



**Industrial Technology**

**Stage 5 - Year 9**

**Hardwood Laminated-Lid Box**



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## 1. Rationale

The purpose of this project is to design, develop and construct a project from a set of specifications. Students are to complete design research. This will hopefully allow greater understanding of the purpose of the project as well as the design, construction and finishing methods selected.

Design development resulting in individualisation of project is encouraged in this project. An accompanying Portfolio will document all processes of this project.

## 2. Description of project

The Hardwood Laminated-lid Box is an item specifically designed to fit within a sequence of stage 5 Industrial Technology projects. The requirements of the Timber Technologies elective course are considerably greater than experienced in the Stage 4 Technology Mandatory course. You will be expected to develop skills to produce high quality box joinery including assembly, hardware components, and finishing. You are also expected to understand why such techniques are used; an assessable portfolio will address this requirement further.

The timber box and laminated lid are somewhat simple in construction but employs many of the techniques used in larger projects. This is helpful for those students looking at completing Industrial Technology or Design and Technology in Stage 6.

## 3. Materials

### Hardwoods

The distinction between hardwood and softwood is botanical, rather than referring to the strength or hardness of the wood. Hardwoods are relatively broad-leafed trees with seeds that are produced in an enclosed form, such as a fruit or nut; softwoods are coniferous or cone bearing trees with needle-like leaves. Due to a higher density, hardwood is usually stronger than softwood but this is not always the case; for example, balsa is a hardwood and white cypress is very strong softwood.

Hardwood timbers are ideal for high strength structural applications, such as bearers, joists, lintels and roof beams. The natural durability of most hardwoods also makes them perfect for external applications, such as decking and cladding, and for interior flooring and stairs. Hardwood timbers are also highly recyclable due to their long above-ground life, with some of Australia's indigenous hardwood species, such as jarrah, blackwood and red gum, much prized for recycled flooring, panelling, furniture and landscaping.

### Mountain Ash (Tasmanian Oak)

Warm, dense and resilient, Tasmanian Oak is the preferred hardwood for a wide range of applications. It works extremely well and produces an excellent finish. It can be used in all forms of construction and in interior applications such as paneling and flooring. It can be glue-laminated to cover long spans. Veneers, plywood and engineered products are also available. It is also a popular furniture timber, and its fibre is sought after for reconstituted board and production of high quality paper.

Tasmanian Oak is light in colour, varying from straw to reddish brown with intermediate shades of cream to pink. It is recognised for its excellent staining qualities, which allow ready matching with other timbers, finishes or furnishings.

Tasmanian Oak is marketed under different names depending on where it is being sold. In Victoria and NSW it is also sold under the trade name Victorian Ash.

Australia has a unique resource in its native hardwoods, producing some of the most durable and attractive timbers in the world. Native hardwoods are sourced from managed forests and more recently from plantations and farm forestry. Australia also imports a number of hardwood timbers from overseas.

