>
<td>Green 39</td>
<td>65</td>
<td>03</td>
<td>7</td>
<td>3 - 4</td>
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<tr>
<td></td>
<td></td>
<td>25 - final</td>
<td>65</td>
<td>15</td>
<td>5 - B</td>
<td>3 - C</td>
</tr>
</tbody>
</table>
Rosewood is a major commercial species of the Solomon Islands. Small to medium sized trees are found throughout the lowland forests of the South West Pacific region, it attains large commercial proportions in the Solomon Islands and has been heavily exploited in the past.

- One of the finest furniture and cabinet woods on world markets due to its excellent working and finishing properties as well as its low shrinkage and stability in-service.

- Many trees are of poor form, having fluted, twisted or crooked boles. This affects sawn recovery and selling price. The wood, when left lying in water, turns the water an iridescent blue. The wood can vary in density and hardness. The darker coloured (reddish) woods are much denser and stronger than the paler coloured yellowish-brown woods.

- Produces a beautifully figured wood enhanced by the presence of 'ripple-marks' and its ring-porous wood structure. The timber varies in colour from yellowish-brown to golden-brown through to red-brown or sometimes a blood red colour. The grain is usually interlocked but not severely so; sometimes wavy. Produces a ribbon or banded figure on quarter-sawn faces and a cathedral-like figure on back-sawn faces. It has a pleasant, persistent, fragrant odour.

- The timber seasons readily and well. It is a remarkably stable timber with very low shrinkage and very little movement when in-service.

- Suitable for high quality furniture and cabinet work. Also suitable for flooring, finely turned articles, gun stocks, rifle butts and decorative sliced veneer. It is prized for carving local artefacts and in making ceremonial hand drums. It has good acoustic and tonal qualities, making it suitable for musical instruments.

Other names:

- Local Name: ikii

For further information: www.solomontimbers.com.sb
Rasewood • Pterocarpus indicus

PROPERTIES
Density 520-605 kg/m³ at 12% m.c.
Colour Golden-brown, yellow-brown, red-brown to bluish red.
Texture Moderately coarse and uneven.
Grain Usually interlocked; sometimes wavy.
Figure Highly decorative.
Durability Highly durable.
Penetrability Resistant to pressure Impregnation.
Lydell Susceptibility Susceptible.

WORKABILITY
General Excellent all round characteristics.
Sawing Readily sawn.
Planing Excellent; some case required where grain irregularities occur.
Drilling Low.
Routing Excellent characteristics.
Turning Excellent characteristics.
Nailing Well.
Gluing Glues well with all adhesives.
Finishing Excellent; sand to a very fine finish and produces a high polish with golden lustre.

MECHANICAL PROPERTIES
Strength S24 (dense/red/bright timbers).
S20 (lighter, pale coloured timbers).
Structural Grade F22 (dense/red/bright timbers).
F17 (lighter, pale coloured timbers).
Toughness (Eoed) 160 (seasoned), 133 (unseasoned).
Hardness (Bent) 4.73N (seasoned), 4.26N (unseasoned).
Max. Crushing Strength 58MPa (seasoned), 58.9MPa (unseasoned).
Modulus of Elasticity 12GPa (seasoned), 10GPa (unseasoned).
Modulus of Rupture 95MPa (seasoned), 76MPa (unseasoned).

SEASONING
General Excellent drying properties. The dense (red/bright timbers) take longer to dry than the pale coloured yellowish timbers.
Movement Very low.
Shrinkage Very low.

KILN DRYING SCHEDULE

<table>
<thead>
<tr>
<th>T (°C)</th>
<th>%R.P</th>
<th>M.C ORANGE BEAN DRIED</th>
<th>DRIED (°C)</th>
<th>MIN (°C)</th>
<th>4.9 % TIME TO 32%</th>
<th>FROM GREEN</th>
<th>FROM 25%</th>
</tr>
</thead>
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<tr>
<td>25</td>
<td>M</td>
<td>Green 55 8  40  0.5  30  10  20</td>
<td>70  20  10  4</td>
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</tbody>
</table>
Satinash

Satinash is a widespread group of species throughout the South West Pacific and is a major component of the lowland rainforests of Irian Jaya, Papua New Guinea and the Solomon Islands. It also occurs in North Queensland, Australia. Medium to large sized trees are fairly common in mountain areas of the Solomon Islands. Within the group there is little variation in their physical and mechanical properties.

- **Satinash** is a much under-utilised timber which, in fact, has good market potential. The perception that it is difficult to process and dry is incorrect. When properly finished and stained, it is a good substitute for American red oak. It is an excellent, general purpose timber of good strength and durability, and is ideal for heavy engineering purposes.

- The timber ranges in colour from pale brown to dark brown or pinkish-brown often with a purplish or reddish caste. It is hard but not difficult to saw, has little blunting effect on cutter edges and does not contain silica (50%). The grain can be straight or interlocked.

- The timber dries slowly but with little difficulty. Quarter sawing is preferable as back-sawn material is prone to cup, twist and surface checking. Board ends should be heavily sealed with wax emulsion to alleviate cracking and checking. Drying stacks should be well stickered and tops of stacks heavily weighted. Preliminary air drying to 25% moisture content, prior to kiln drying, is recommended.

