Yale *Environmental Health & Safety*

Shop Safety Procedure

Equipment/Task Name:	WOOD PLANER
Equipment/Task Hazard Class:	4 & 5 http://ehs.yale.edu/forms-tools/tool-classification-matrix
Shop Name:	
Shop Hazard Class:	

Purpose

Planers have enclosed knives and infeed and outfeed rollers designed to consistently reduce the thickness of wood planks. Planks are fed into the machine until they are engaged by the infeed rollers which drive the wood into the rotating knives. Much like the closely related wood jointer, the knives remove approximately 1/16" of the wood plank surface with each pass thru the planer. This process is repeated until the desired thickness is obtained.

Hazards

As with all shop tools, there are many potential hazards associated with the use of a planers. Full sized planers are Class 5 tools while small versions (less than ½ HP) are Class 4 tools (http://ehs.yale.edu/forms-tools/tool-classification-matrix). Particular hazards associated with planer are listed below. Note that the list is not exhaustive as unusual or specialized uses may generate additional unique hazards.

Flying Objects

- Cutters rotate against the feed direction and can kick back workpieces and create projectiles (See Diagrams/Illustrations). Always stand off to the side of the planer when feeding wood. Never stand in-line with the cutting path.

In-Running Nip/Pinch-Points

- While not visible, the rotating cutter assembly and feed rollers are very dangerous and great care must be used that there is no loose clothing or hair that can be drawn into the machine.
- Workpieces must be flat and aligned with the planer table when being fed into the machine as any gaps under the workpiece will be pinched with great force once the rollers grab the workpiece.

Sharp Tooling

- The knives are very sharp and will amputate anything that come in contact with them. Use push sticks and push blocks to maintain a safe distance and avoid placing body parts closer to the planer head than the edge of the feed table.

Limitations

- Wood planers are limited to planing new, clean wood planks that are free from nails, staples, rocks and debris and loose knots. Remove any knots that are questionable as they can become projectiles.
- Each machine has minimum thicknesses and board (workpiece) lengths that can be safely worked on that machine. A good rule of thumb would be about 3/8" minimum thickness and the minimum board length set by the depth of the planer (the distance between the feed and exit guards). The maximum width that can be worked is approximately ½" less than the full width of the feed opening.
- Planing of wood on the planer can only be made in the same direction as the wood grain. Do not perform cross-grain or end-grain planning as dangerous splitting, chipping and kickback will occur.

Required Personal Protective Equipment

- Refer to the Shop Safety Postings and instructions provided by the Shop Supervisor.

Shop specific required PPE:

Required Training

- Applicable Shop Rules
  - **Student Shop Rules** (http://ehs.yale.edu/forms-tools/shop-rules-student-accessible-shops)
  - **Professional Shop Rules** (http://ehs.yale.edu/forms-tools/guidelines-professional-shops)
- For Class 2 through 5 Student Shops, review and signing of the **Yale University Shop/Tool Use Safety Agreement** (http://ehs.yale.edu/forms-tools/shoptool-use-safety-agreement).
- Shop Supervisors or Instructors must evaluate the tool user based on successful demonstration of the Training Competencies and Practical Exercises listed below as applicable.

Training Competencies:

- □ Understand the uses, limitation, and hazards of the machine.
- □ Be able to dress appropriately and don correct personal protective equipment.
- □ Know how to inspect the planer and adjust cutting depth for selected operation.
- □ Show good judgment in equipment start-up process.
- □ Be able to inspect workpiece for imbedded objects and loose knots and appropriate size prior to operation.
- □ Know how to properly clean the tool after use.

Shop specific training requirements:

Authorized Tool Users

Shop Supervisor, Shop Monitors and those authorized by shop supervision to operate the tool.

Tool Safety Rules

- Observe and follow all Yale Professional or Student Shop Rules as posted.
- Understand and follow manufacturer operating procedures.
- Inspect the tool for damage prior to use.
- Verify all guards and guides are in place and adjusted properly.
- Do not bypass any safety devices.
- Always stay at the machine while it is running.
- Clean the tool after use.

Tool Safety Rules (cont'd)

- Report any malfunction or damage to the Shop Supervisor after tagging the tool "Out of Service, do not use".
- Do not make measurements of the stock while the machine is powered.
- Never plane a workpiece that is shorter than the distance between the infeed and outfeed.
- Do not force workpiece into cutter. Allow the tool to dictate speed of operation.
- Never stand in line with the cutting path.

Shop specific rules:

Proper Setup and Use

Prior to Use

- Determine appropriateness of the tool and workpiece. Evaluate for the following:
  - Workpiece wood type and grain direction
  - Maximum/minimum wood thickness and width
  - Desired final wood/workpiece thickness
  - Will the reduction in material affect the stability of the workpiece?
  - Workpiece length – generally the minimum board length is set by the depth of the planer (the distance between the feed and exit guards).
- Carefully inspect all surfaces of the workpiece for imbedded debris and loose knots.
- Bring any concerns or questions to the attention of the Shop Supervisor for review and proper disposition prior to starting the jointer.
- Don all personal protective equipment.

