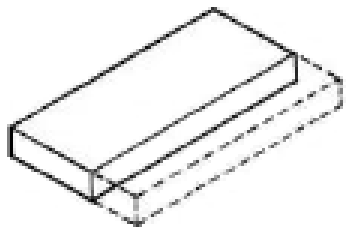


Introduction/Objectives

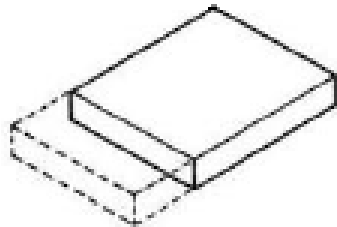


The Table saw is a very versatile machine capable of doing many operations. This presentation will focus on the most common operations for this machine. Before attempting any operation, make sure you are familiar with the proper use of all machine controls, and are wearing the necessary Personal Protective Equipment. This presentation is designed to focus on potential guarding solutions for the numerous operations which this machine can be used to execute.

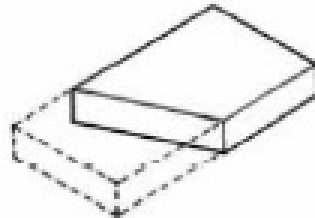
Table Saw Operations



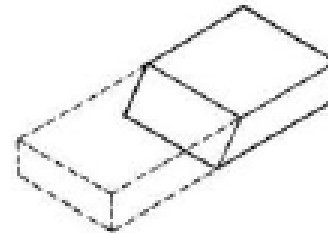
RIP CUT



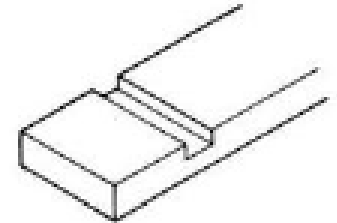
CROSS CUT



ANGLE/MITER CUT



BEVEL CUT



DADO CUT

FIGURE 2. Some sample cutting operations.

OSHA on Guarding

1910.212(a)

Machine guarding.

1910.212(a)(1)

Types of guarding. One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are-barrier guards, two-hand tripping devices, electronic safety devices, etc.

1910.212(a)(2)

General requirements for machine guards. Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.

1910.212(a)(3)

Point of operation guarding.

1910.212(a)(3)(i)

Point of operation is the area on a machine where work is actually performed upon the material being processed.

..1910.212(a)(3)(ii)

1910.212(a)(3)(ii)

The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards therefore, or, in the absence of applicable specific standards, **shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.**

1910.212(a)(3)(iii)

Special hand tools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this section, but can only be used to supplement protection provided.

1910.212(a)(3)(iv)

The following are some of the machines which usually require point of operation guarding:

1910.212(a)(3)(iv)(a)

Guillotine cutters.

1910.212(a)(3)(iv)(e)

Milling machines.

1910.212(a)(3)(iv)(f)

Power saws.

1910.212(a)(3)(iv)(g)

Jointers.

..1910.212(a)(3)(iv)(h)

1910.212(a)(3)(iv)(h)

Portable power tools.

[Visit OSHA's Website](#)



Guarding in layman's terms

“If a given operation requires PERFECT execution to avoid mishap, then it is NOT SAFE.”

Guarding

A machine or tool may have a factory-supplied guard, which can be used.

If the standard guard cannot be used, an alternate method of guarding the process must be employed.

If an operation absolutely cannot be done with a physical guard, then the operator must utilize process procedures that "guard" the hands and body through position and technique.

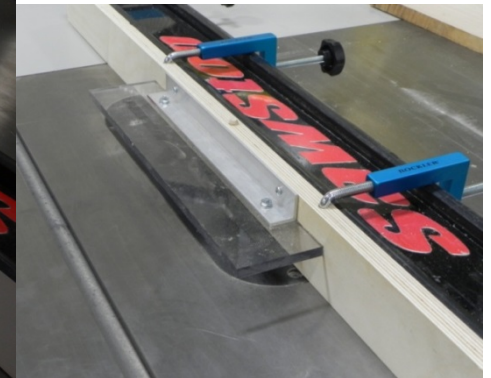
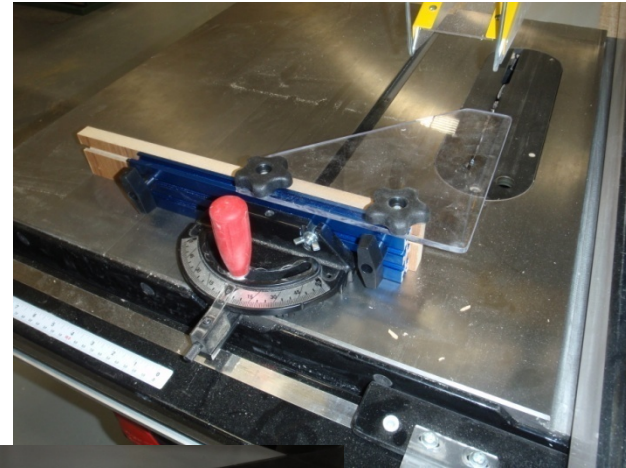
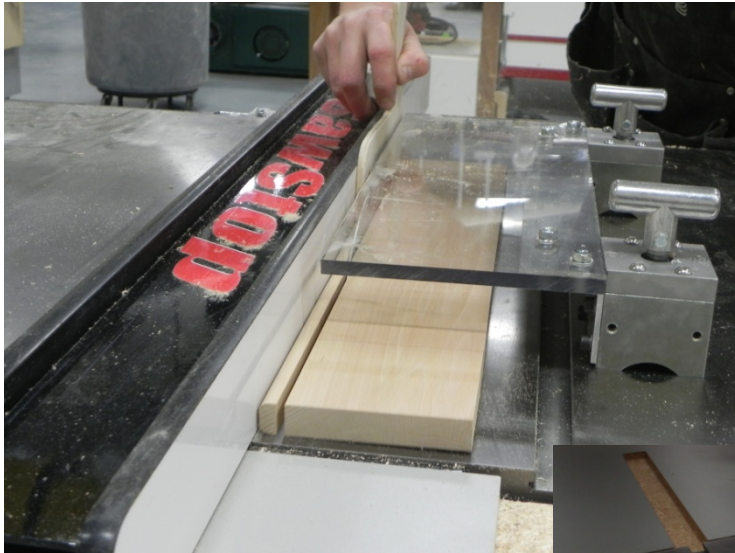
Jigs and Fixtures

By holding the work piece or guiding the tool, jigs and fixtures make the process safer. Hands can be kept remote from the cutting tool.

