

Planing out – Course: Manual woodworking techniques. Instruction examples for practical vocational training

Table of Contents

<u>Planing out – Course: Manual woodworking techniques. Instruction examples for practical vocational training</u>	1
<u>Preliminary Remarks</u>	1
<u>Instruction Example 4.1.: Board</u>	1
<u>Instruction Example 4.2.: Strip and Panel</u>	4
<u>Instruction Example 4.3.: Shaped Strip</u>	7

Planing out – Course: Manual woodworking techniques. Instruction examples for practical vocational training

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Preliminary Remarks

The present booklet contains 3 selected instruction examples by means of which the trainee is able to acquire fundamental knowledge and skills in the working technique of planing. This work also includes sharpening of the plane irons if the tools' condition should make that necessary.

For a better preparation and execution of works, the required materials, tools, measuring and testing means and auxiliary accessories are specified for each instruction example. Furthermore, the previous knowledge is given that is required to work the workpieces. Knowledge already acquired for sharpening of tools from the training courses "Ripping and Mortising" or "Splitting and Carving" should be incorporated into the lessons as recapitulation.

The three instruction examples can be accomplished on various workpieces having different dimensions, but also consecutively on one workpiece.

The sequence of operations specified for each instruction example includes working steps leading to the acquisition of the working technique and the manufacture of the relevant workpiece. Technical particularities and the achievement of quality features are specifically mentioned.

A working drawing is attached to each instruction example showing the required shape and the dimensions of the workpiece. Dimensions not given have to be determined by the instructor according to further working steps intended. These dimensions can be selected so as to permit the use of the manufactured workpieces for the production of furniture such as benches, tables and shelves or for structural elements and facing parts.

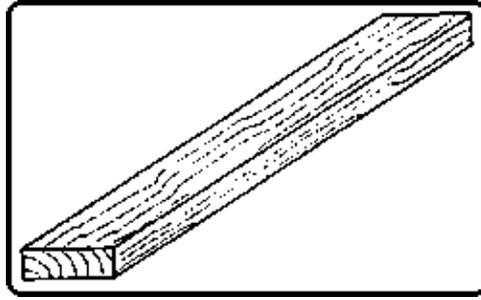
Instruction Example 4.1.: Board

Planing of wide faces is practised on saw-rough, edged boards.

Material

Saw-rough, edged boards:

Width: min. 100 mm
Length: min. 800 mm
Thickness: min. 30 mm



Tools

Jack plane, finish plane, double plane, trying plane, marking gauge, metal hammer 250 to 500 g, screw driver (large-sized)

Measuring and testing means

Folding rule or measuring tape, straightedge, 2 parallel strips

Auxiliary accessories

Carpenter's bench, tool grinder, whet-stone and stoning fluid (oil or water)

Required previous knowledge

Reading of drawings, measuring, scribing, testing

Explanations to the working drawing

x – optional size

? – equal to or greater than

Sequence of operation

Comments

1. Determine the direction of grains in work-piece.

2. Clamp workpiece between clamp irons of carpenter's bench according to working direction and the direction of grains.

When planing "with the grain", direction of grains is ahead and upwards; keep clamp irons under the surface to be planed.

3. Adjust finish plane to exact shaving thickness.

4. "Smooth" wood surface with long pushes of the plane over its entire surface.

Work surface always with its entire width within working steps; in the case of counter-direction of the grains, clamp workpiece reversely.

5. Prepare and adjust the double plane and the trying plane to flatten and smooth the wood surface.

6. Flatten and smooth the surface by the double plane and the trying plane.

First use the double plane and then the trying plane.

7. Check the surface for flatness by the straightedge and by alignment.

Lay straight batten in longitudinal and cross directions onto planed surface and compare; apply parallel strips. At the workpiece ends and check by sighting, repeat the check in certain intervals.

8. Surface the unevenness by double plane and trying plane.

It is advisable to work in an oblique direction to the wood grains and to apply last pushes of plane in the direction of the grains.

9. Repeat the check for surface flatness.

10. Reclamp workpiece for scribing of the thickness.

Clamp workpiece with narrow face showing upwards between clamp irons or front chop of carpenter's bench.