- **Satinash** is a strong, tough and durable hardwood. It is an excellent timber for building construction including beams, bearers and joints. It is also suitable for heavy engineering works including, wharf and bridge construction, fenders and heavy decking, and for a number of exterior joinery applications including staircases. Quarter-sawn boards make attractive flooring.

**Other names:**

- Trade Name: water gum
- Local Names: aimela

For further information: [www.solomontimbers.com.sb](http://www.solomontimbers.com.sb)
Satinash • Syzygium spp.

**PROPERTIES**

- **Density**: 750-800 kg/m³ @ 12% m.c
- **Colour**: Brown, pale pinkish brown or reddish brown.
- **Texture**: Moderately fine to fine and even; slightly lustrous.
- **Grain**: Straight or interlocked, sometimes wavy.
- **Figure**: Stippled or ribbon figure on quarter-sawn face. Sometimes with cathedral-like figure on back-sawn face.
- **Durability**: Durable in exterior situations, except in the ground.
- **Penetration**: Heartwood, resistant to pressure penetration.
- **Lignotuber**: Susceptible.

**WORKABILITY**

- **General**: Quarter-sawing gives good results. Requires additional power compared to other hardwoods.
- **Sawing**: Saws readily and well.
- **Platting**: Planes well; reduction in cutter angle (20°) where (irregular) interlocked grain present.
- **Blunting**: Medium.
- **Rumbling**: Requires a lot of power; some gumming.
- **Pitching**: Not recommended; grain can tear and splits tend to chip.
- **Nailing**: Pre-drilling is recommended to prevent splitting.
- **Gluing**: Good bonding with most other woods on seasoned material.
- **Finishing**: Stains and polishes very well; good smooth surface.

**MECHANICAL PROPERTIES**

- **Strength**: 503-504
- **Structural Grade**: F22-F27 (select grade).
- **Toughness (Foot)**: 162 (seasoned), 163 (unseasoned).
- **Hardness (Btu)**: 7.7KN (seasoned), 4.2KN (unseasoned).
- **Max. Crushing Strength**: 683MPa (seasoned), 399MPa (unseasoned).
- **Modulus of Elasticity**: 162Gpa (seasoned), 120Gpa (unseasoned).
- **Modulus of Rigidity**: 110Gpa (seasoned), 66Gpa (unseasoned).

**SEASONING**

- **General**: All materials should be quarter-sawn; wood dries slowly but very safely. Sawdust and drying may be delayed by dampness.
- **Movement**: Medium.
- **Shrinkage**: Medium.

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>T (°F)</th>
<th>S.P.</th>
<th>M.E.</th>
<th>D.M.</th>
<th>G.H.</th>
<th>D.C. (°C)</th>
<th>W.P. (°C)</th>
<th>0-7% TIME TO 12% FROM GREEN (Day)</th>
<th>FROM 20% (Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>N</td>
<td>65</td>
<td>45</td>
<td>3</td>
<td>40</td>
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<td>8-10</td>
<td>6-5</td>
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<td>5</td>
<td>50</td>
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<td>7-10</td>
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<tr>
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<td>6-10</td>
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<td>10</td>
<td>70</td>
<td>20</td>
<td>8-10</td>
<td>6-5</td>
</tr>
</tbody>
</table>
Vitex • Vitex cofassus

Vitex is a major commercial species of the Solomon Islands. A medium sized to large tree found throughout the South West Pacific region but of more common occurrence in the North Solomons and the Solomon Islands.

- Vitex produces a beautiful olive-grey wood with an attractive banded or striped pattern on quarter-sawn faces. Often referred to as New Guinea teak, having similar properties and uses to that of teak (Tectona grandis), and belonging to the same family of Verbenaceae. Many trees are of relatively poor form, being heavily fluted in the bole, thus minimising sawn recovery. The wood is distinctly greasy to the touch.

- It is held in high esteem throughout the Solomons where it has been used for many years to make the large Kundu-type message drums, due its magnificent acoustics and wearing ability.

- The timber seasons very slowly with little degrade. Quarter-sawing is preferable for drying and a variety of end uses as well as for aesthetic reasons.

- An extremely popular timber, held in high regard for boat-building due to its durability, strength, excellent steam bending and working properties. Suitable for high quality joinery, flooring, decking, window stiles, staircase materials and carving.

Other names:

- Trade Name: New Guinea teak
- Local Name: vasa

For further information: www.solomontimbers.com.sb
**Vitex • Vitex cofassus**

**Properties**
- **Density:** 700 – 800kg/m³ @12% m.c.
- **Colour:** Pale yellowish-brown to greyish, dull-brown.
- **Texture:** Fine and even; slightly lustreous.
- **Grain:** Sometimes straight but usually interlocked.
- **Figure:** Distinct striped or ribbon figure on quarter-sawn faces.
- **Durability:** Durable.
- **Penetrability:** Heartwood, impermeable to pressure impregnation.
- **Lignotubercle Susceptibility:** Resistant.