Auxiliary fences, hold-downs, stops and other devices can help control the work piece.

Push sticks and push blocks can be used to keep hands remote from the cutting tool.

Guarding Solutions



.01 Ripping



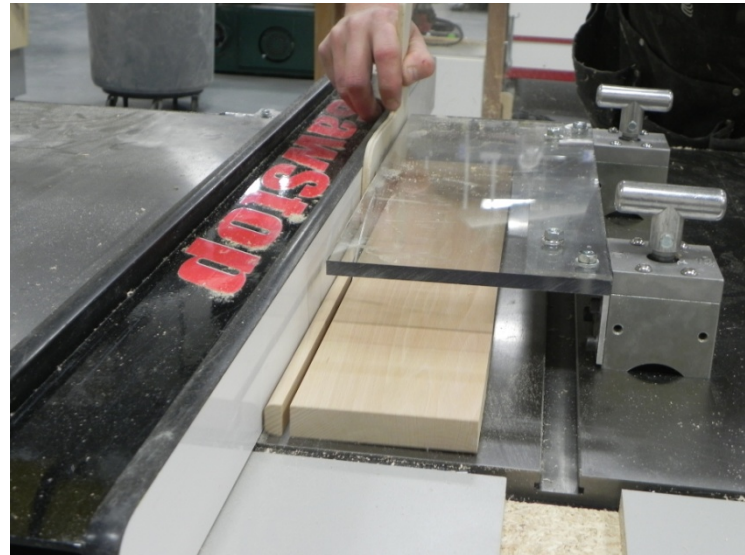
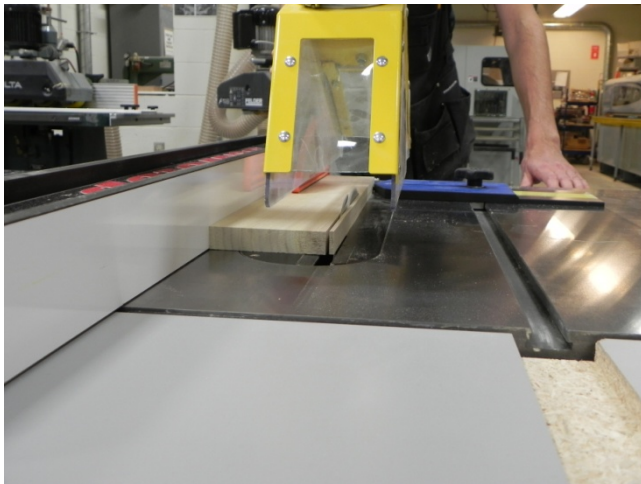
- Straight Edge against the fence
- Stock is flat
- Use push sticks when needed (hands never within 3" of the blade).
- Beware of kickback zone

.02 Narrow Stock Ripping



Key points:

- Proper throat plate installed
- Sacrificial push stick
- Operation is guarded
- Beware of the Kickback zone

