

**Smoothing and Sanding – Course: Manual woodworking techniques.
Instruction examples for practical vocational training**

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Smoothing and Sanding – Course: Manual woodworking techniques. Instruction examples for practical vocational training

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Preliminary Remarks

The present booklet contains two instruction examples to practise manual finishing of wood by planing, filing and sanding.

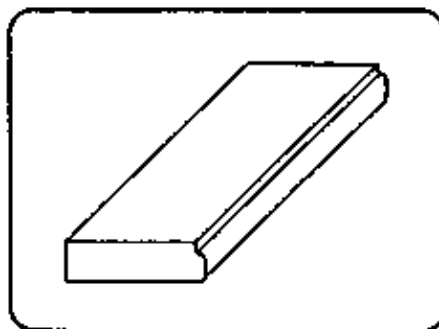
To facilitate the preparation and execution of the work, the necessary materials, tools and auxiliary accessories are specified for each example. Moreover, the previous knowledge of the trainees and the working techniques required for working of the workpieces are also mentioned. They should be recapitulated before starting with the work.

The sequence of operations given for each example contains the order of the working steps necessary to complete the relevant workpiece. Peculiarities of craftsmanship to achieve good quality are pointed out.

The size and shape of the workpieces have been selected so that the workpiece of the first example can be used as bottom board and two workpieces of the second example as cheeks for a wall shelf. A working drawing is attached to each example showing the suitable size and shape of the workpiece for manual preworking or premachining and for manual finishing. Possible deviation therefrom can be decided at the instructor's discretion.

Instruction Example 7.1.: Wall Shelf – Bottom Board

Smoothing and sanding of flat and profiled solid wood faces to be practised.



Material

Premachined or manually preworked boards (planed, sawn to size and profiled)

Width: 120 mm

Length: 550 mm

Thickness: 20 mm

Tools

Double plane, scraper, various sanding pads, flexible sanding tool, metal hammer

Auxiliary accessories

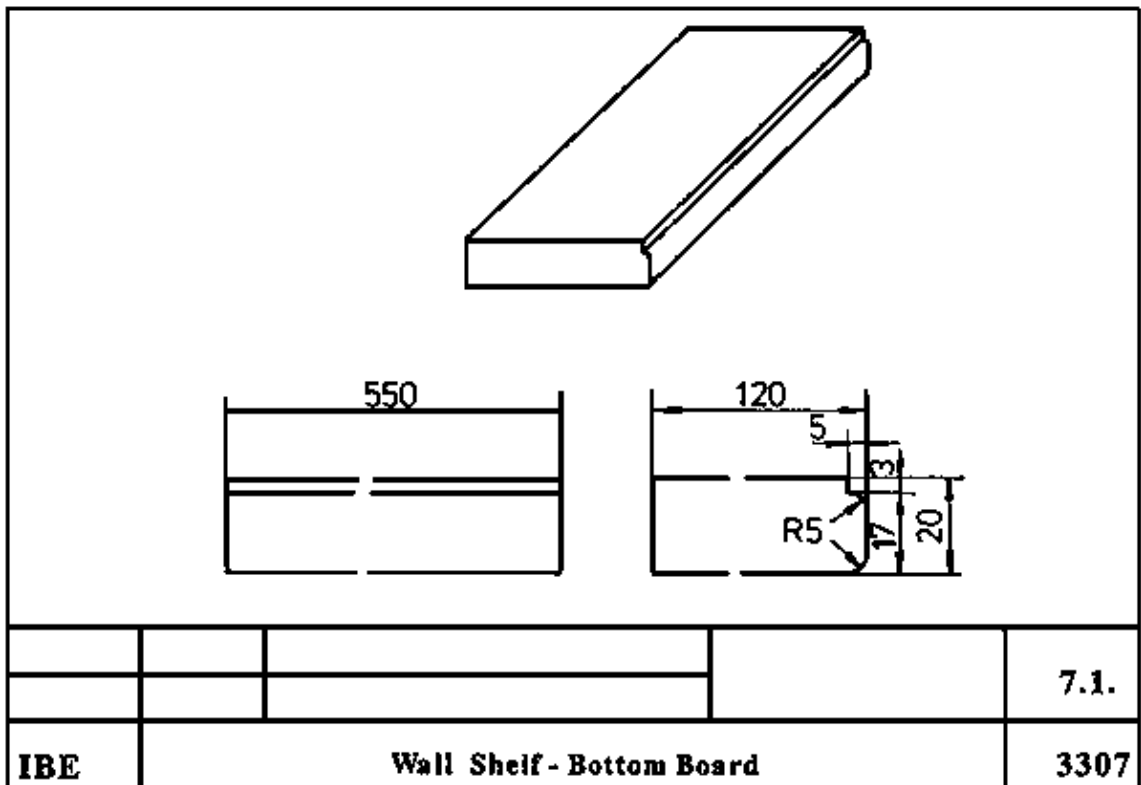
Carpenter's bench, clean supporting and packing faces, straightedge

