



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

Radiata Pine is native to the central coast of California but is widely planted in Australia and New Zealand. It makes up 28% of Tasmania's timber plantations and is an environmentally sustainable softwood popular in all types of construction and decorative uses. These include framing, lining, glue laminated beams, veneer and plywood. It can be used for many exposed structural and non-structural applications if it is treated with the right preservatives.

The texture of Radiata Pine is fine, but uneven, and knots are common. The timber is fairly soft and has a low density, often with very wide annual growth rings. The sapwood is white to pale yellow, but often indistinguishable from the heartwood, which is light brown to yellow. The grain is usually straight, apart from a central core of 100mm, which can twist if the moisture content of the timber changes.

Radiata Pine is easy to work, apart from the knots, and it readily accepts preservatives.

Hardwoods

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.

The distinction between hardwood and softwood is botanical, rather than referring to the strength or hardness of the wood. Hardwoods are relatively broad-leaved 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.

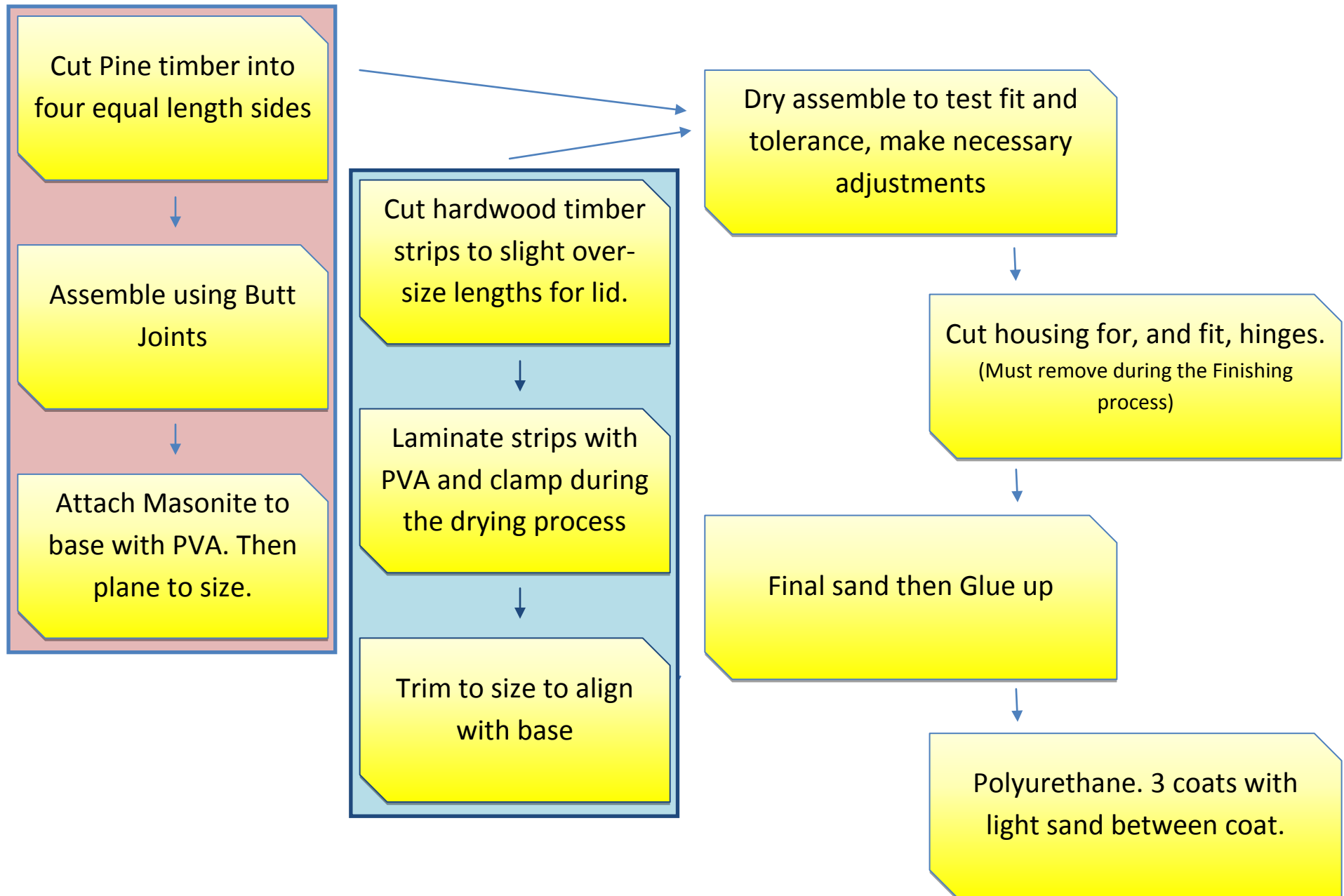
Masonite

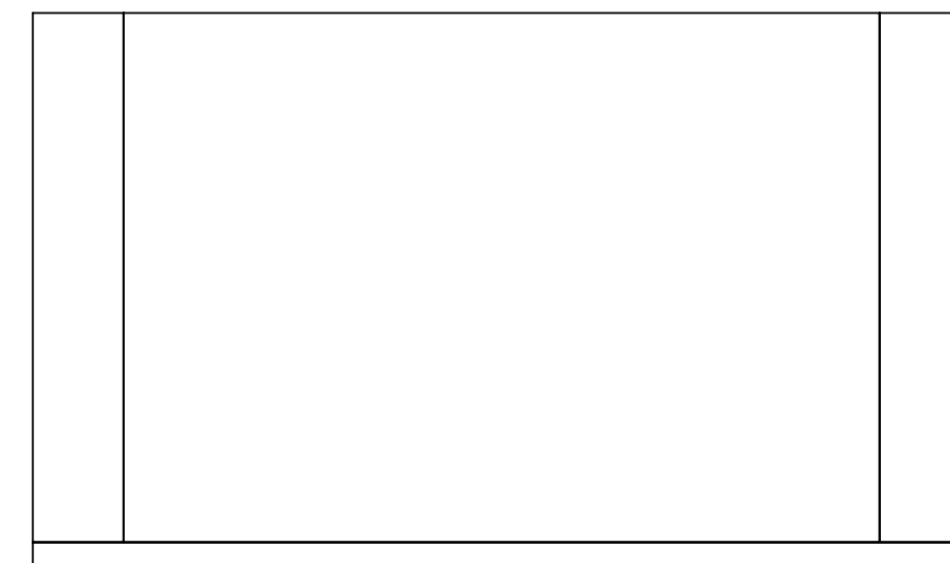
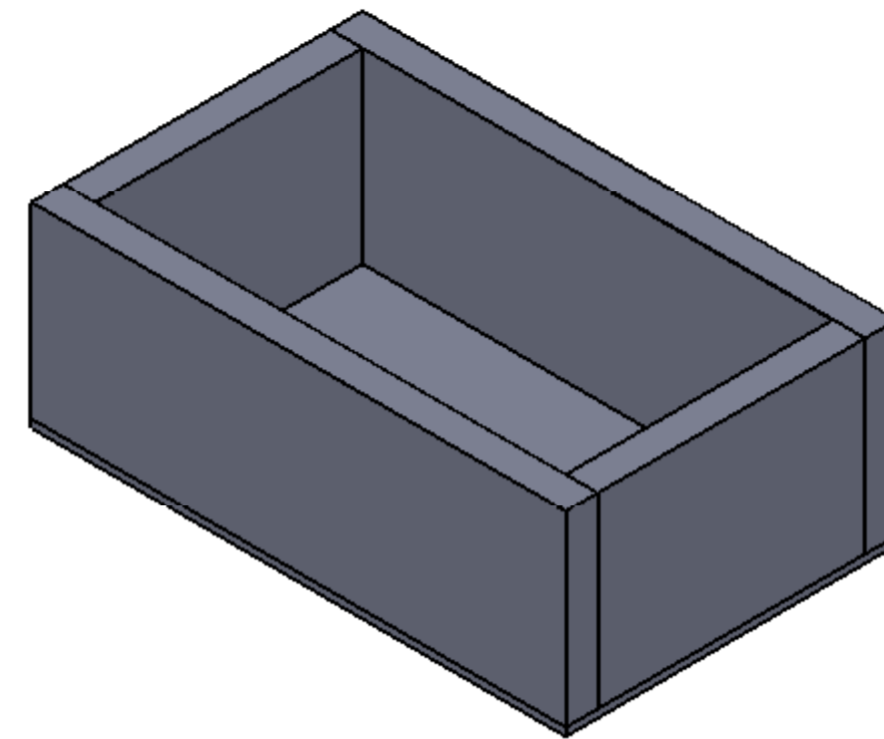
Masonite is a type of hardboard made of steam-cooked and pressure-molded wood fibres.

4. Cutting list and Costing

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

5. Construction Process





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

Timber Box Dimensioned with no