11. Scribe required thickness at narrow faces starting from the worked wide face.

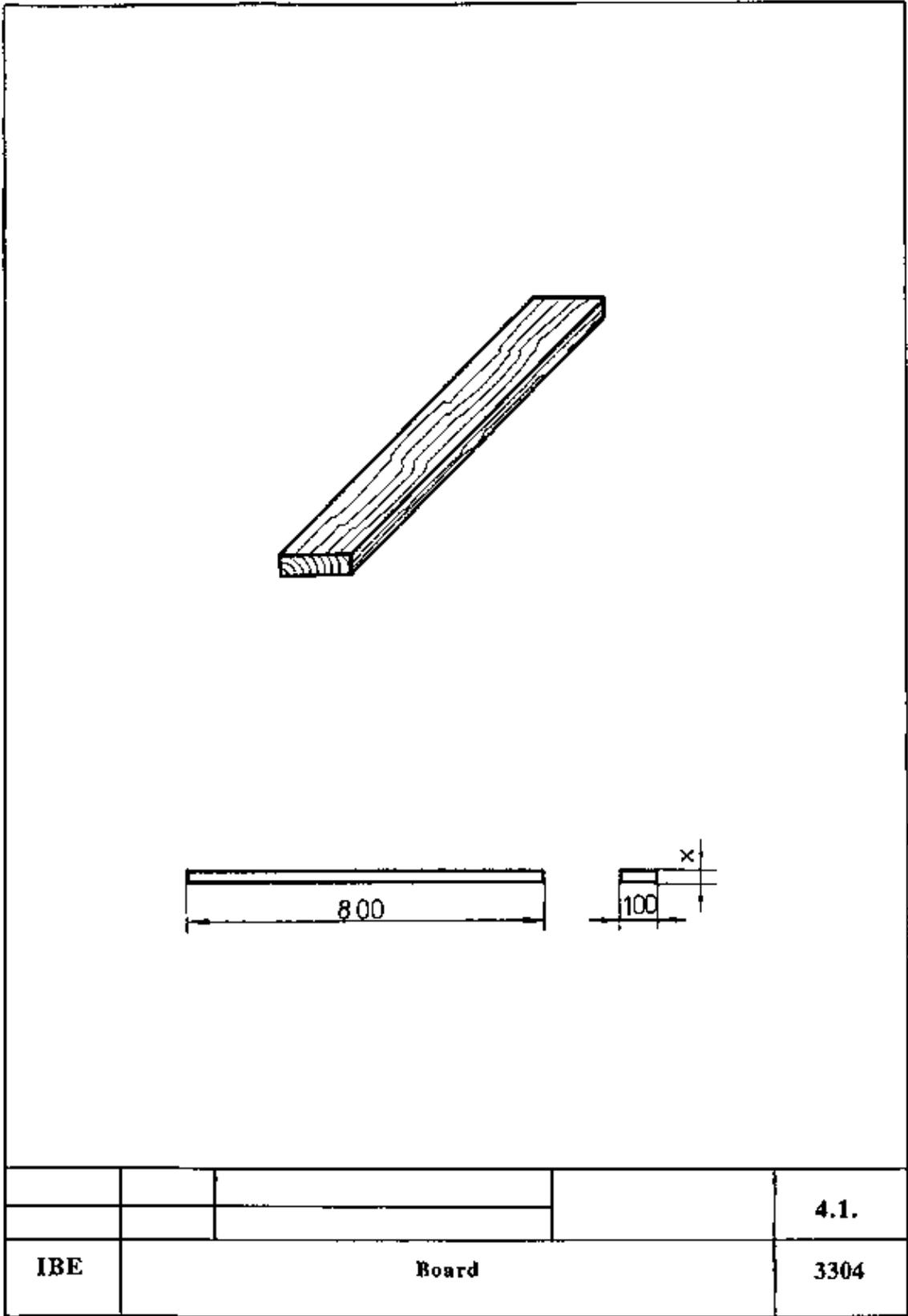
Use marking gauge with scriber.

12. Prepare and adjust the jack plane.

Only use jack plane, if great material thickness must be removed.

13. Plane material by jack plane, double plane and trying plane up to final thickness acc. to working steps Nos. 1 to 9.

14. Sharpen plane irons, if necessary.



Board

Instruction Example 4.2.: Strip and Panel

Planing of narrow faces is practised on edged boards, slats or strips.

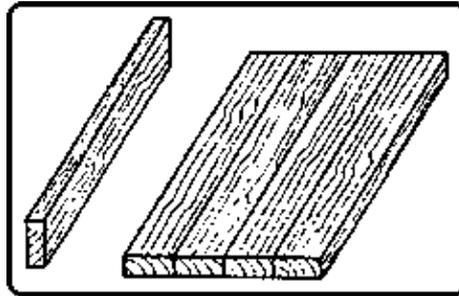
Material

Edged boards, slats or strips with at least one planed wide face:

Width: min. 60 mm

Length: min. 300 mm

Thickness: min. 10 mm



Tools

Jack plane, finish plane, double plane, trying plane, metal hammer 250 to 500 g, screw driver (large-sized)

Measuring and testing means

90° steel square, folding rule or measuring tape, straightedge

Auxiliary accessories

Carpenter's bench, guide strip, workpiece stand (if possible, adjustable in height), tool grinder, whetstone and stoning fluid (oil or water), pencil

Required previous knowledge

Reading of drawings, measuring, scribing, testing; types, construction and mode of action of planes, handling of planes, sharpening of plane irons

Explanations to the working drawing

x – optional size

? – equal to or greater than

Sequence of operations

(Working of individual workpieces which are not joined to form one surface (1))

1. Prepare carpenter's bench, prepare tools.
2. Clamp workpiece into carpenter's bench with longitudinal narrow face showing upwards.
3. Plane greater unevenness by jack plane and smooth plane.
4. Flatten and smooth narrow face by trying plane.
5. Check straightness of narrow face by straightedge.
6. Check squareness to planed wide face by steel square.
7. If necessary, rework and check until quality requirements are met.