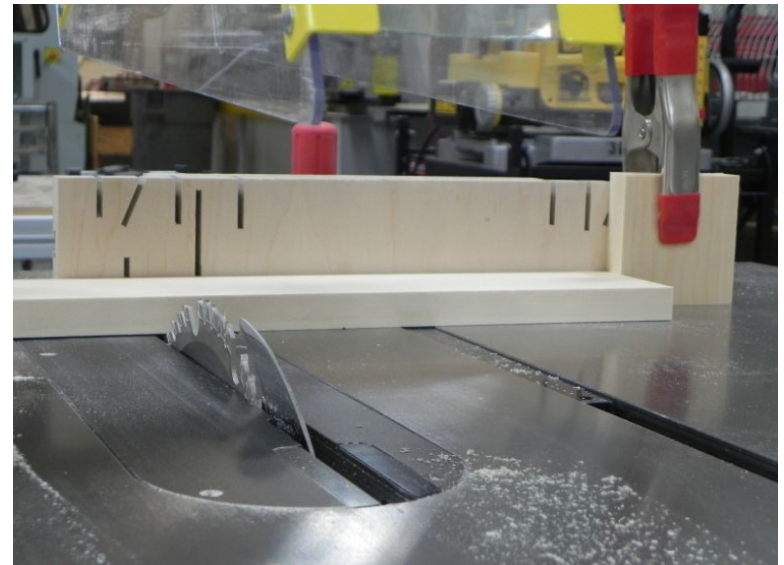


.03 Crosscutting

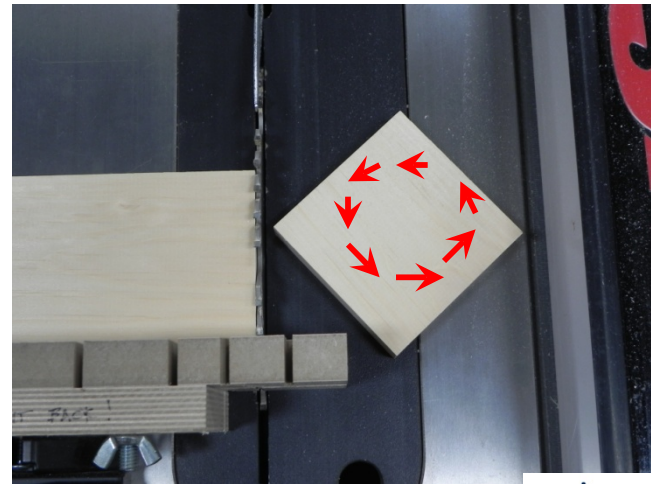
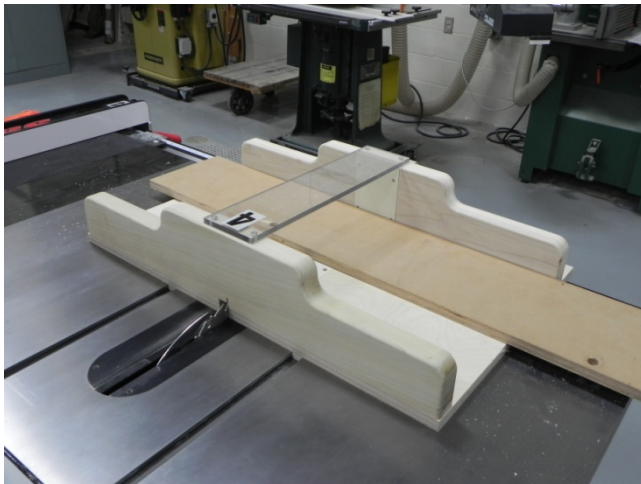
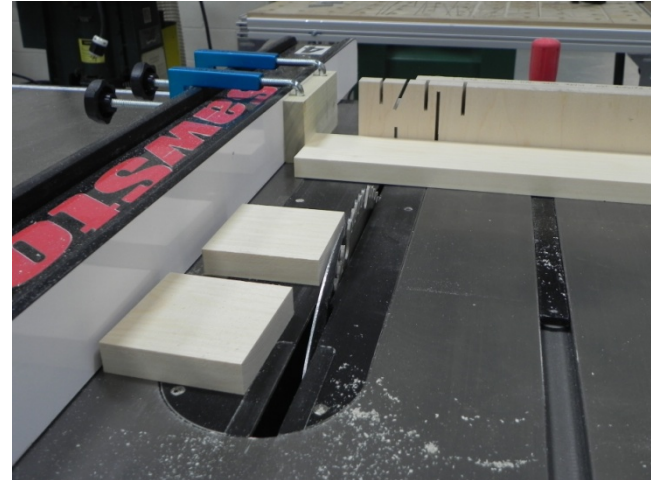


Key points:

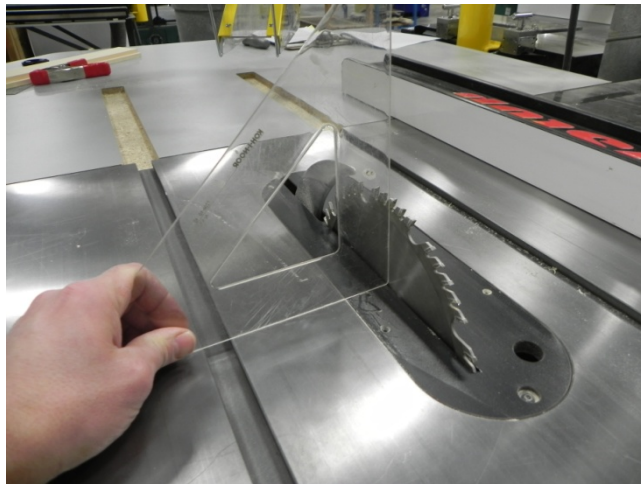
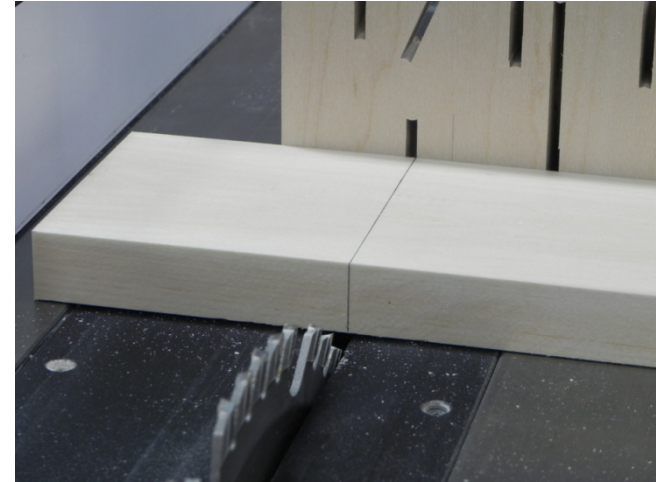
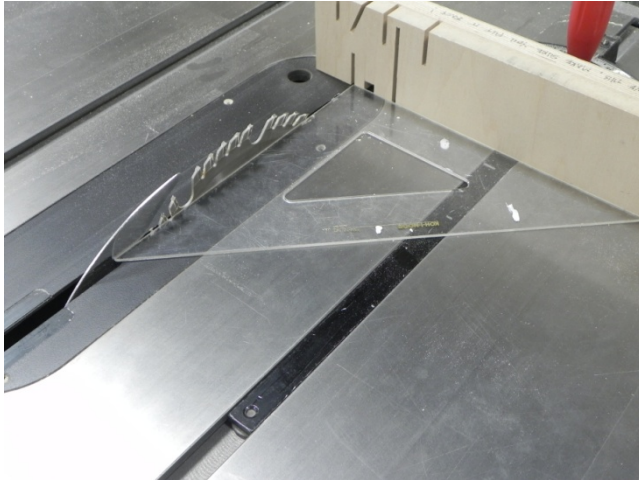
- Use a Backer board to prevent tear out
- Utilize a Stop block for repeat operations
- Select the appropriate blade
- Use a sled for larger pieces