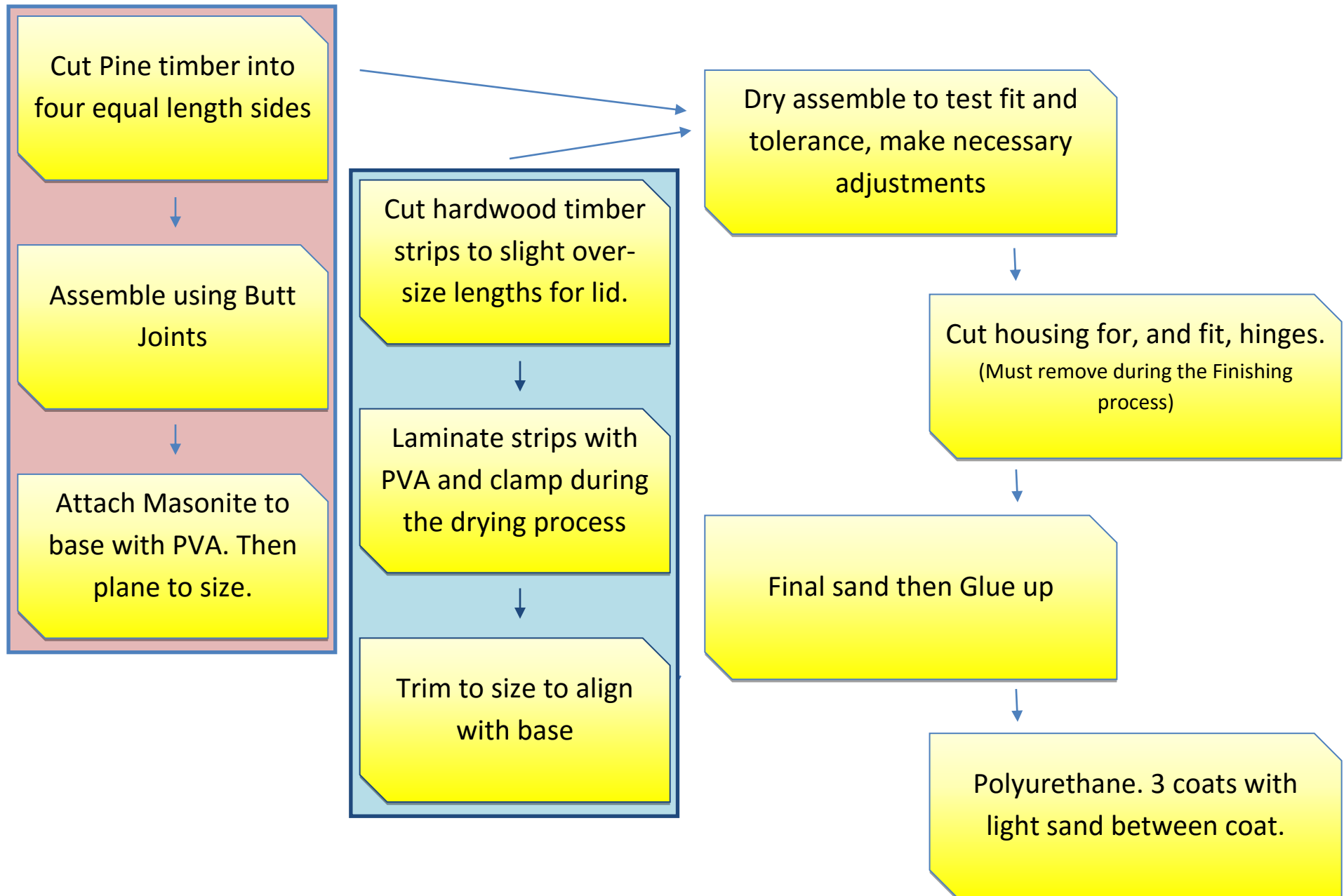
### Masonite

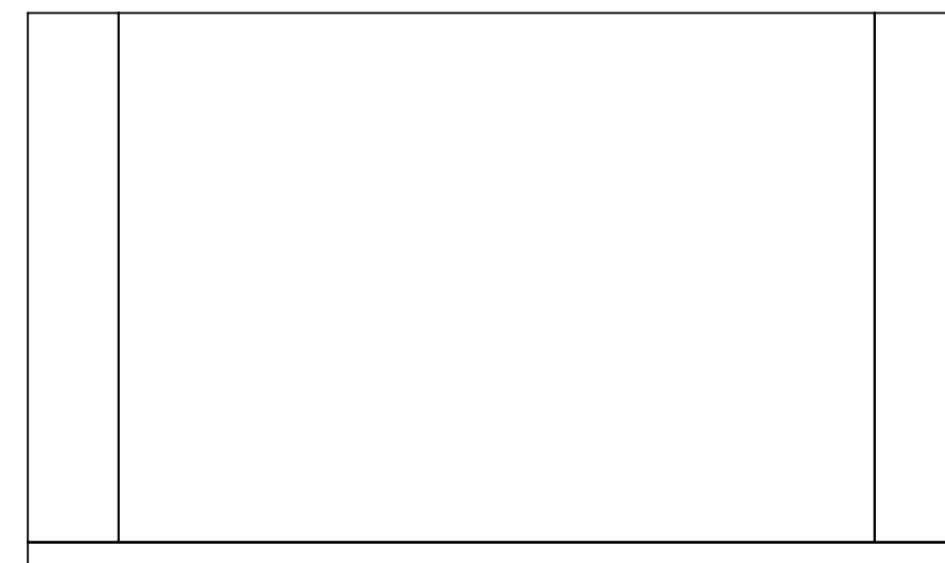
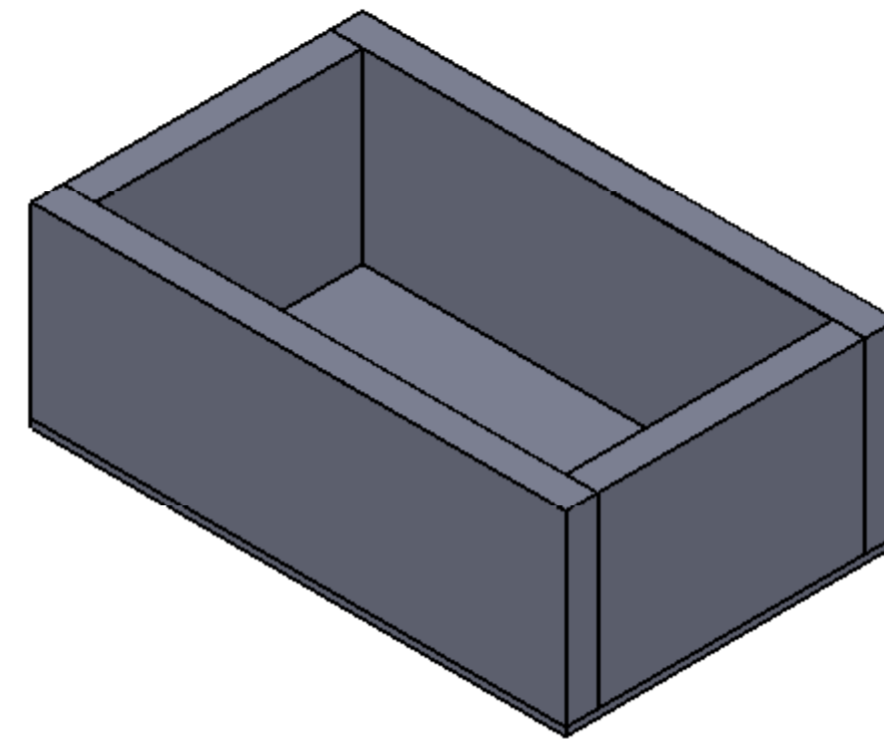
Masonite is a type of hardboard made of steam-cooked and pressure-moulded wood fibres.

#### 4. Cutting list and Costing

| Item   | Timber size (mm) | Length (mm) | Quantity             | \$ per unit          | Cost (\$) |
|--|------------------|-------------|----------------------|----------------------|-----------|
| Mountain Ash (Tasmanian Oak) – Box sides (4 Sides) | 70 x 12          | 600         | 1                    | \$2.06 Linear M      | \$1.23    |
| Hardwood (mixed species) - Lid                     | 70x30            |             | _____ m <sup>2</sup> | \$140 m <sup>2</sup> |           |
| Masonite - Base                                    |                  |             | 1                    | \$40 m <sup>2</sup>  |           |
| Polyurethane (water base)                          |                  |             | 100ml                | \$26 per/L           | \$2.60    |
| Hinge  |                  | 50mm        | 2                    | \$1                  | \$2.00    |

## 5. Construction Process





|  |  |           |           |         |  |                                   |  |                      |  |               |  |
|--|--|-----------|-----------|---------|--|-----------------------------------|--|----------------------|--|---------------|--|
| UNLESS OTHERWISE SPECIFIED:<br>DIMENSIONS ARE IN MILLIMETERS |  |           |           | FINISH: |  | DEBUR AND<br>BREAK SHARP<br>EDGES |  | DO NOT SCALE DRAWING |  | REVISION      |  |
| TOLERANCES:<br>LINEAR:<br>ANGULAR:                           |  |           |           |         |  |                                   |  |                      |  |               |  |
| DRAWN  |  | NAME      | SIGNATURE | DATE    |  |                                   |  | TITLE:               |  |               |  |
| CHKD   |  |           |           |         |  |                                   |  |                      |  |               |  |
| APPVD  |  |           |           |         |  |                                   |  |                      |  |               |  |
| MFG  |  |           |           |         |  |                                   |  |                      |  |               |  |
| Q.A.   |  |           |           |         |  |                                   |  |                      |  |               |  |
|  |  | MATERIAL: |           | WEIGHT: |  | SCALE:1:1                         |  | SHEET 1 OF 1         |  | DRAWG NO. 112 |  |

Timber Box Dimensioned with no