**Workability**
- **General:** Good working and finishing properties; where there are no grain irregularities.
- **Sawing:** Readily sawed.
- **Planing:** Good planing characteristics with the grain.
- **Drilling:** Bas.
- **Boring:** Excellent characteristics.
- **Turning:** Very good characteristics finishing with sharp arrivals.
- **Nailing:** Nails well, pre-drilling advisable to prevent splitting on board ends.
- **Gluing:** Care required due to natural greasiness of wood.
- **Finishing:** Works and sands to a smooth finish; takes an excellent polish.

**Mechanical Properties**
- **Strength:** 58% (seasoned), 62% (select grade).
- **Toughness (Dado):** 7.33 (seasoned), 153 (unseasoned).
- **Hardness (Sake):** 5.69 (seasoned), 3.39 (unseasoned).
- **Max. Crushing Strength:** 64 MPa (seasoned), 42 MPa (unseasoned).
- **Modulus of Elasticity:** 14 GPa (seasoned), 12 GPa (unseasoned).
- **Modulus of Rupture:** 133 MPa (seasoned), 80 MPa (unseasoned).

**Seasoning**
- **General:** Seasons slowly, but well, with little degrade. Preferrable to preliminary air dry prior to kiln drying. A high humidity equilibrating treatment should be applied at end of drying cycle.
- **Movement:** Medium.
- **Shrinkage:** Medium.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>10% – 12%</th>
<th>FROM 25% (MIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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<td>70</td>
<td>75</td>
<td>80</td>
<td>8</td>
<td>10</td>
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<td>50</td>
<td>95</td>
<td>100</td>
<td>105</td>
<td>110</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

31
White Beech

*Gmelina moluccana*

White Beech is a large tree of scattered occurrence throughout Papua New Guinea, Bismarck Archipelago and the Solomon Islands where it can be locally common. It has been regularly exported in the past and small, sawn parcels could be made available.

- A lightweight, pale-coloured, hardwood with very fine texture it has been compared, in appearance, to that of the West African abura (Mitragyna eillonta). It is highly regarded in the Solomon Islands as a traditional timber for dug-out canoes due to its ease of working, durability and natural water-repellency. It is in the same botanical family (Verbenaceae) as teak (*Tectona grandis*).

- The timber is off-white to pale yellowish-brown in colour, with a straight or slightly interlocked grain. It is uniform in colour with little or no distinct figure. The wood is greasy to the touch. It has a sweet aromatic odour when freshly sawn. Works well with both machine and hand tools; machine planes to a smooth surface; finishes well taking a good polish, with little or no filling required.

- The timber dries very slowly with little degrade. The moisture content of green wood varies greatly, and when drying quarter-sawn material the final moisture content must be carefully checked. The timber has low shrinkage and is very stable when dried and in service. Wood must be treated after felling and sawing to prevent blue stain.

- The timber has appeal where a neutral, pale-coloured wood is required. It is much sought after for boat-building including planking and decking and also for outdoor garden furniture. An excellent lightweight wood for joinery purposes including door and window frames, internal VJ linings, furniture and cabinet work. Also suitable for pattern making, turnery, carving and shives for casks. Good strength to weight ratio.

Other names:

- Local Names: canoe wood, avukoro

For further information: [www.solomontimbers.com.sb](http://www.solomontimbers.com.sb)
White Beech - *Gmelina macroura*

**PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>500 kg/m³ @ 12% m.c.</td>
</tr>
<tr>
<td>Colour</td>
<td>Pale brown to honey brown.</td>
</tr>
<tr>
<td>Texture</td>
<td>Moderately free and even, slightly lustrous.</td>
</tr>
<tr>
<td>Grain</td>
<td>Straight or slightly interlocked.</td>
</tr>
<tr>
<td>Figure</td>
<td>Not distinct.</td>
</tr>
<tr>
<td>Durability</td>
<td>Moderately durable, out of ground.</td>
</tr>
<tr>
<td>Permeability</td>
<td>Heartwood is non-permeable to pressure impregnation.</td>
</tr>
<tr>
<td>Lignoid susceptibility</td>
<td>Sapwood is susceptible.</td>
</tr>
</tbody>
</table>

**WORKABILITY**

<table>
<thead>
<tr>
<th>Process</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Relatively easy to work with both machine and hand tools.</td>
</tr>
<tr>
<td>Sawing</td>
<td>Saws well.</td>
</tr>
<tr>
<td>Planing</td>
<td>Good characteristics, produces smooth surface.</td>
</tr>
<tr>
<td>Blunting</td>
<td>Low.</td>
</tr>
<tr>
<td>Turning</td>
<td>Good characteristics, some slight burring.</td>
</tr>
<tr>
<td>Nailing</td>
<td>Nails well.</td>
</tr>
<tr>
<td>Gluing</td>
<td>Care required due to greenness of wood.</td>
</tr>
<tr>
<td>Finishing</td>
<td>Sands to a fine finish and takes a good high polish.</td>
</tr>
</tbody>
</table>

**MECHANICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td>304</td>
</tr>
<tr>
<td>Structural Grade</td>
<td>F14 (select grade).</td>
</tr>
<tr>
<td>Toughness (Foot)</td>
<td>6.33 (seasoned), 8.72 (unseasoned).</td>
</tr>
<tr>
<td>Hardness (brinck)</td>
<td>2.0KN (seasoned), 2.15KN (unseasoned).</td>
</tr>
<tr>
<td>Max. Coupling Strength</td>
<td>36MPa (seasoned), 28MPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>6.86GPa (seasoned), 8.76GPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Rupture</td>
<td>68MPa (seasoned), 47MPa (unseasoned).</td>
</tr>
</tbody>
</table>

**SEASONING**

<table>
<thead>
<tr>
<th>Property</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Dries very slowly with little degrade.</td>
</tr>
<tr>
<td>Movement</td>
<td>Low.</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>Low.</td>
</tr>
</tbody>
</table>

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>SP</th>
<th>WC</th>
<th>EOT (°C)</th>
<th>MED (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>D.R.</td>
<td>Green</td>
<td>40</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Green</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Red</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

33
Part 2

Plantation Timbers

*Umbellularia* (Eucalyptus deglupta)
Balsawood

Balsawood is native to tropical America. The main source of supply has been from Ecuador. Due to its fast growth in plantation conditions, it has been introduced recently into the Solomon Islands.

- Balsawood, although the lightest and softest of all commercial timbers, is, in scientific (taxonomic) terms, a hardwood. It has a very good strength to weight ratio and has been a popular timber for many years for model-making and also for life rafts due to its high buoyancy.

- The tree has excellent growth characteristics and recent research and silvicultural techniques, undertaken on plantation stock, has developed a high quality merchantable pole that is straighter and taller than native forest stock. It grows so fast it reaches maturity between 5-7 years of age. The trees have to be harvested when mature so as to avoid the onset of a pink, over-mature heart, which detracts from wood quality in both density and colour.

- The timber dries readily. Treatment is required, at point of felling and immediately after sawing, to prevent blue stain. Rapid conversion also prevents the risk of serious and extensive splitting due to growth stresses. It should be kiln dried as soon as possible after sawing to avoid degrade.

- Balsawood, due to its lightness and versatility is suitable for a wide range of end uses where a lightweight, soft and pale coloured timber is required. The preferred density range for commercial use is from 125-175 kg/m³ (seasoned). It is used extensively for model-making including model boats and ships, model aeroplanes, gliders and building models. Due to its buoyancy, it is used for Virboards, life rafts and life belts. The end-grain wood is used as a core material in a sandwich construction for the lining of steel hulls on large vessels and tankers. It is also used as an insulation material in cold stores and drying kilns, in aircraft construction, for surgical splints and as a lightweight packaging material for fragile goods.

Other names:
- Local Name: balsa

For further information: www.solomontimbers.com.sb
Balsawood - *Ochrosia lagopus*

**Properties**

Density: 120-240 kg/m³ @ 12% M.C.

Colour: White to oatmeal.

Texture: Moderately coarse but even.

Grain: Straight.

Figur: None.

Durability: Non-durable/Perishable.

Permeability: Heartwood, permeable to pressure impregnation.

Lignoid susceptibility: Sapwood is susceptible.

**Workability**

General: Saw required due to softness of timber.

Sawing: Fine/thin gauge saws required.

Planing: Cutting edges need to be very sharp to prevent crumbling of wood fibers.

Boring: Slight.

Drilling: Satisfactory but soft.

Turning: Not suitable.

Nailing: Too soft, no holding ability.

Gluing: Excellent.

Finishing: Satisfactory, but wood is very absorbent.

**Mechanical Properties**

Strength: 188

Structural Grade: -

Toughness (Janka): -

Hardness (Janka): 4.62 (seasoned).

Max. Crushing Strength: 2500 psi (seasoned).

Modulus of Elasticity: 3.8 GPa (seasoned).

Modulus of Rupture: Not tested (seasoned).

**Seasoning**

General: Kiln dried quickly.

Movement: Low.

Shrinkage: Low.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>T (°C)</th>
<th>15%</th>
<th>MC Change</th>
<th>DRY (°C)</th>
<th>BWD (°C)</th>
<th>PDR (%</th>
<th>% B/WAY FROM GREEN</th>
<th>100% B/WAY</th>
<th>20% B/WAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>25</td>
<td>79-80</td>
<td>50</td>
<td>36</td>
<td>10</td>
<td>40</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>
Kamarere is a very large tree indigenous to Papua New Guinea, Sulawesi (Indonesia) and the Southern Philippines. In plantations it grows very fast and has been introduced into a number of countries including the Solomon Islands. The standing tree is somewhat similar in appearance, to that of the Australian karrl (Eucalyptus diversicolor), both having multi-coloured bark.

- The wood from natural forests is darker in colour, denser and stronger than that from plantations. However, the plantation timber is more uniform and consistent in colour with little variation in its physical and mechanical properties. Plantation trees can reach very large dimensions.

- The wood is a pale pinkish-brown in colour with a medium to coarse but even texture. Grain is usually interlocked exhibiting a ribbon or striped effect on quarter-sawn faces. Immature stems may have tension wood, giving rise to a wolly surface when sawing. Mature stems produce a cleaner face.