Necessary previous knowledge

Planing, testing

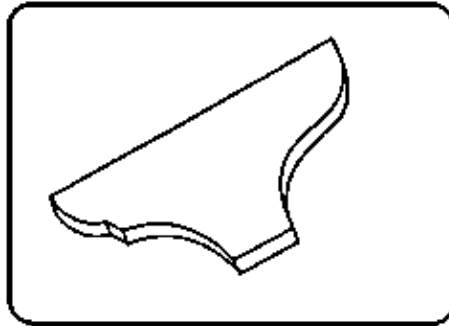
	Sequence of operations	Comments
1.	Prepare the workplace. Make the tools available.	Check for completeness.
2.	Set double plane for removal of fine chips.	Test on a test piece.
3.	Firmly clamp the workpiece between the timber dogs of the carpenter's bench with one wide face on top.	Working direction and grain direction of workpiece to be considered. Use clean packing faces to avoid pressing marks. Hold timber dogs and lateral packing pieces under the face to be worked.
4.	"Smooth" (fine-plane) the wood face with the double plane with long strokes throughout.	In the case of opposite wood grain direction, clamp the workpiece the other way round.
5.	Remove heavy irregularities (on harder woods) with the scraper.	Guide the scraper in the direction of the wood grain.
6.	Sand the face with sanding tools longitudinally with the wood grain.	
7.	Check the face for flatness and smoothness.	Check the face in longitudinal and cross directions with straightedge and visually and touch it with the hand.
8.	Re-clamp the workpiece so that the opposite wide face is on top.	

9. Work the second wide face according to steps 4. to 7. above.
10. Re-clamp the workpiece so that the profiled narrow face is on top. Use the front chop of the carpenter's bench and packing faces.
11. Smooth the flat narrow face with the double plane according to steps 4. and 5. above.
12. Re-sand the face longitudinally with the wood grain.
13. Sand the quartered rod profile with the wood grain. Start sanding on the wide or narrow face and complete on the adjacent narrow or wide face.
14. Sand the quartered rod profile with plate (rabbet) with the wood grain. Use sharp-edged sanding pad of hard wood. Start sanding in the profile corner and complete on the wide face.
15. Sand the longitudinal edges of the work-piece with the wood grain (chamfering of edges). Sand with slight pressure on the edge only.
16. Check the narrow face and profiles for flatness, straightness and smoothness.



Instruction Example 7.2.: Wall Shelf – Check

Filing and sanding of curved narrow faces to be practised.



Material

Premachined or manually preworked boards (planed, sawn to size)

Width: 130 mm

Length: 300 mm

Thickness: 20 mm

Tools

Double plane, scraper, flat file, half round file, various sanding pads, flexible sanding tool, metal hammer

Auxiliary accessories

Carpenter's bench, clean supporting and packing faces, testing templates for curves

Necessary previous knowledge

Planing, testing

Sequence of operations

Comments

1. Prepare the workplace. Make the tools available. Check the double plane for completeness and fine setting.
2. Firmly clamp the workpiece in the carpenter's bench, smooth and sand the opposite wide faces.

"Smooth" (fine-plane) the wood face with the double plane with long strokes throughout.

Remove heavy irregularities (on harder woods) with the scraper.

Sand the faces with sanding tools longitudinally in grain direction.

Check the face for flatness and smoothness.