Comments

Check sharpness and adjustment of plane irons.

Take care of working direction and direction of grains in the workpiece; support long work-pieces at the side not clamped.

Use rectangular guide strip for trying plane.

A hardly noticeable light gap must be between narrow face and testing means.

8. Scribe required workpiece width.

Use rule, straightedge and pencil.

9. Work opposite narrow face acc. to working steps Nos. 2 to 7.

10. Clamp workpiece with an end-grained narrow face showing upwards.

11. Flatten and smooth the end-grained narrow face by double plane or trying plane.

Only use sharp plane irons; adjust a very fine thickness of shavings; effect pushes of plane only up to the centre of the narrow face; use trying plane for longer narrow faces only.

12. Check the narrow face acc. to working steps Nos. 5 and 6 and check squareness to longitudinal narrow faces.

13. Work opposite narrow face acc. to working steps Nos. 10 to 12.

(Fitting of similar workpieces to subsequently connect them to a greater surface (2))

1. Put workpieces not yet worked (boards) together in the order intended.

The following basic rule applies to putting together: connect heartwood with heartwood and sapwood with sapwood.

2. Mark connecting points (joints).

Narrow faces to be connected are marked with a triangle on the wide face.

3. Work the first narrow face of a joint acc. to working steps Nos. 2 to 7 for individual workpieces.

4. Work matching narrow face of the board acc. to working steps Nos. 2 to 4 for individual workpieces.

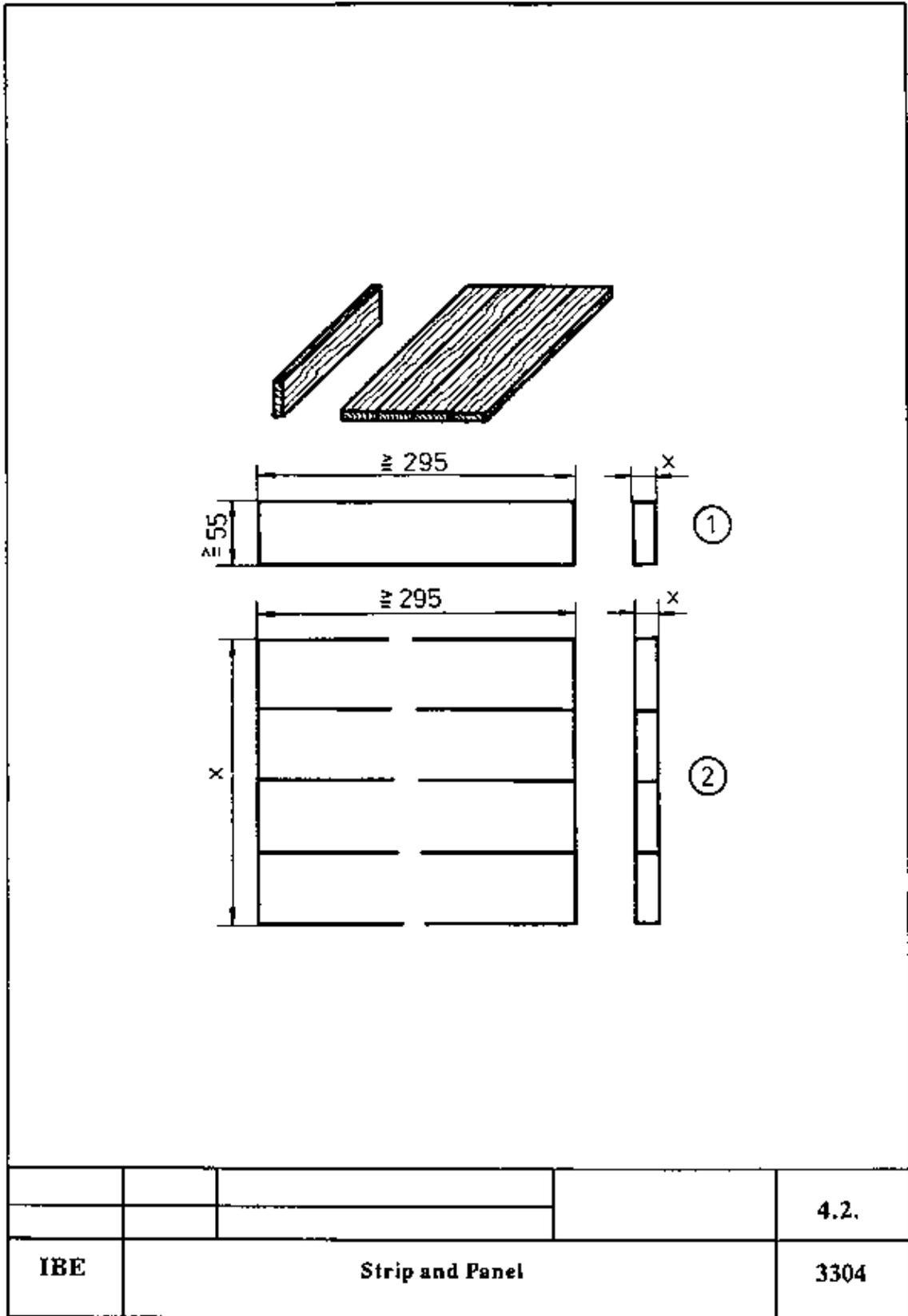
5. Check the fit of the joint by next applying the matching narrow face already worked.

