

TECHNICAL DESCRIPTION

CABINETMAKING



worldskills
international

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WorldSkills International, by a resolution of the Technical Committee and in accordance with the Constitution, the Standing Orders and the Competition Rules, has adopted the following minimum requirements for this skill for the WorldSkills Competition.

The Technical Description consists of the following:

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1. **INTRODUCTION**

1.1 **Name and description of skill**

1.1.1 The name of the skill is

[Cabinetmaking](#)

1.1.2 Description of skill

[Cabinetmaking covers mainly the manufacture, in small workshops, of furniture and built-in units in wood \(either solid, veneered, composition board, plastic-coated or painted\). The cabinetmaker may also work in larger plants as a specialist.](#)

1.2 **Scope of application**

1.2.1 Every Expert and Competitor must know this Technical Description.

1.2.2 In the event of any conflict within the different languages of the Technical Descriptions, the English version takes precedence.

1.3 **Associated documents**

1.3.1 As this Technical Description contains only skill-specific information it must be used in association with the following:

- WSI - Competition Rules
- WSI - Online resources as indicated in this document
- Host Country - Health and Safety regulations

2. **COMPETENCY AND SCOPE OF WORK**

The Competition is a demonstration and assessment of the competencies associated with this skill. The Test Project consists of practical work only.

2.1 **Competency specification**

[Health and Safety](#)

Knowledge and understanding:

- [Understand the requirement for Health and Safety using woodworking machines, the competition workspace.](#)
- [Understand the Health and Safety requirements from your own country and that of the Host Country.](#)

[Material fittings](#)

Competitor shall be able to:

- [Use and fit a wide range of hinges to a carcass.](#)
- [Use the shown fit tolerance for fit and function of doors.](#)
- [Use and fit a range of fittings for doors \[locks, catches, stays and handles\]](#)
- [Use and fit a range of adjustable shelf fittings.](#)
- [Use and fit a range of easy fit assembly fittings](#)

Joining

Knowledge and understanding:

- How solid wood and board materials components are joined together to form an assembly.
- Understand the quality of joining required as balanced against the time restraint.

Competitor shall be able to:

- Produce a range of following joints used in cabinet making to a high standard. (Mortise and tenon, finger joint, dowel joint, biscuit joint, mitres, halving joints, and dovetails.)
- Set out, cut and make any form of the above joints using hand tools, portable powered hand tools, or permitted woodworking machines.

Preparation of surfaces

Knowledge and understanding:

- How various components are prepared for polishing.

Competitor shall be able to:

- Produce surfaces that are free from defects.
- Produce surfaces on assembled constructions that are free from defects.
- Produce soft edges to components or assemblies.

Assembly

Competitor shall be able to:

- Assemble components to form a two or three dimensional construction.
- Check an assembly for accuracy and trueness.

Adjustable moving parts

Knowledge and understanding:

- Understand the skills required to fit doors and drawers into a cabinet carcass.

Competitor shall be able to:

- Position and fit hinges correctly.
- Control the fit required around the door edges.
- Fit a drawer into a carcass to achieve a glide fit.

Drawing

Knowledge and understanding:

- Understand working drawings in ISO standard together with any written information.
- Understand what type and size of joint is required to joint components together

Competitors shall be able to:

- Read and understand working drawings in ISO standard using the 1:1 scale, or other scales.
- Draw a full size part of the working drawing to aid clarity or accuracy.
- Knowledge of the main dimensions that are declared in section A in the marks scheme, and the tolerance is ± 0.9 the shown dimension.
- Be able to plan time management, taking into consideration, processes, modules required, and given timetable.

Materials – solid wood

Competitor is able to:

- Use prepared Solid Wood to set out the required type and size joints to construct a given assembly.
- Using hand and/or portable powered hand tools cut and prepare a wide range of joints to include mortise and tenon, finger joints, mitres, dowel joints, biscuit joints, halving joints, and dovetail joints.
- Set a high standard in the accuracy of jointing components
- Use Woodworking Machines to form or part form joints from above.
- Use Woodworking Machines to form grooves, rebates, or mouldings.

Materials - veneer

Competitor is able to:

- Cut, join, and lay veneers onto board material, to a given pattern.