.03 Crosscutting con't



.03 Crosscutting con't



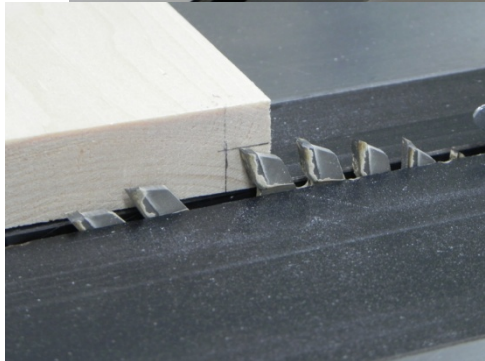
If you're only making a single cut, mark the stock where you want the cut to be made. Bring it up to the blade and line up the mark on the wood with a tooth on the blade. Alternatively, pre-cut a fresh backer board. This will leave a kerf at the exact location of the cut. The layout line can then be lined up with this kerf.

Ensure blade angle and Miter gauge are set at the correct angle

.04 Edge Rabbetting with a Single Blade

Key points:

- Sequence is important to avoid trapping stock
- Choose the correct blade
- Cut on the correct side of the line
- Use stock to set blade/fence settings

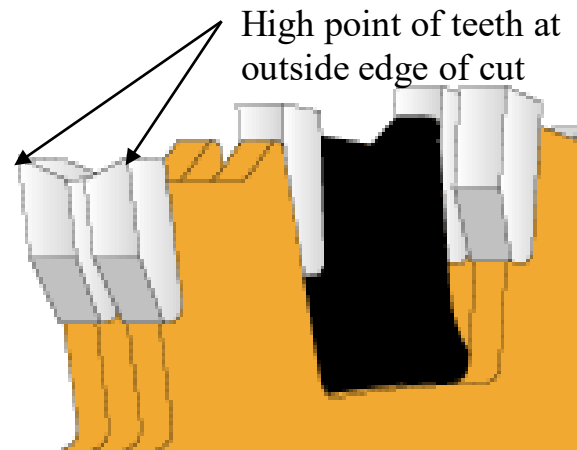
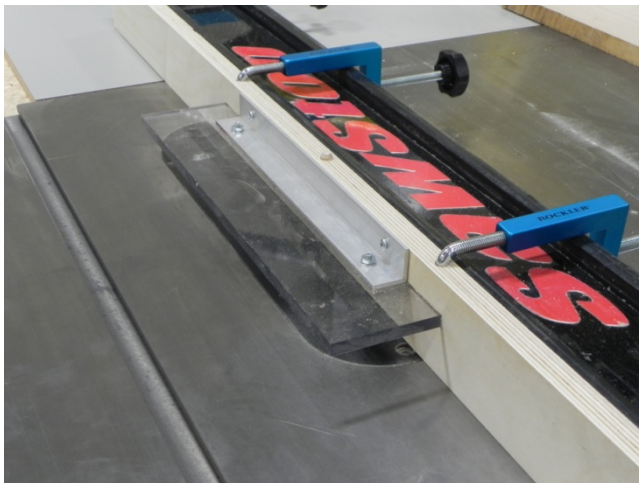


.05 Edge Rabbetting with a Dado Blade



Key points:

- The guard should not impede the operation
- Use a sacrificial fence
- Be sure not to cut into the saw's fence
- Properly install Dado blade
- Use featherboards as hold-downs and to guard the operation

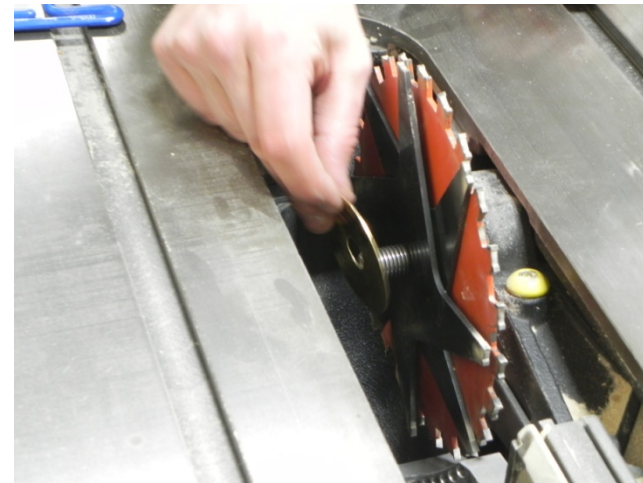


.06 Groove/Dado/Plough



Key points:

- Nomenclature
- Up to 13/16" wide cuts in 1 pass!
- Guard to prevent injury!
- Blades can be shimmed to within +/- .002"