- The timber dries well providing correct drying procedures are followed. It should be quarter-sawn to alleviate warp when drying. Preliminary air-drying is recommended to 25% moisture content, prior to kiln drying. Timber stacks should be well stickered at 450-600mm intervals (depending on thickness) and tops of stacks well weighted to alleviate cupping and/or twisting. Ends of boards should be sealed with a wax-emulsion sealant to prevent splitting. Shrinkage is medium to high.

- Fully seasoned mature wood, when cut on the quarter, produces an attractive and good quality flooring for domestic use. It closely resembles the Australian rose gum (Eucalyptus grandis). Quality dried boards are also suitable for furniture, interior joinery and architraves. It is an ideal substitute for light red meranti (Shorea spp.). Sulphate-pulp tests on plantation grown material from Papua New Guinea were very promising showing good yields and strength properties.

Other Names:
- deglupta
- bagas (Philippines)
- lada (Indonesia)

For further information: www.solomontimbers.com.sb
Kamarere • Eucalyptus deglupta

**PROPERTIES**
- **Density:** 400-405 kg/m³ @ 12% m.c.
- **Colour:** Pale pinkish-brown.
- **Texture:** Coarse but even.
- **Grain:** Striatofigured.
- **Figure:** Ribbon or striped figure on quarter-sawn faces due to interlocked grains.
- **Durability:** Non-durable.
- **Riftwood:** Heartwood, non-permeable to pressure impregnation.
- **Lignid Susceptibility:** Sapwood may be susceptible.

**WORKABILITY**
- **General:** Satisfactory working and finishing properties.
- **Sawing:** Saws readily and well.
- **Planing:** Moderately planed satisfactorily. A reduction in the cutter angle (25°) may be required to alleviate chipping or tearing of grain.
- **Blunting:** Minimal.
- **Boiling:** Satisfactory; exit hole fibrous/ori-ginous.
- **Turning:** Relatively poor; fibrous.
- **Nailing:** Easy to nail.
- **Gluing:** Good glueing properties.
- **Finishing:** Can be stained and polished satisfactorily.

**MECHANICAL PROPERTIES**
- **Strength:** 50J.
- **Structural Grade:** F11 (select q-wd).
- **Toughness (Took):** 193 (seasoned), 182 (unseasoned).
- **Hardness (Janka):** 55N (seasoned), 4.4N (unseasoned).
- **Max. Crushing Strength:** 70MPa (seasoned), 60MPa (unseasoned).
- **Modulus of Elasticity:** 14GPa (seasoned), 12GPa (unseasoned).
- **Modulus of Rupture:** 100MPa (seasoned), 71MPa (unseasoned).

**SEASONING**
- **General:** Seasons satisfactorily, providing attention is paid to correct drying procedures.
- **Movement:** Low to medium.
- **Shrinkage:** Medium to high.

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>T (°C)</th>
<th>%RH</th>
<th>DRY</th>
<th>DRY</th>
<th>M.D.</th>
<th>FROM GREEN (mm)</th>
<th>FROM 25% (mm)</th>
<th>% TIME TO 12%</th>
<th>% TIME TO 12%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>46</td>
<td>8</td>
<td>60</td>
<td>10</td>
<td>15</td>
<td>0 - 7</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>60</td>
<td>40</td>
<td>10</td>
<td>60</td>
<td>15</td>
<td>20</td>
<td>2 - 3</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

0 - 7: 2 - 3
Mahogany • *Swietenia macrophylla*

**Mahogany** is a medium-sized hardwood, native to Central America including the West Indies, Cuba and the adjacent mainland from Mexico to Brazil. Due to its excellent growth, it is now being planted in other tropical areas including the Solomon Islands.

- Naturally-grown **mahogany** is one of the world’s classic furniture timbers. It is also a good plantation species, exhibiting excellent growth and form. It has good market potential as plantation material comes to maturity.

- The timber is highly decorative and can be placed in two colour categories of red-brown and yellow/orange crown. The timbers darken in colour on exposure to light. A distinct cathedral-like pattern can be observed on back-sawn material: a broad, banded or ribbon figure is evident on quarter-sawn faces due to interlocked grain. The timber also produces flared streaks due to changing grain patterns. Small, tight pin-knots are sometimes visible, which adds to the timber’s decorative appeal.

- The timber dries readily with little degrade. It can be kiln-dried from the green condition (in 25mm boards) but thicker stock should undergo preliminary air-drying to 25-30% m.c. Quarter-sawn material is slower to dry than back-sawn. Cure is required when determining moisture content of mixed sawn stock. The timber has a low shrinkage rate and is stable in-service.

- **Mahogany** is easy to work with both machine and hand tools. Cutter edges need to be kept well sharpened and cutter angles adjusted to ensure a high quality, smooth finish, since bands of woolliness can arise, when machining material from immature stems, due to the presence of tension wood.