At Jointer

- Become familiar with all tool controls, guards, and emergency stops.
- With the tool turned off, lower the table completely and ensure the table is clean and clear of debris.
- Adjust the depth of the cut by adjusting the table height. It is recommended for safety and finish that the maximum cut depth be set at less than 1/16".
- Ensure all guards are in place and operating properly.
- Inspect the tool and the surroundings. Ensure that there is a clear zone around the machine to allow for proper clearance of the workpiece to be fed and removed. Cordon off the area if necessary.
- Take special care to ensure that there are no objects on the exit side of the planer that could allow the exiting workpiece to crash into or pinch people or body parts between. Never allow helpers/bystanders in the path of the ends of the workpiece. Always stand to the side of the workpiece.

Jointing Operation

- Conduct a final safety check of the tool and the surroundings. Notify others in the immediate area that the tool will be turned on.
- Turn on the dust collection system if available.
- Turn on the planer and listen for a smooth startup and as the tool reaches full operating speed.
- While standing out of the cutting path line, carefully align the workpiece with the planer head on the table and slide the workpiece toward the infeed. Let go of the workpiece as soon as it is engaged by the infeed roller.
- Without crossing the cutting path line, walk to the outfeed side of the planer to receive the workpiece.
- Away from machine inspect for final thickness/width and shut down machine if any adjustments need to be made to the cutting depth.

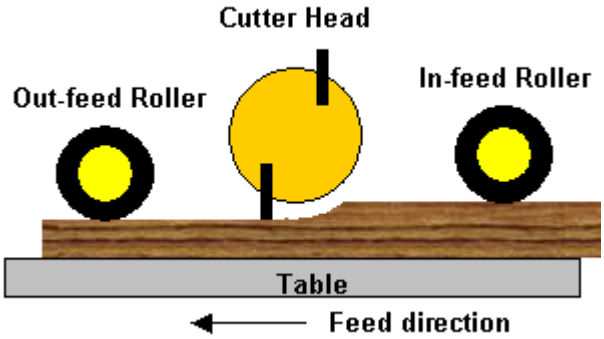
Proper Setup and Use (cont'd)

Completion

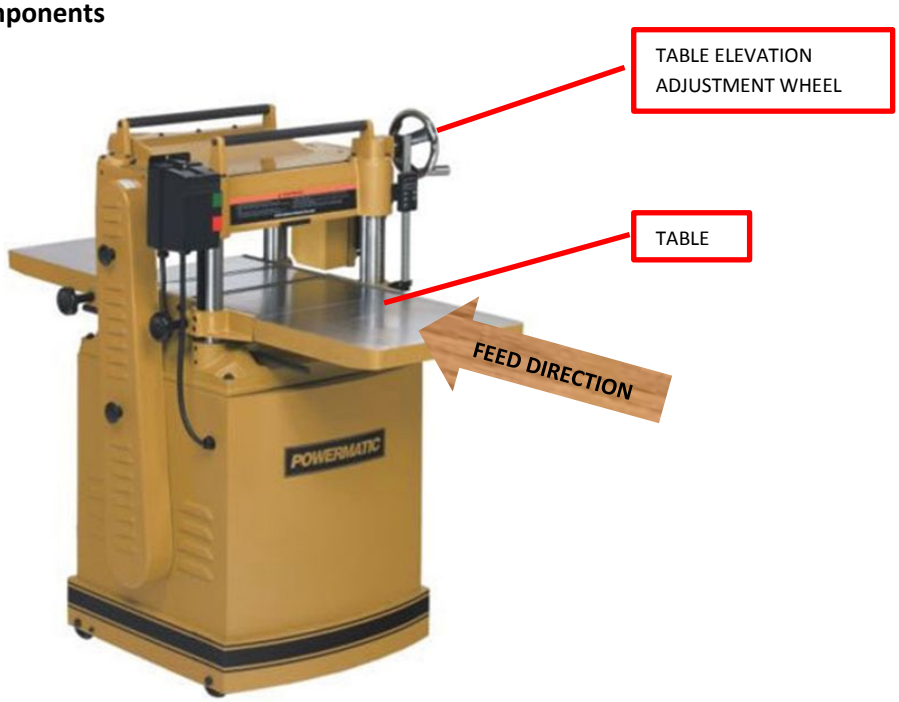
- When the desired workpiece condition is obtained shut down planer and allow the machine to come to a complete stop.
- Disengage the dust collection system (if available and as directed by the shop supervisor).
- Clean up the planer and the work area for the next user. Reset the table-to-cutter depth to less than 1" for the next user.
- Report any issues to the shop supervisor.

Diagrams/Illustrations

Planer Cutter Versus Feed Direction



Typical Jointer Components



Diagrams/Illustrations (cont'd)	
Correct Body Position When Using a Planer 	
Creation/Revision Dates:	April 22, 2014
Suggestions, questions, or comments? Please contact your shop supervisor or EHS.	