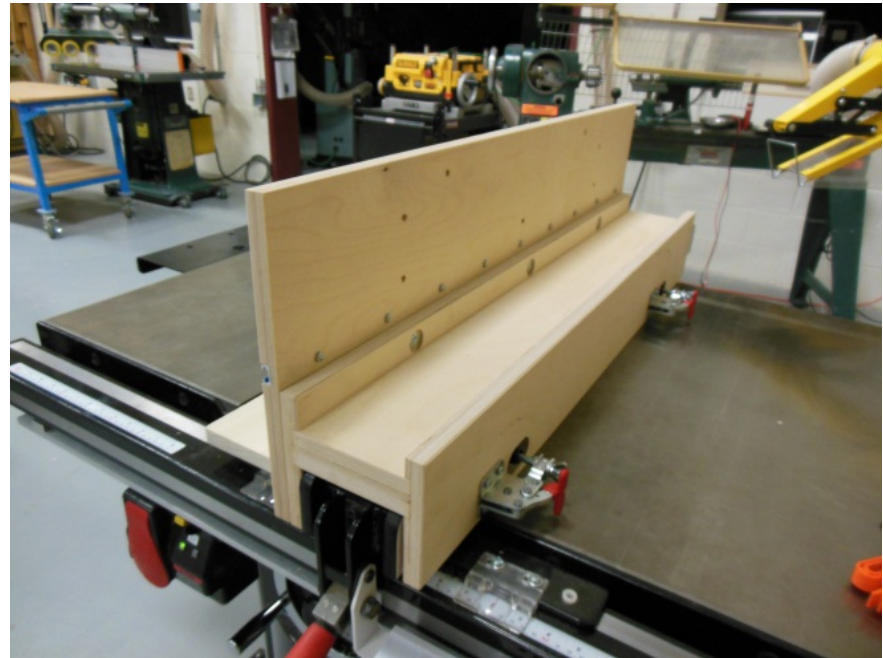


.06 Groove/Dado/Plough, con't.

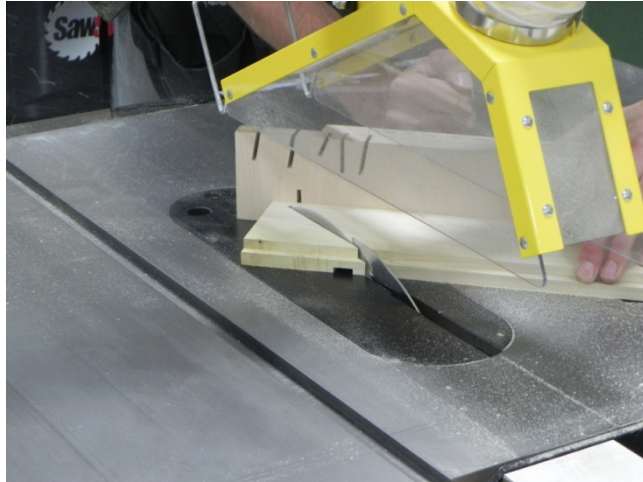


Key points:

- Clamp-on “martyr” fence
- Polycarbonete shields

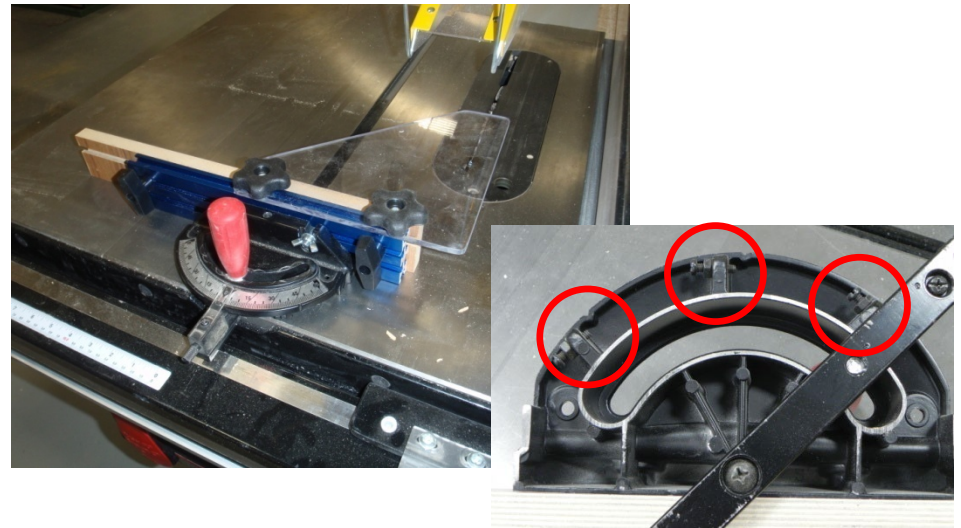
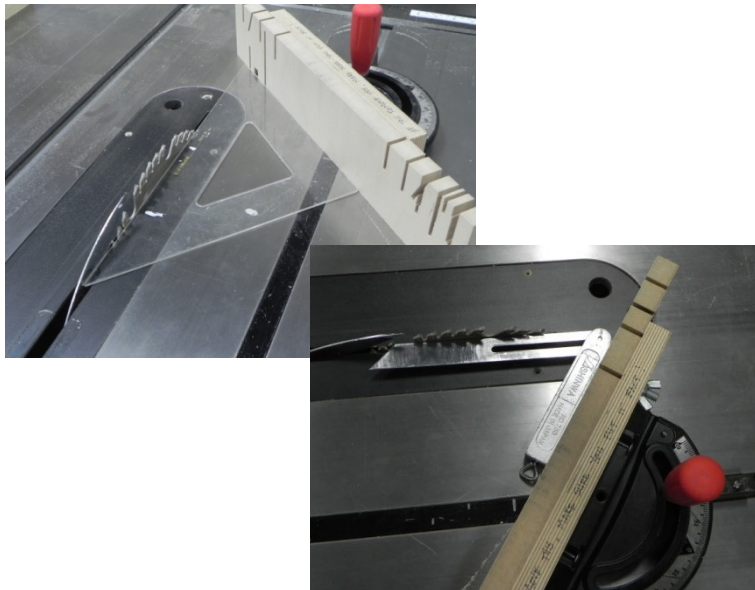