Materials - board

Competitor is able to:

- Cut board materials to a given size and prepare joints using a Dimension Saw.
- If necessary, apply an edging strip or face veneers to a panel.
- Set out panels for jointing, and cut and prepare joints using hand, portable powered hand tools, or woodworking machines

2.2 Theoretical knowledge

2.2.1 Theoretical knowledge is required but not tested explicitly.

2.2.2 Knowledge of rules and regulations is not examined.

2.3 Practical work

The Competitor is to carry out, independently, the following task:

- Construct a piece of furniture from a working drawing and written instructions, using the material supplied.

3. THE TEST PROJECT

3.1 Format / structure of the Test Project

A single project assessed in stages.

3.2 Test Project design requirements

- The drawings for a Test Project proposal must be in DWG and PDF format (AutoCAD) and include the correct specifications. The drawings must be to the scale of 1:1 and the format should be maximum A0. The orthographic drawing can be produced at an identified reduced scale. Test project proposals should be produced considering the need for 30% change.
- Test Project proposals must be in English.
- Test Project proposals must have a drawer and a hinged component.
- Maximum size of a Test Project is 3000 mm (length + height + depth).

3.3 Test Project development

The Test Project MUST be submitted using the templates provided by WorldSkills International (<http://www.worldskills.org/competitionpreparation>). Use the Word template for text documents and DWG template for drawings.

3.3.1 Who develops the Test Project / modules
The Test Project / modules are developed by:

At least 50% of the Experts. A new Expert may, but does not have to, deliver a Test Project proposal at their first Competition.

At the previous Competition Experts indicate their interest in developing a Test Project for the following Competition or interest in developing the 30% change for the current Competition. A list showing this decision is posted on the forum after the current Competition. In the case of replacement Experts or Experts from newly competing Members, they are invited to make a choice after Provisional Registration.

3.3.2 How and where is the Test Project / modules developed

Independently

Experts can discuss their Test Project proposals on the forum. Each participating Expert submits their Test Project proposal.

3.3.3 When is the Test Project developed
The Test Project is developed:

According to the timeline below:

Timeline	Action
Before previous Competition	At least 50% Experts develop a Test Project proposal.
At the previous Competition	All proposals that meet the design requirements are submitted to the Technical Director and are circulated to all Experts on the Discussion Forum.
6 months before current Competition	Experts shortlist 3 proposals by vote on the forum.
6 weeks before current Competition	The final project is selected by Experts by vote on the forum from the remaining three. It is then left on the internet for all to see.
At the current Competition	At least 50% of Experts deliver proposals for the 30% change of the actual Test Project. The 30% change is then agreed by vote.
After the Competition	Along with the Test Project selected for the Competition the proposals not selected are submitted to the WorldSkills Secretariat for loading to the website for open access to all participating members.

3.4 Test Project marking scheme

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Section 5.

3.4.1 The marking scheme proposal is developed by the person(s) developing the Test Project. The detailed and final marking scheme is developed and agreed by all Experts at the Competition.

3.4.2 Marking schemes should be entered into the CIS prior to the Competition.

3.5 Test Project validation

The Test Project is validated by a photograph of the completed project.

3.6 Test Project selection

The Test Project is selected as follows:

[See timeline in 3.3.3.](#)

3.7 Test Project circulation

The Test Project is circulated via WorldSkills International website as follows:

[The 3 shortlisted Test Projects are circulated 6 months before the current Competition \(see 3.3.3 above\).](#)

3.8 Test Project coordination (preparation for Competition)

Coordination of the Test Project will be undertaken by:

[Chief Expert and Deputy Chief Expert](#)

3.9 Test Project change at the Competition

[See timeline in 3.3.3](#)

3.10 Material or manufacturer specifications

[Not applicable](#)

4. SKILL MANAGEMENT AND COMMUNICATION

4.1 Discussion Forum

Prior to the Competition, all discussion, communication, collaboration and decision making regarding the skill must take place on the skill-specific Discussion Forum (<http://www.worldskills.org/forums>). All skill-related decisions and communication are only valid if they take place on the forum. The Chief Expert (or an Expert nominated by the Chief Expert) will be moderator for this forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

4.2 Competitor information

All information for registered Competitors is available from the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

This information includes:

- Competition Rules
- Technical Descriptions
- Test Projects
- Other Competition-related information

4.3 Test Projects

Circulated Test Projects will be available from [worldskills.org](http://www.worldskills.org) (<http://www.worldskills.org/testprojects>) and the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

4.4 Day-to-day management

The day-to-day management is defined in the Skill Management Plan that is created by the Skill Management Team led by the Chief Expert. The Skill Management Team comprises the Jury President, Chief Expert and Deputy Chief Expert. The Skill Management Plan is progressively developed in the six months prior to the Competition and finalised at the Competition by agreement of the Experts. The Skill Management Plan can be viewed in the Expert Centre (<http://www.worldskills.org/expertcentre>).