**Other names:**
- Trade Names: Honduras mahogany, Cuban mahogany, Spanish mahogany, Fiji mahogany, American mahogany

For further information: www.solomontimbers.com.sb
Mahogany • *Swietenia macrophylla*

**PROPERTIES**

- **Density**: 550-700 kg/m³ @ 12% mc
- **Colour**: Pale yellowish, orange-brown or pinkish/reddish-brown.
- **Texture**: Fine to medium, uneven, Highly lustreous.
- **Grain**: Ateckled, sometimes wavy.
- **Figure**: Highly decorative, cathedral-like figures on back-sawn faces. Banded or figured effect on quarter-sawn faces.
- **Durability**: Non-durable.
- **Pore distribution**: Heartwood non-porous to porose impregnation.
- **Lignotuber susceptibility**: Sapwood is susceptible.

**WORKABILITY**

- **General**: With care, works very well with both hand and machine tools.
- **Sawing**: Saws well; fineness or split blade effect evident on sawn material where tension wood is present.
- **Planing**: Good characteristics, cutter angles may need adjustment (20°) to ensure smooth finish.
- **Blunting**: Low.
- **Boring**: Good characteristics on wood from mature staves.
- **Turning**: Good characteristics on wood from mature staves.
- **Nailing**: Nails well.
- **Gluing**: Glues well with all adhesives.
- **Finishing**: Very good characteristics. Takes a high polish with very high lustre.

**MECHANICAL PROPERTIES**

- **Strength**: 500 - 300
- **Structural Grade**: F11 (select grade).
- **Toughness (Bond)**: 102 (seasoned), 82 (unseasoned).
- **Hardness (Janka)**: 3.6KN (seasoned), 3.4KN (unseasoned).
- **Max. Crushing Strength**: 45MPa (seasoned), 30MPa (unseasoned).
- **Modulus of Elasticity**: 0.19GPa (seasoned), 0.87GPa (unseasoned).
- **Modulus of Rupture**: 900MPa (seasoned), 890MPa (unseasoned).

**SEASONING**

- **General**: Seasones readily and well with little degrade.
- **Movement**: Low.
- **Shrinkage**: Low.

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>% (meq)</th>
<th>SPC</th>
<th>MC (%</th>
<th>OT</th>
<th>EC</th>
<th>MC</th>
<th>TD</th>
<th>FROM GREEN</th>
<th>FROM 25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>10</td>
<td>80</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>0</td>
<td>4 – 6</td>
<td>3 – 4</td>
</tr>
<tr>
<td>20 - final</td>
<td>10</td>
<td>80</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>4 – 6</td>
<td>3 – 4</td>
</tr>
</tbody>
</table>
Mangium

Mangium is a medium to large tree, native to Australia (North Queensland), Indonesia (Borneo and small adjacent islands) and Papua New Guinea (Western Province). Due to its robust growing characteristics and adaptability it makes an excellent plantation species. It has been introduced into plantations throughout the region, including the Solomon Islands.

- Mangium belongs to the 'wattle' group of species which produces a number of sought-after woods for furniture and cabinet work including the well known blackwood (Eucalyptus obliqua) of Tasmania. The timbers have excellent pulping properties (sulphate process), giving good pulp yields and bleached brightness levels. The 'wattles' are also well known for producing tannins from the wood and the bark, and are of commercial importance in tanning leather.

- Mangium is relatively uniform in colour from a pale olive brown to mid-brown with dark coloured bands on quarter-fawn faces. Timber is readily sawn with little or no blunting effect. Mature wood, when fully seasoned, works well with both machine and hand tools. Machine planes and moulds well producing a smooth surface and sharp edges. Sands to a fine finish and takes a high polish, finishing with a golden lustre typical of the 'wattles'.

- The mature wood can be air-dried with satisfactory results. Quarter-sawn material is preferable to back-sawn, as the latter has a tendency to cup and twist. Stickers should be spaced at 450mm intervals along the boards and tops of stacks heavily weighted. Ends of boards should be brush-coated with wax-emulsion to alleviate end-splitting.

- Mangium is a versatile timber with a variety of end uses. Suitable for general building construction, furniture and cabinet work, mouldings, interior joinery including door and window frames, flooring, sliced/decorative veneer, pulp and paper manufacture. Also, as a source of tannin for tanning leather and for making compostible wood products.

Other names: brown salwood, black wattle

For further information: www.solomontimbers.com.sb
Mangum • Acacia mangium

**Properties**

- **Density**: 450-600 kg/m³ @ 12% m.c.
- **Colour**: Pale brown to mid-brown.
- **Texture**: Fine to medium and even; fusiform.
- **Grain**: Usually straight.
- **Figure**: Deep-clefted bands on quarter-sawn face.
- **Ductility**: Moderately durable in protected situations.
- **Permeability**: Hardwood, non-permeable to pressure impregnation.
- **Lignin Susceptibility**: Sapwood is susceptible.

**Workability**

- **General**: Good working and finishing properties.
- **Sawing**: Readily sawn; little blunting effect.
- **Raining**: Good characteristics; smooth finish.
- **Blunting**: Low.
- **Boiling**: Good characteristics.
- **Turning**: Good characteristics; sharp adzed.
- **Nailing**: Nails very well.
- **Gluing**: Glues well with most adhesives.
- **Finishing**: Takes an excellent high polish; golden luster.