Joint must be tight over its entire length (light gap not visible).

6. In case of untight joint, rework the narrow face.

7. Repeat the working steps Nos. 3 to 6 until all joints are worked.

8. Sharpen dull plane irons.



Strip and Panel

Instruction Example 4.3.: Shaped Strip

Planing of profiles is practised on a planed board.

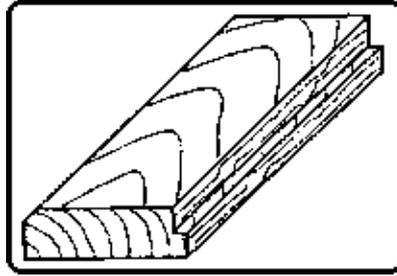
Material

Boards, planed:

Width: min. 55 mm

Length: min. 250 mm

Thickness: min. 20 mm



Tools

Double plane, trying plane, rabbet plane, metal hammer, marking gauge, screw driver

Measuring and testing means

Folding rule or measuring tape, straightedge (minimum length acc. to length of workpiece)

Auxiliary accessories

Carpenter's bench, clamps, tool grinder, whet-stone and stoning fluid

Required previous knowledge

Reading of drawings, measuring, scribing, testing; types, construction and mode of action of planes, handling of planes, sharpening of plane irons

Explanations to the working drawings

? – equal to or greater than

Sequence of operations

1. Arrange workplace; check, adjust and prepare tools.
2. Scribe profile edges acc. to drawing.
3. Clamp workpiece in carpenter's bench with the edge to be bevelled showing upwards.
4. Plane chamfer up to edge markings by double plane and trying plane.
5. Check straightness of bevelled narrow face (chamfer) by straightedge.
6. Measure planed chamfer width by means of the rule.
7. Reclamp the workpiece, wide face showing upwards.
8. Apply straightedge to wide face and place against profile marking.
9. Secure accurate-to-size position of straightedge by clamps.

Comments

Mark dimensions onto the wide and narrow faces by means of the marking gauge.

Take care of constant distance between face of plane and edge markings.

Measure at the workpiece's beginning and end and repeat it in regular length distances.

Straightedge should slightly overlap the marking towards the face to be planed out.

Clamps should clamp together the straightedge, workpiece and carpenter's bench plate.

10. Plane out the material up to marked rabbet depth by means of rabbet plane.

Move rabbet plane in straight line along straightedge and always rectangularly to wide and narrow faces. Take care of direction of wood grains.

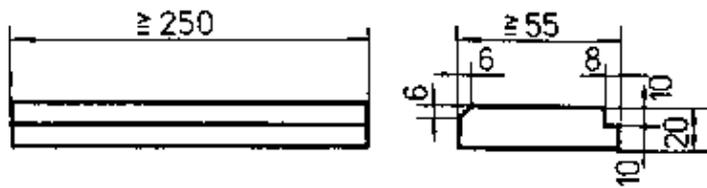
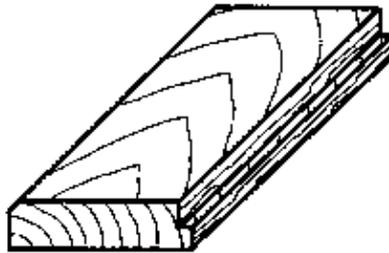
11. Loosen and remove the straightedge.

12. Reclamp workpiece in carpenter's bench with the narrow face to be provided with the rabbet profile showing upwards.

13. Re-plane rabbet up to marked rabbet width by means of the rabbet plane.

14. Check flatness and straightness of profile faces by alignment and by means of an applied straightedge.

15. Sharpen dull plane irons.



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Shaped Strip