.07 Mitering

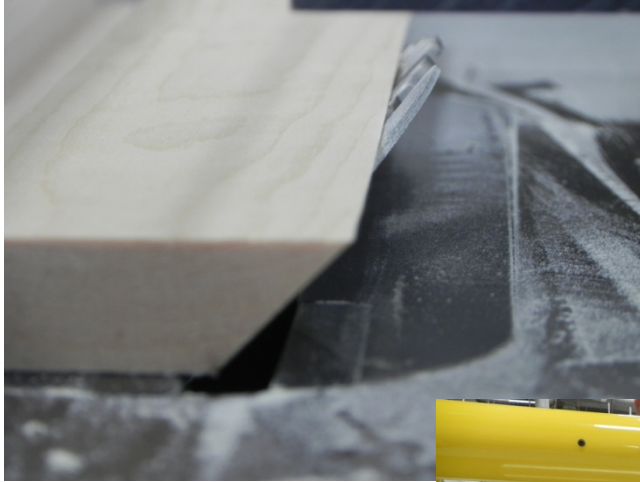


Key points:

- Verify Miter gauge settings
- Pre-sets can be calibrated
- Utilize shield to guard



.08 Beveling

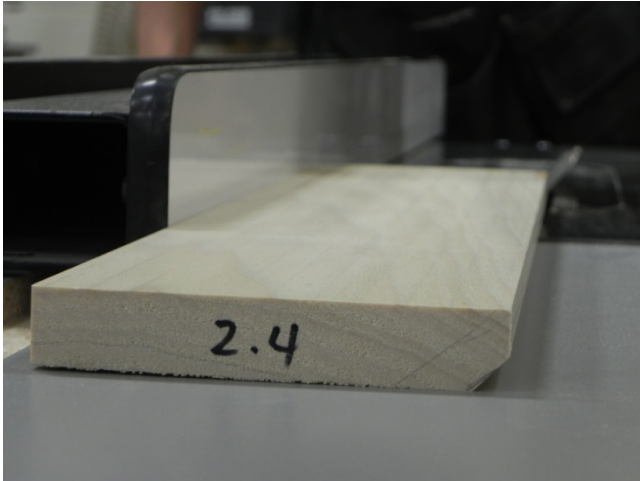


Key points:

- Bevel vs. Chamfer
- Tilt Setup/Calibration
- Cutting right of fence

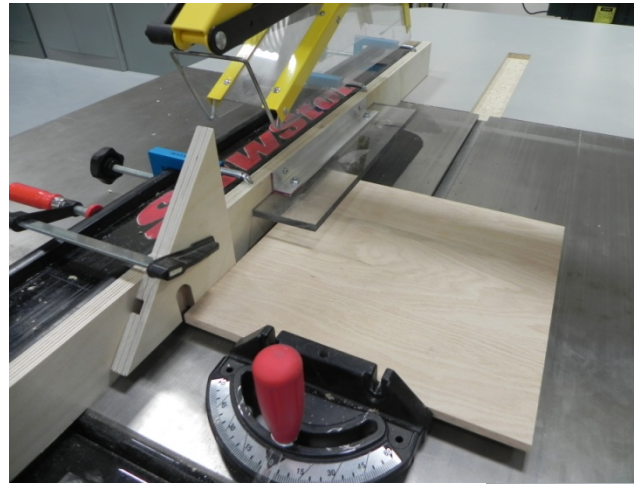


.09 Chamfering



Key points:

- Bevel vs. Chamfer
- Vertical bevels (raised panels)



.10 Tapering

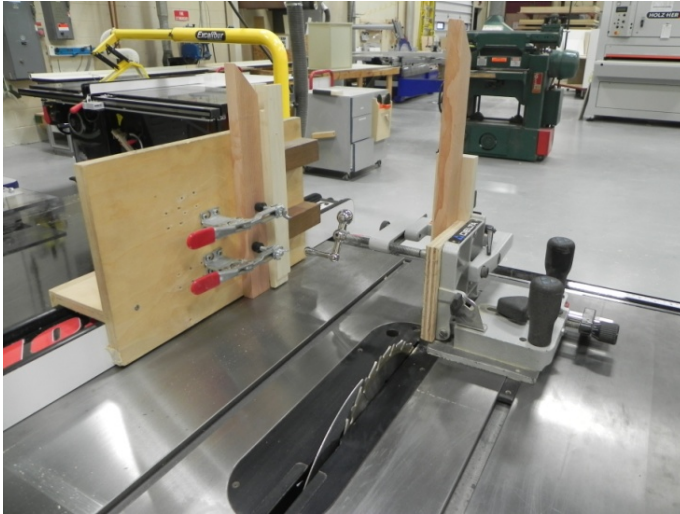


Key points:

- Set fence to width **without** pinching blade
- Mark taper on stock
- Align taper with fixture edge
- Use stop blocks for repeat cuts

