

Preliminary lesson plan

GWG basic skills

Hand Saws, Planes and Chisels

Course Number: HT101, v1.0
July 31st, 2006

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Safety is a personal issue. The Guild and the author do not accept responsibility for any accidents that may occur while using this guide.

Objective:

- 1) To acquaint the student with the various types of hand cutting tools including hand saws, hand planes and chisels
- 2) To impart an understanding of the personal dangers inherent in using hand cutting tools and methods of minimizing and eliminating risk.
- 3) To instruct the student in the proper techniques for using hand cutting tools including the reasons for selecting each tool for use.
- 4) To acquaint the student with the care and sharpening of hand cutting tools
- 5) To make a simple mallet using the skills being taught (requires full course)

Materials:

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| <ol style="list-style-type: none">1) Saws (for use and display)<ol style="list-style-type: none">a) English, Push type<ol style="list-style-type: none">i) Crosscutii) Ripb) Japanese pull saws<ol style="list-style-type: none">i) Ripii) Crosscutiii) Ryobac) Reinforced Back saws<ol style="list-style-type: none">i) Dovetailii) Back/Carcassd) Special purpose saws<ol style="list-style-type: none">i) Coping/Fret sawsii) Detail sawiii) Veneer sawiv) Flush Cut saw2) Planes (for use and display)<ol style="list-style-type: none">a) Metal<ol style="list-style-type: none">i) Scrubii) Bench #4iii) Jack #5iv) Fore #6v) Jointing #7, #8 | <ol style="list-style-type: none">b) Wooden<ol style="list-style-type: none">i) Bench & Smoothingii) Jack & Foreiii) Jointeriv) Special purpose: molding, beading, chamferc) Block<ol style="list-style-type: none">i) Standard angleii) Low Angled) Rabbetinge) Winding sticks
<ol style="list-style-type: none">3) Chisels (for use and display)<ol style="list-style-type: none">a) Beveledb) Mortisingc) Special purpose: Butt, Crank handle, Skew, Swan neck, Corner4) Rulers, squares, pencils5) Sandpaper Sharpening materials (glass, sandpaper, jig)6) Wood (pine or poplar), student retains wood<ol style="list-style-type: none">a) 2" x 4" x 10" lg (1 per student)b) 1" x 3" x 18" lg (1 per student) |
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Training limitations:

Optimum Class size: 3-4 students

Expected course length:

- 1) Saturday class (9am – 3pm), 6 hours including 1 hour lunch break
- or

2) two evenings (6:30pm – 9:00pm)

or

3) three individual 2-1/2hr sessions each covering one type of tool, 6:30-9:00pm

Lesson Plan

[9:00am]

1.0 Introduction:

- 1) Discussion of class objectives,
 - a) learn how to use hand cutting tools safely
 - b) understand how injuries occur while using hand cutting tools
 - c) learn and practice the basic skills of using hand cutting tools
 - d) make a crude mallet using hand cutting tools
- 2) project to be made during the course (mallet),
 - a) describe and display
 - b) discuss components and how they are made
- 3) discussion of normal steps taken to mill a part from rough lumber
 - a) start with one flat, straight surface
 - b) make one edge perpendicular and square to first surface
 - c) make opposite side parallel to first surface
 - d) cross-cut to length, rip to width.

2.0 Hand Saws:

- 1) Purpose: form lumber to length and width
- 2) Types of saws, discussion of each:
 - a) Rip, Cross Cut,
 - b) European (Push) saw
 - c) Japanese (Pull) saw
 - d) Rigid back, Dovetail, Backsaw
 - e) Coping, fret saws
 - f) Flush-cut saws
 - g) Special purpose (veneer, keyhole/detail, etc)
- 3) Tooth set and Kerf, discussion
 - a) What is set
 - b) What is kerf
 - c) What is cross-cut filed, rip-cut filed; shape and purpose
 - d) What is TPI
- 4) Marking and scribing layout lines
 - a) Pencil, pen; use and purpose
 - b) Marking knife, blade; use and purpose
 - c) Marking gauges, cutting gauges; use and purpose
- 5) Techniques:
 - a) Starting the cut,
 - b) following a line,
 - c) ending the cut,
 - d) safety discussion

[10:00am]

2.1 Exercise:

- 1) Mill 2" x 4" x 10" to form head 1-1/2" x 3" x 6":
 - a) Use a Japanese rip saw to cut to 3" width.
 - b) Use Push saw to crosscut to 6" length.
- 2) Mill 1" x 3" x 18" to form Head Cover 3/4" x 3" x 6" long:
 - a) Rip to 3" width,
 - b) cross cut to 6" long
- 3) Mill 1" x 3" x 18" to form crude handle 3/4" x 2" x 10" long:
 - a) Rip to 2" width,
 - b) cross cut to 10" long

2.2 Saw wrap-up:

- 1) Discussion about sharpening (ref: "Keep a Sharp Edge")
- 2) Discussion about purpose and use of special purpose saws

[11:00am]

3.0 Hand Planes:

- 1) Purpose: Flatten lumber, square surfaces, bring to finished size and/or thickness
- 2) Types of planes, discussion
 - a) Wooden
 - b) Metal
 - c) Block
 - d) Low/standard angle bed
 - e) Rabbet
- 3) Setup:
 - a) blade projection
 - b) skew adjustment
- 4) Sharpening
 - a) Proper angle,
 - b) Flat back
 - c) Progress through grits
 - d) strop

3.1 Exercise:

- 5) Sharpen plane blade using glass,
 - a) sandpaper and holding jig.
 - b) Discuss need to take Mike George's class on plane handling, setup and sharpening.

3.2 Technique for use

- 6) Safety
 - a) Keep hands away
 - b) Know where plane will go if you slip
 - c) Cautions with Rabbeting plane
 - d) Technique with block plane
- 7) Demonstration
 - a) Long board with grain,
 - b) Flattening across and with grain
 - c) End grain
- 8) Rabbets, tenons and dados

[12:00 noon]

Break for Lunch, 1 hour

[1:00pm]

3.3 Tools of the trade:

- 1) Use of winding sticks discussion
- 2) Use and techniques for marking and cutting gauges
- 3) Use and technique for use of marking knife
- 4) Use and technique for use of scales and squares

3.4 Exercise:

Plane the head and handle to size

[1:30 pm]

4.0 Chisels:

- 1) Purpose: Paring, shaping, chopping
- 2) Discussion of types and usage
 - a) Bevel
 - b) Mortise
 - c) Special purpose (corner, crank handle, swan neck, skew)
- 3) Sharpening techniques
 - a) Proper angle,
 - b) Flat face
 - c) Progress through grits
 - d) Strop
- 4) Safety
 - a) Keep hands away
 - b) Know where plane will go if you slip
 - c) Never toward you or by-stander

[2:00pm]

4.1 Exercise:

- d) Sharpen chisel blade using glass, sandpaper and holding jig.

4.2 Discussion of chisel usage techniques

- e) Paring
- f) Chopping with mallet
- g) Cutting Shoulders

4.3 Exercise:

- h) Using a scribe and cut sides
- i) Using chisel, cut dado in mallet head for handle

[3:00pm]

5.0 Wrap-up and clean-up

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