5. ASSESSMENT

This section describes how the Experts will assess the Test Project / modules. It also specifies the assessment specifications and procedures and requirements for marking.

5.1 Assessment criteria

This section defines the assessment criteria and the number of marks (subjective and objective) awarded. The total number of marks for all assessment criteria must be 100.

Section	Criterion	Marks		
		Subjective (if applicable)	Objective	Total
A	Dimensions	0	19	19
B	Conforming to drawing	0	11	11
C	Face Marking and Joints before gluing	15	4	19
D	Joints after gluing	18	0	18
E	Fitting and movable parts	7	9	16
F	Surfaces	6	6	12
G	Use of materials	0	5	5
Total =		46	54	100

5.2 Subjective marking

Scores are awarded on a scale of 1 to 10

5.3 Skill assessment specification

Sections A to G

A Dimensions

Specific dimensions will be measured. All dimensional marking will be done by templates supplied by the Workshop Supervisor.

B Conforming to drawing

The project must conform to the drawing in all instances.

C Face marking and joints before gluing

Indication of face marking system. The inside of the joints is assessed before gluing, including fit and accuracy.

Dowels and biscuits must be inserted in a uniform manner for presentation/marketing.

D Joints after gluing

Inspection of joints at assessment time. The joints should have no gaps and show no evidence of fillings (glue, sawdust, wax, etc).

E Fitting and movable parts

Hardware fitting to doors, drawers etc. according to drawing and information sheets. Fit and function of moving parts. Wax or lubricant only allowed on moving parts.

F Surfaces

The quality of finish of all surfaces e.g. solid wood, veneered panels and edges should be ready for polishing. The surfaces should show no evidence of fillings (glue, sawdust, wax, etc). Surfaces will be prepared to a maximum of 320 sand paper.

G Use of material

A penalty for the use of extra materials due to mistake up to a maximum of 5 points.

5.4 Skill assessment procedures

When marking is carried out by a team of Experts, only the allocated team, the Chief Expert and/or the Deputy Chief Expert may be present. Experts not involved in marking are not to be in the marking area.

6. **SKILL-SPECIFIC SAFETY REQUIREMENTS**

Refer to Host Country Health & Safety documentation for Host Country regulations.

- The Workshop Supervisor is responsible for the safety measures on the machines, including the use of safety glasses and hearing protection.
- All machines should be properly guarded.
- All circular saws must have a riving knife and top guard.
- For all machines wooden safety aids may be requested by Experts.
- Compressed air is not to be used for dust removal.
- Experts are to check safety of all machines and to make a decision 'safe' or 'not safe'.
- The light conditions must be uniform for all Competitors and must be a minimum 300 lux at each bench top.
- Each Competitor will have a minimum working area of 16 m².
- Each bench must have a minimum of one vice with wooden chops mounted on the long side.
- The work surface of the bench must be height adjustable.

7. **MATERIALS & EQUIPMENT**

7.1 **Infrastructure List**

The Infrastructure List details all equipment, materials and facilities provided by the Host Country.

The Infrastructure List is online (<http://www.worldskills.org/infrastructure/>).

The Infrastructure List specifies the items & quantities requested by the Experts for the next Competition. The Competition Organiser will progressively update the Infrastructure List specifying the actual quantity, type, brand/model of the items. Items supplied by the Competition Organiser are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director of any increases in space and/or equipment.

At each Competition, the Technical Observer must audit the Infrastructure List that was used at that Competition.

The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

7.2 **Materials, equipment and tools supplied by Competitors in their toolbox**

- Competitors may bring any handheld electric power tools they wish such as drills, sanders, routers, saws, Lamello (biscuit machine) etc. Every power tool that is equipped with an attachment for dust exhaustion should have a dust collector.
- The only two permitted stationary mounted machines the Competitor may bring are 1 Chop (Drop) saw and 1 Inverted router table machine.

8. MARKETING THE SKILL TO VISITORS AND MEDIA

8.1 Maximising visitor and media engagement

It is intended that the following will be used to maximise visitor and media engagement for this skill.

- Try a trade
- Display screens
- Test Project display
- Career opportunities
- Daily reporting of competition status

8.2 Sustainability

- Recycling
- Use of completed Test Projects after Competition