Carpentry Level One

Building Materials, Fasteners, and Adhesives 27102-13

Objectives

- Identify various types of building materials and describe their uses.
  a. State the uses of various types of hardwoods and softwoods.
  b. Describe common lumber defects.
  c. Identify the different grades of lumber and describe uses for each.
  d. Explain how treated lumber differs from non-treated lumber.
  e. Describe how plywood is manufactured and cite common applications for plywood on a construction project.
  f. Identify uses of hardboard.
  g. Identify uses of particleboard.
  h. Identify uses of high- and medium-density overlay plywood.
  i. Describe how oriented strand board differs from particleboard and cite common applications for OSB.
  j. Cite common applications for mineral fiberboard.

Performance Task

1. Given a selection of building materials, identify a particular material and state its use.

Kickoff Activity

- Identify each of the following types of wood.

NORDIC PINE

MAPLE

SOUTHERN YELLOW PINE

ASH

FIR

OAK

Section 1.1.0

- As a building material, wood has several advantages:
  - It is easily worked.
  - It has durability and beauty.
  - It has great ability to absorb shocks from sudden loads.
  - It is free from rust and corrosion, comparatively light in weight, and adaptable to a countless variety of purposes.

Section 1.1.1

- Hardwoods and softwoods vary widely in color and grain pattern. Carpenters should be able to recognize common hardwood and softwood species and describe uses for them.

Section 1.3.0

- Match each lumber grade stamp on the left with its appropriate definition on the right.

(A) 

(B) 

(C) 

(D) 

(E) 

(1) Mill identification

(2) Inspection association trademark

(3) Grade designation

(4) Species identification

(5) Condition of seasoning at time of surfacing

Section 1.3.1

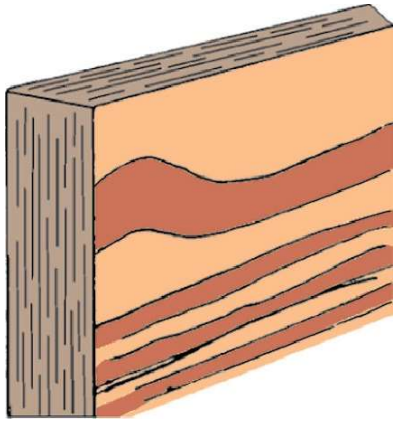
- Generally, all grading agencies use five basic size classifications:
  1. Boards (BD)
  2. Light framing (L.F.)
  3. Joists and planks (J&P)
  4. Beams and stringers (B&S)
  5. Posts and timbers (P&T)

Section 1.5.0

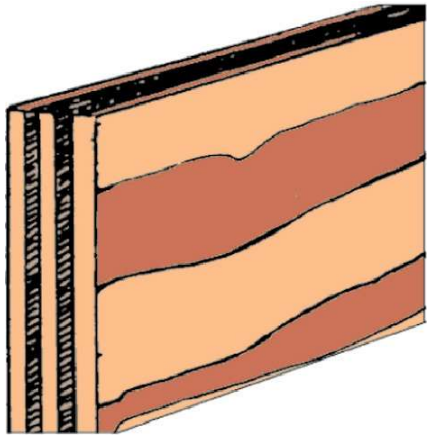
- Engineered wood products can be divided into two major categories:
  1. Panel products: plywood, hardboard, particleboard, oriented strand board (OSB), fiberboard
  2. Lumber products: laminated veneer lumber (LVL), parallel strand lumber (PSL), laminated strand lumber (LSL), wood I-joists, glued laminated lumber (glulam)

Section 1.5.4

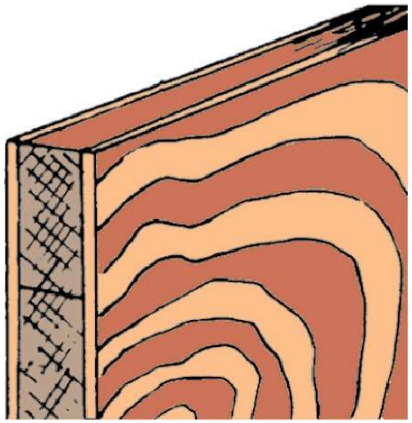
- Hardwood plywood may have any of four different types of cores. Identify each below.



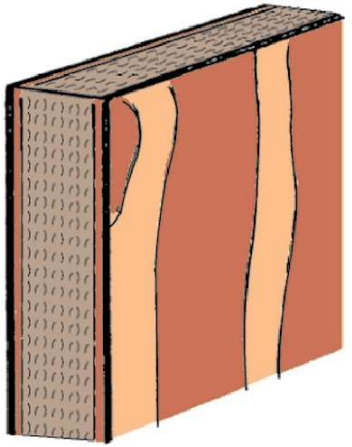
PARTICLEBOARD CORE



VENEER CORE



LUMBER CORE



FIBERBOARD CORE

Section 1.6.0

- There are three grades of hardboard:
  1. Standard hardboard
  2. Tempered hardboard
  3. Service-grade hardboard

Section 1.7.0

- There are two types of particleboard:
  1. Type I is basically a mat-formed particleboard generally made with vera-formaldehyde resin.
  2. Type II is a mat-formed particleboard made with durable moisture- and heat-resistant binders.

Section 1.8.0

- High-density overlay (HDO) plywood panels
  - Have a hard, resin-impregnated fiber overlay heat-bonded to both surfaces
  - Are abrasion- and moisture-resistant
- Medium-density overlay (MDO) plywood panels
  - Are coated on one or both surfaces with a smooth, opaque overlay
  - Accept paint well

Section 1.9.0

- Oriented strand board (OSB)
  - Consists of compressed wood strands arranged in five or more cross-banded layers and bonded with phenolic resin under intense heat and pressure
  - Offers dimensional stability, stiffness, fastener holding capacity, and no core voids

Section 1.10.0

- Mineral fiberboard
  - Glass fibers or gypsum powder are mixed with a binder and pressed between two layers of asphalt-impregnated paper, producing a rigid insulation board.
  - Will not support combustion and will not burn

Wrap Up

3 – Write three things you learned during the lesson.

2 – Write two questions about the material.

1 – Write one random thought you had about the materials presented.

Next Lesson: Wood Building Materials, Pt. 2
Review Sections 1.11.0–1.13.0