3. Identify and explain how to use various types of cutting and shaping tools.
   a. Identify and explain how to use handsaws.
   b. Identify and explain how to use various types of files and utility knives.
Objectives (2 of 2)

4. Identify and explain how to use other common hand tools.
   a. Identify and explain how to use shovels and picks.
   b. Identify and explain how to use chain falls and come-alongs.
   c. Identify and explain how to use various types of clamps.
• A **backsaw** has a broad, flat blade and a reinforced back edge. It is used for cutting joints, especially miter joints.
3.1.1 – Crosscutting Lumber Using a Hand Saw

- Mark the cut with a square. Mark one side of the line on which the saw cut should be made.
- Support and secure the workpiece. Wear gloves.
- Place the saw teeth against the wood on the side away from you. Align the edge of the blade teeth with your cut line.
- With the saw handle near the workpiece and at roughly a 45-degree angle, begin drawing the saw up and back towards you slowly. Use the gloved thumb of your free hand as a saw guide.
THE **RIPSAW** HAVE THE FEWEST TEETH PER INCH, WHICH HAVE THE LARGEST TEETH. A RIPSAW IS DESIGNED TO CUT WOOD IN THE SAME DIRECTION AS THE GRAIN.
• The *coping saw* has a narrow, flexible blade attached to a U-shaped frame.
3.2.1 – Rasp-cut Files

• Rasp-cut files work very poorly on metal and should be used on wood only. Rasps may also be made from a softer metal that is not hard enough for effective metal cutting.
3.2.2 – Utility Knives

Utility knives have a high rate of injury and can inflict significant damage on the body in an instant. Use them with great care. Self-retracting models may be required on the job site.
• A utility knife is used to cut a variety of materials. When using the utility knife place a piece of scrap material under the object you are cutting in order to protect the surface under the object. The safest kind of utility knife is one with a self-retracting blade.
SHOVELS ARE USED BY MANY DIFFERENT CONSTRUCTION TRADES. SHOVELS CAN HAVE WOODEN OR *FIBERGLASS HANDLES.*
4.1.0 – Picks
A pick is a good choice to break up rocky soil, while the mattock is better for clearing tree roots.

BEFORE USING A PICK, ALWAYS CHECK TO ENSURE THAT THE BLADE OR HEAD IS FIXED FIRMLY TO THE HANDLE AND NO CRACKS OR SPLITS ARE PRESENT.
THE CHAIN FALL HAS AN **AUTOMATIC BRAKE** THAT HOLDS THE LOAD AFTER IT IS LIFTED. PG38 FIGURE 47
4.2.1 – 4.2.2 – Come-Alongs and Chain Hoists

- Cable come-alongs are not typically safe for vertical lifting.
- A ratchet chain hoist is a much better choice.
- However, a cable come-along is more manageable than a chain hoist for horizontal movement.
NEVER USE A CABLE COME-ALONG FOR VERTICAL OVERHEAD LIFTING. USE THIS TOOL ONLY TO MOVE LOADS HORIZONTALLY FOR SHORT GROUND DISTANCES.
**SPRING-CLAMP** WHEN THE HANDLES ARE RELEASED, THE SPRING HOLDS THE CLAMP TIGHTLY, APPLYING EVEN PRESSURE TO THE MATERIAL.
THIS CLAMP HAS WOODEN JAWS. IT CAN SPREAD PRESSURE OVER A WIDER AREA THAN OTHER CLAMPS CAN. THIS CLAMP IS CALL **HAND-SCREW CLAMP**.
4.3.0 – Placing Pads and Wood Blocks

A block of soft wood or a heavy rubber pad is often needed with clamps to prevent damage to the workpiece surface. This is especially important when working with exotic woods and similar materials.