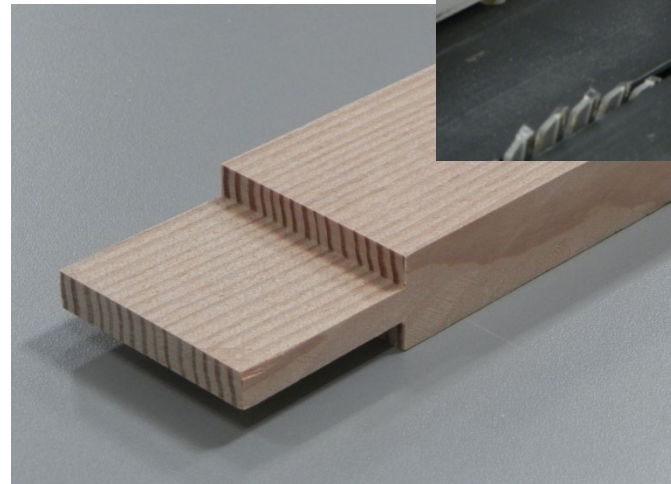
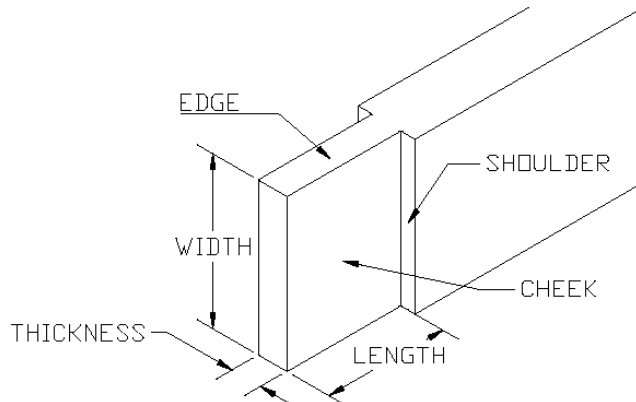
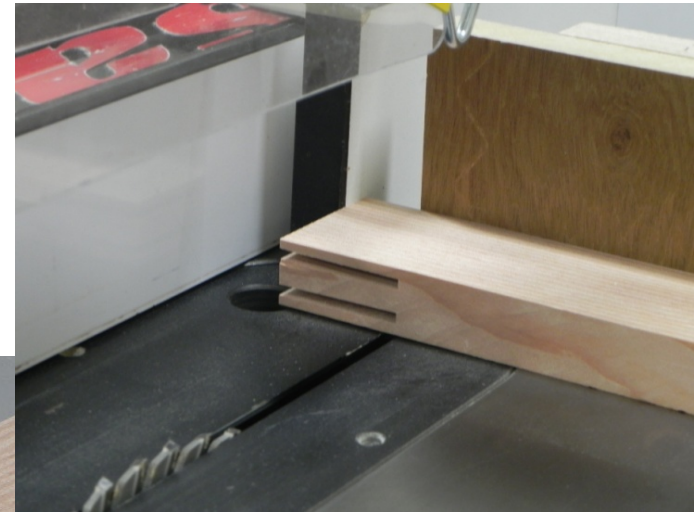


.11 Tenoning

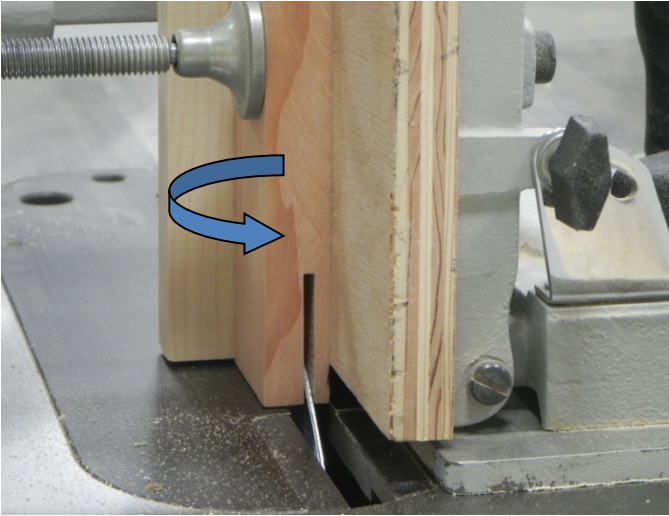


Key points:

- Different jig options
- Shoulder cuts
- Square setup!

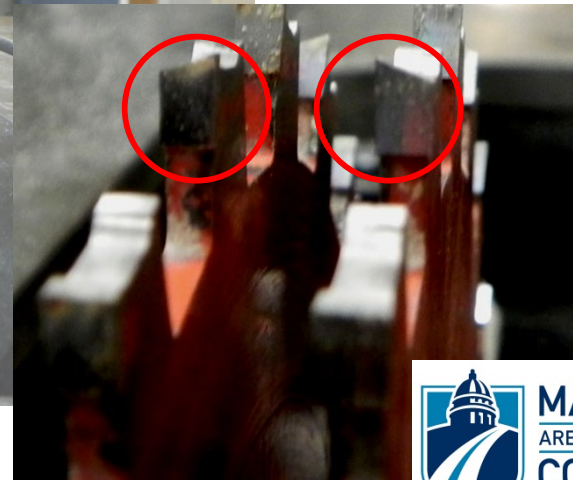
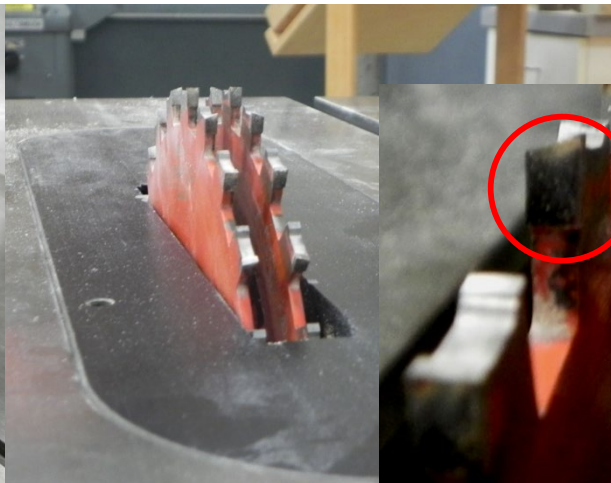
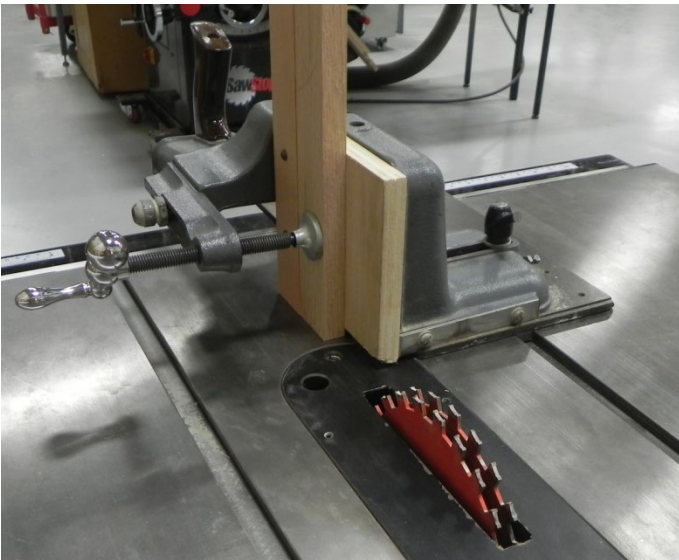