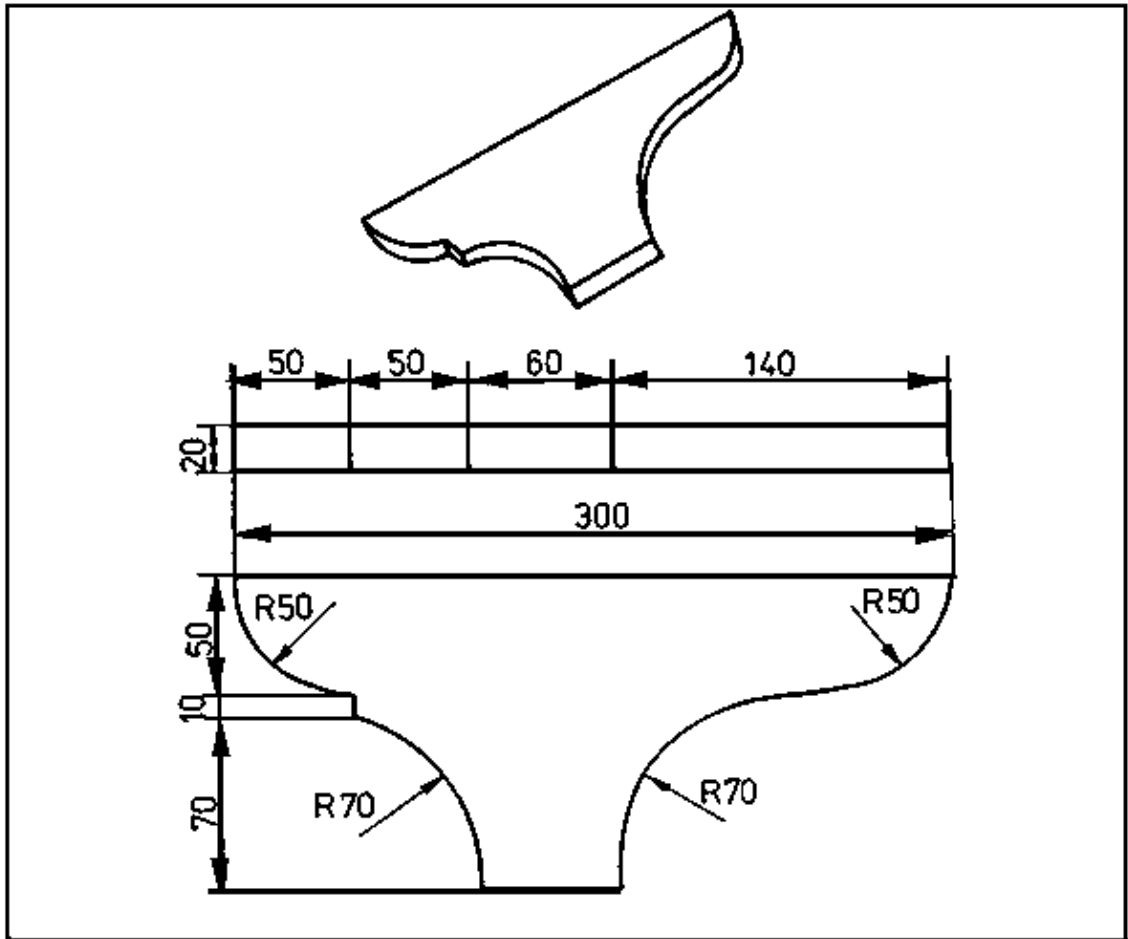
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|--|--|
| 3. Re-clamp the workpiece so that the short, flat longitudinal narrow face is on top. | Working direction and grain direction of the workpiece to be considered. Use clean packing faces to avoid pressing marks.

Hold timber dogs and lateral packing pieces under the face to be worked. |
| 4. Smooth the narrow face with the scraper. | In the case of opposite grain direction, clamp the workpiece the other way round. |
| 5. Re-sand the narrow face with sanding pad and flexible sanding tool. | Guide the scraper in the direction of the wood grain. |
| 6. Re-clamp the workpiece so that short cross-grained narrow face and separate curved narrow faces are on top. | |
| 7. File outwards curved (cambered) narrow face and cross-grained narrow face accurately to shape with a flat file. | If possible, file should not be guided across the wood grain (workpiece thickness) to avoid breaking out of wood fibres.

Where cross-filing is necessary (cross-grained face and corner) work with slight pressure on the file.

Check the face in longitudinal and cross directions with straightedge and visually and by touching it with the hand. |
| 8. File inwards curved (hollow) narrow face accurately to shape with a half round file. | See comments as per 7. above. |
| 9. Re-sand the filed narrow faces. | Use sanding pads with suitable shape.

See comments as per 7. above. |
| 10. Re-clamp the workpiece so that continuously curved narrow faces are on top. | |
| 11. Work the cambered and hollow narrow faces according to steps 7. to 9. above. | |
| 12. "Chamfer" workpiece edges with flexible sanding tools. | |
| 13. Check the narrow faces for accuracy to shape | Place templates on curves and compare. |



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