

PENANG SANGAM HIGH SCHOOL

P.O.BOX 44, RAKIRAKI

WEEK 11 WORKSHEET

Subject: Technical Drawing

Year/Level: 12

Strand	TD12.2 DESIGN & ENTERPRISING
Sub Strand	TD 12.2.1 DESIGN CYCLE & COMMUNICATION TD 12.2.2 RESEARCH
Content Learning Outcome	TD 12.2.2.3 Recognize the conservation and preservation of natural resources and the environment and explore ways of sustaining them.

Continued from week 10 worksheet.....

LESSON NOTES

Seasoning of Timber

There are two main ways of seasoning timber, Natural (Air) and Artificial (Kiln) drying. Both methods require the timber be stacked and separated to allow the full circulation flow of air, etc. around the stack.

Air Seasoning

Air seasoning is the method used with the timber stacked in the open air.

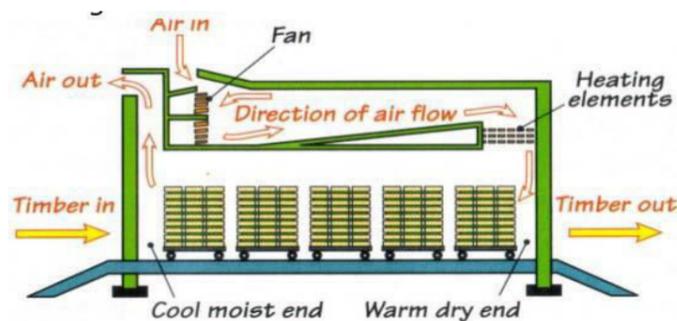


Kiln Seasoning

There are two main methods used in artificial seasoning, compartmental and progressive. Both methods rely on the controlled environment to dry out the timber and require the following factors:

- Forced air circulation by using large fans, blowers, etc.
- Heat of some form provided by piped steam.
- Humidity control provided by steam jets.

The amount and duration of air, heat and humidity again depends on species, size, quantity, etc. Schedules are published for the various species to enable operators to select an appropriate drying environment.



Difference between timber and manufactured boards

Proper timber board is made of wood but manufactured board can be anything made by man such as MDF (medium density fibreboard) or chipboard which is woodchips glued together but essentially manufactured board just means anything man made from any substance.

Timber Boards

Lumber or timber is wood that is used in any of its stages from felling through readiness for use as structural material for construction, or wood pulp for paper production.



Manufactured Board

MDF (medium density fibreboard) - made by a process which glues wood fibres together using heat and pressure. The boards are smooth and strong. They are resistant to warping.

Plywood - is made from layers of thin wood glued together at 90 degrees to each other, this makes plywood very strong as it cannot split along the grain like solid timber.

Chipboard - is made from softwood chips glued together. It is a very cheap material and is used to make kitchen worktops and carcasses (cupboard shells) where it is laminated with a melamine layer to give it a decorative and hardwearing finish.

Hardboard (particle board) - is also used in furniture making usually as a back to a shelving unit or cupboard usually available as 4 or 6mm thick.

Blockboard - is used to make strong shelves. It is made from pieces of softwood in a sandwich with a thin layer of wood top and bottom. Laminboard is similar but with thinner pieces of wood in the sandwich.

Thermoplastic

A thermoplastic, also known as thermo softening plastic, is a polymer that turns to a liquid when heated and freezes to a very glassy state when cooled sufficiently.

Some examples of thermoplastic:

- Acrylic
- Polyester
- Nylon
- Plastic bottles

Thermosetting Plastic

A thermosetting plastic, also known as a thermoset, is a polymer material that irreversibly cures. The cure may be done through heat (generally above 200 °C (392 °F)), through a chemical reaction (two-part epoxy, for example), or irradiation such as electron beam processing.

Some examples of thermosets are:

- Polyester fiberglass systems: (SMC Sheet molding compounds and BMC Bulk molding compounds)
- Vulcanized rubber
- Bakelite, a phenol-formaldehyde resin (used in electrical insulators and plastic ware)
- Duroplast, light but strong material, similar to Bakelite (used for making car parts)
- Urea-formaldehyde foam (used in plywood, particleboard and medium-density fibreboard).

Rubber

Natural rubber is an elastomer (an elastic hydrocarbon polymer) that was originally derived from latex, a milky colloid found in the sap of some plants.

HERITAGE SITE BUILDINGS IN FIJI

OUTCOME

By the end of this topic, students will:

- a) Identify the heritage site buildings in Fiji.
- b) Describe the structure of heritage site buildings in Fiji and how to integrate some of its features into building design projects.

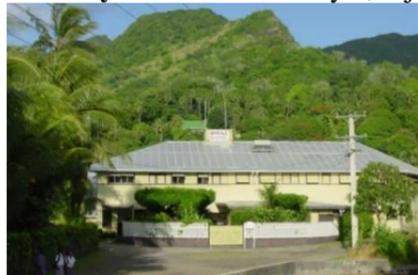
INTRODUCTION

The Cultural and natural heritage is among the priceless and irreplaceable assets, not only of each nation, but of humanity as a whole. The loss, through deterioration and disappearance, of any of these most prized assets constitutes an impoverishment of the heritage of all the peoples of Fiji.

Levuka Historical Port Town - is set amongst coconut and mango trees along the beach front of Ovalau Island against the forested slopes of the island's extinct volcano. From the 1820s onwards the port was developed as a centre of commercial activity by American and European colonisers and the town became the first colonial capital of Fiji, peacefully ceded to the British by Tui (King) Cakobau in 1874.



The Royal Hotel - The Royal, Fiji's oldest hotel represents the finest embodiment of Levuka's colonial past.



Levuka Public School - First public school in Fiji was built in Levuka, Ovalau Island while this place was the capital of the country.



Climate change

Climate change is defined as: 'A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'.

Disaster Risk Management (DRM)

DRM refers to "the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster".

Disaster Risk Reduction (DRR)

DRR refers to "the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events".

STUDENT ACTIVITY

- 1. Differentiate between air and kiln seasoning.

- 2. Identify three advantages of manufactured boards over timber.

- 3. Differentiate between thermosetting plastics and thermoplastics.

THE END