**Mechanical Properties**

- **Strength**: 150 - 560.
- **Structural Use**: F14 - F17 (select grade).
- **Toughness (Bond)**: 143 (seasoned), 113 (unseasoned).
- **Hardness (Janka)**: 46 (seasoned), 3.2N (unseasoned).
- **Max. Crushing Strength**: 1500 psi (seasoned), 3000 psi (unseasoned).
- **Modulus of Elasticity**: 1160,000 psi (seasoned), 1050,000 psi (unseasoned).
- **Modulus of Rigidity**: 88,000 psi (seasoned), 60,000 psi (unseasoned).

**Seasoning**

- **General**: Air-dries and kiln-dries well.
- **Movement**: Low.
- **Shrinkage**: Low.

**Kiln Drying Schedule**

<table>
<thead>
<tr>
<th>%</th>
<th>90</th>
<th>60</th>
<th>45</th>
<th>30</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>80</th>
<th>60</th>
<th>45</th>
<th>30</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>80</th>
<th>60</th>
<th>45</th>
<th>30</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

**End Green** (day): 25
**From 25% (days)**: 4 - 6
Teak

Teak • Tectona grandis

Teak is a medium-sized to large hardwood, native to India, Thailand, Myanmar and Laos. It has been planted in a number of countries including the Solomon Islands due to its excellent growth and its value as a high quality, durable hardwood.

- Teak is one of the world’s finest hardwoods. It has been used over the centuries for many purposes. It is a classic furniture, cabinet and joinery wood and is highly regarded due to its ability to consistently produce a high quality product. Long regarded as a prime boat-building timber, including decking and in external and internal fit-outs.

- The timber is consistent in colour; dark brown to golden-brown with fine, dark, pencil-like lines appearing occasionally on board faces. Material is of a paler brown colour when freshly sawn but darkens appreciably on exposure to light. Because it is ring porous, the texture is moderately coarse and uneven.

- Plantation material is of good quality especially in more mature stems. Its physical and mechanical properties compare favourably with natural forest wood from Thailand and Myanmar. Dependant on pruning and stage of growth, small tight knots may be observed at around 900mm intervals.

- The timber seasons slowly with little degrade. There may, however, be variations in the drying rate between individual boards. A mild schedule is recommended as collapse may occur if kiln temperatures are too high. The timber is stable in-service.

- The timber works well with machine and hand tools. Silica (SiO₂) in the timber, however, blunts cutting edges, which must be frequently sharpened. The wood is greasy to the touch and has a characteristic 'leathery' odour. The dry sanding dust can irritate the mucous membranes and may also cause dermatitis in some persons. Workshop staff should wear face masks or respirators.

Other names: Trade Name: Burmese teak

For further information: www.solomontimbers.com.sb
**Teak - Tectona grandis**

**PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>550-650 kg/m³ at 12% m.c</td>
</tr>
<tr>
<td>Colour</td>
<td>Golden-brown, darkening on exposure</td>
</tr>
<tr>
<td>Texture</td>
<td>Moderately coarse and uneven</td>
</tr>
<tr>
<td>Grain</td>
<td>Usually straight</td>
</tr>
<tr>
<td>Figure</td>
<td>Cathedral-like figure on back-sawn faces</td>
</tr>
<tr>
<td>Durability</td>
<td>Durable</td>
</tr>
<tr>
<td>Permeability</td>
<td>Impermeable</td>
</tr>
<tr>
<td>Lyctid Susceptibility</td>
<td>Susceptible</td>
</tr>
</tbody>
</table>

**WORKABILITY**

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Excellent working and finishing properties; cutter edges must be kept well sharpened due to presence of silica (5%).</td>
</tr>
<tr>
<td>Sawing</td>
<td>Sawed well but with blunting effect</td>
</tr>
<tr>
<td>Planing</td>
<td>Planed very well but with blunting effects; cutter angle of 20° recommended.</td>
</tr>
<tr>
<td>Blunting</td>
<td>Medium to high</td>
</tr>
<tr>
<td>Boiling</td>
<td>Good characteristics; clean exit hole</td>
</tr>
<tr>
<td>Turning</td>
<td>Good characteristics producing sharp edges; smooth (iffy) finish.</td>
</tr>
<tr>
<td>Nailing</td>
<td>Nails well; good 'holding' ability</td>
</tr>
<tr>
<td>Gluing</td>
<td>Care required due to greasy nature of wood.</td>
</tr>
<tr>
<td>Finishing</td>
<td>Takes an excellent high polish; satin lustre.</td>
</tr>
</tbody>
</table>

**MECHANICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td>565 (3800 kN/m²)</td>
</tr>
<tr>
<td>Structural Grade</td>
<td>F17 (select grade)</td>
</tr>
<tr>
<td>Tension (E02)</td>
<td>143 (seasoned), 82 (unseasoned).</td>
</tr>
<tr>
<td>Hardness (E02)</td>
<td>4.65% (seasoned), 4.69% (unseasoned).</td>
</tr>
<tr>
<td>Max. Crushing Strength</td>
<td>45MPa (seasoned), 32MPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Elasticity</td>
<td>155GPa (seasoned), 100GPa (unseasoned).</td>
</tr>
<tr>
<td>Modulus of Rupture</td>
<td>8700MPa (seasoned), 6800MPa (unseasoned).</td>
</tr>
</tbody>
</table>