.11 Tenoning, con't

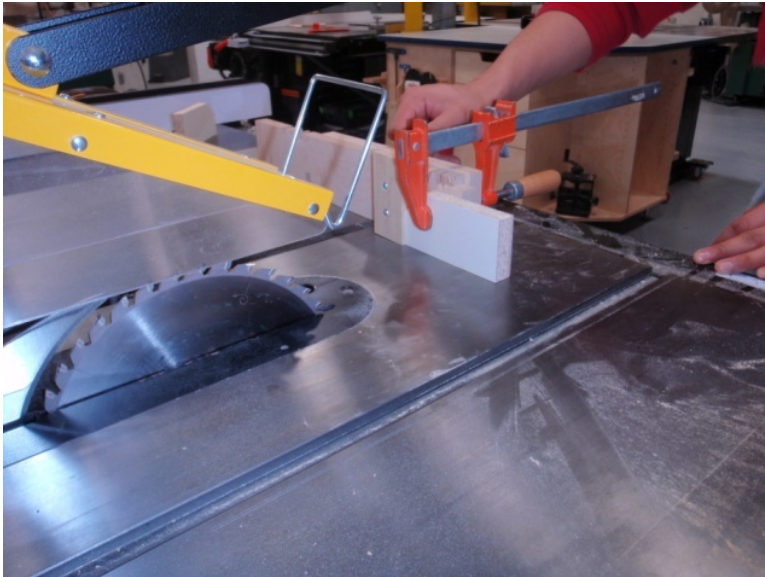


Key points:

- Single Blade option
- Double Blade with spacer
- Dado Blade Orientation

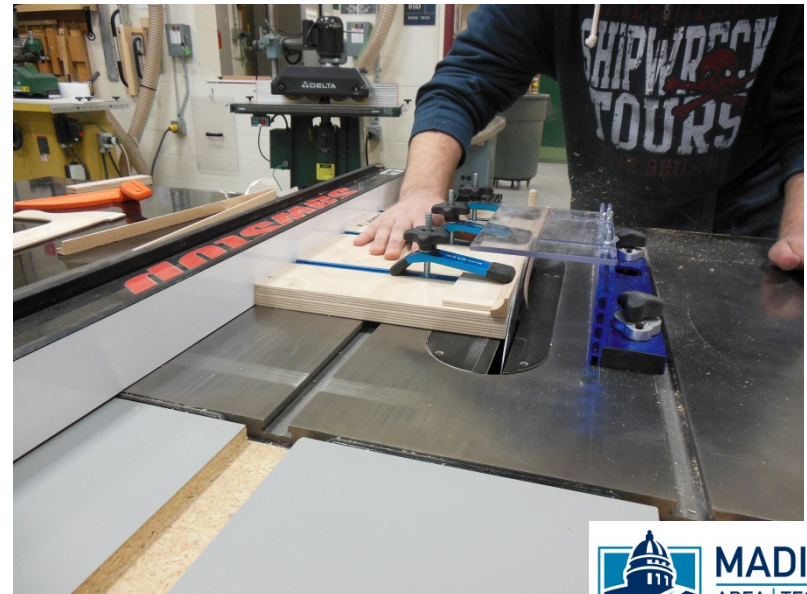


.12 Cutting Small Parts

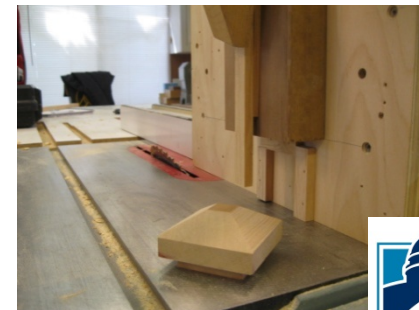
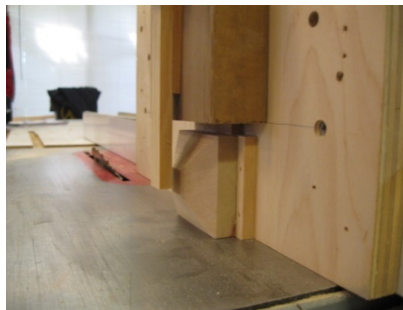
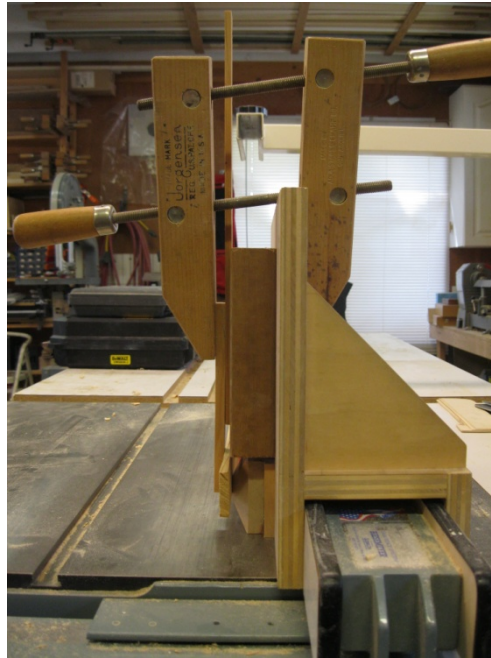


Key points:

- Maintain minimum hand distance
- Ensure part is secure
- Secure parts with quick release methods (shims, toggle clamps, eccentrics)



.12 Cutting Small Parts, con't





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