**SEASONING**

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Dries slowly with little degrade.</td>
</tr>
<tr>
<td>Movement</td>
<td>Low</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>Low</td>
</tr>
</tbody>
</table>

**KILN DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>°C (°F)</th>
<th>P.L.</th>
<th>Oak Change</th>
<th>DEE (°C)</th>
<th>WOOD (°C)</th>
<th>%D Time to 12%</th>
<th>%D Time to 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>N</td>
<td>Green</td>
<td>52</td>
<td>5</td>
<td>12 - 14</td>
<td>6 - 8</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>55</td>
<td>50</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>55</td>
<td>50</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>70</td>
<td>55</td>
<td>50</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>55</td>
<td>50</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 - final</td>
<td>80</td>
<td>55</td>
<td>50</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
White teak

*Gmelina arborea*

**White teak** is a small to medium-sized hardwood. It is native to India and Burma, but is now being planted in many tropical areas due to its good form and growth. It has become one of the major timber species planted in the Solomon Islands.

- Considered to have excellent market potential due to its decorative figure and pale silvery-coloured wood. It is in the same botanical family as teak (*Tectona grandis)*.
- Some trees produce an unusual waxy/watered silk figure which is extremely attractive, likening it to that of the popular decorative timber anegre (*Aningeria spp.*) of Africa. This attribute makes white teak attractive for shop and office fit-outs.
- The timber works well with both machine and hand tools. A reduction in the cutter angle to 25° so as to overcome any finishing problems associated with interlocked grain will ensure a clean, smooth surface when planing and moulding quarter-sawn material.
- The timber dries very slowly but well. Recommended that all material be quarter-sawn for drying as well as for aesthetic reasons. Back-sawn material is subject to warp including cupping.
- A high quality, decorative wood especially for interior work, panelling, sliced veneer, light duty flooring and window joinery. The wood is greasy to the touch.

**Recommended Uses (Major/Specific)**

- Flooring: light traffic, solid strip and panel
- Furniture: including cabinet work, cabinet doors, custom made pieces
- Specialty Use: Musical Instruments (including guitar bodies), shield, decorative veneer, shop, office and back fit-outs
- Interior: 1/4 wall lining (feature), panels
- Window joinery

**Other names:**
- Trade Name: *Silver beech*
- Local Name: *White beech*

For further information: [www.solomontimbers.com.sb](http://www.solomontimbers.com.sb)
**White Teak** - *Gmelina arborea*

**PROPERTIES**

- **Density**: 500-550kg/m³ (0.52% MC).
- **Colour**: Off white to pale straw-brown.
- **Texture**: Medium and even, lacklustre.
- **Graze**: Interlocked.
- **Figure**: Decorative; fine banded or ribbon figure on quarter-sawn faces.
- **Durability**: Moderately durable.
- **Penetration**: Heartwood, non-permeable to pressure impregnation.
- **Lipid susceptibility**: Sapswood is susceptible.

**WORKABILITY**

- **General**: Good working properties; cores required to get high class finish.
- **Sawing**: Readily sawed.
- **Planing**: Attention to cutter angles to get smooth finish due to interlocked grain. Reduction of 10°-15° recommended.
- **Drilling**: Low to moderate.
- **Routing**: Good-characteristics.
- **Turning**: Satisfactory; slightly furry.
- **Nailing**: Nails easily and well.
- **Gluing**: Care required due to natural greasiness of wood.
- **Finishing**: With care, works and sands to a smooth finish. Takes an excellent polish finishing with a slow dry sheen.

**MECHANICAL PROPERTIES**

- **Strength**: 506 (seasoned).
- **Structural Grade**: FF4 (select grade).
- **Toughness (Bend)**: 63 (seasoned), 7.5-2 (unseasoned).
- **Hardness (2in)**: 2.55KN (seasoned), 2.55KN (unseasoned).
- **Max. Crushing Strength**: 35 MPa (seasoned), 25 MPa (unseasoned).
- **Modulus of Elasticity**: 10 GPa (seasoned), 6 GPa (unseasoned).
- **Modulus of Rupture**: 62 MPa (seasoned), 48 MPa (unseasoned).

**SEASONING**

- **General**: Seasons very slowly, but well, with little degrade.
- **Movement**: Low.
- **Shrinkage**: Low.

**HUMID DRYING SCHEDULE**

<table>
<thead>
<tr>
<th>T (mm)</th>
<th>S.P.</th>
<th>M.C.</th>
<th>DRM (°C)</th>
<th>WID (°C)</th>
<th>C.D.M. TO 12% FROM GREEN (mm)</th>
<th>FROM 25% (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>Green</td>
<td>55</td>
<td>5</td>
<td>12 - 14</td>
<td>6 - 8</td>
</tr>
<tr>
<td>40</td>
<td>0</td>
<td>55</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>0</td>
<td>55</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>0</td>
<td>60</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>65</td>
<td>15</td>
<td>15</td>
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</tr>
<tr>
<td>25</td>
<td>0</td>
<td>65</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 (final)</td>
<td>10</td>
<td>70</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


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