

Standards and Assessment Guide

CABINETMAKING

Introduction

Welcome to the Standards and Assessment Guide (SAG), a comprehensive resource designed to support excellence in assessment practices for all skills competitions hosted at the WorldSkills Competition. A key component of the SAG is the commitment to continuous improvement through ongoing review, ensuring that these guides consistently reflect the latest industry innovations and high standards of assessment in an open and transparent manner.

Purpose

The primary purpose of this guide is to provide a structured framework for the consistent and fair assessment of each skill competition. It aims to ensure that all assessments are conducted with a high degree of accuracy, reliability, validity, and reflect global industry standards. By adhering to these guidelines, assessors can maintain the integrity of the competition and uphold the high standards associated with WorldSkills.

Note: this guide is not a replacement for the Marking Scheme and should only be used as a reference when required during the assessment process. Competitors are not allowed to have a copy of this SAG in the workshop in either digital or paper form.

Scope

This document covers general assessment practices applicable to a diverse range of industry sectors including:

- Manufacturing and Engineering Technology
- Information and Communication Technology
- Construction and Building Technology
- Transportation and Logistics
- Social and Personal Services
- Creative Arts and Fashion

Each skill competition has its unique requirements and benchmarks, which are detailed within sections of this guide. The consistency of assessment across each skill is the overarching principle, ensuring a unified approach to evaluating Competitor performance to the highest standards.

Key Components

The guide is structured into several key components, each addressing critical aspects of the assessment process:

Assessment Principles and Objectives

- Emphasis on fairness, transparency, and objectivity in assessments.
- Alignment with global industry standards and best practices.

Assessment Methods and Tools

- Description of various assessment methods in Measurement and Judgement.
- Guidance on the application of appropriate assessment tools and equipment (if applicable).

Criteria and Benchmarks

- Examples of assessment criteria and aspects for each skill, outlining the expected competencies and performance standards.
- Benchmarks for different levels of proficiency i.e. Judgement award range 0, 1, 2, 3 or Yes/No criteria alongside clear measurable descriptors.

Expert assessment requirements

- Completion of the Access Programme.
- Approved Curriculum Vitae (CV).
- Reaching **100%** Expert preparedness.
- Full participation of online and in-person Mandatory Assessment Training (MAT).
- Completion of practical assessment testing at the Competition.

Quality Assurance and Improvement

- Monitoring and evaluation: Ensuring assessments are carried out correctly and produce reliable results.
- Continuous improvement: Using feedback from Experts and Skill Competition Managers to enhance future assessments.
- Periodic review: Regularly updating processes to reflect current industry and WorldSkills standards.

Implementation

For effective implementation, this guide should be used for guidance purposes only and in parallel with the Technical Description for each skill. Experts are encouraged to familiarize themselves thoroughly with both the general guidelines and the particular requirements of their respective skill areas. Collaborative efforts between the Skill Management Team, Experts, and Competitors are vital for achieving the ultimate goal of global skills development.

Conclusion

The Standards and Assessment Guide embodies the commitment of the WorldSkills movement to nurturing talent and promoting the highest standards of vocational education and training worldwide. By providing clear and comprehensive guidance, we aim to empower Experts to conduct marking and assessment practices that are not only rigorous and equitable but also inspiring and transformative for all participants.

Thank you for your dedication to upholding these standards and contributing to the success of the WorldSkills Competition. Together, we can continue to champion skills excellence and celebrate the achievements of talented individuals from around the globe.

Skill 24 – CABINET MAKING

Measurement

Measurement is used to assess accuracy, precision, and other performance that can be measured objectively. It is used where ambiguity must be avoided.

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
A Dimensions	4 & 1,2,5	Single-piece measurement. Is cut within a tolerance of -/+_0.5mm Full Marks. . E.g. Length of a drawer front.	<i>Internal and external measurement rods are to be used as appropriate.</i> <i>Before commencing marking it must be agreed precisely where the measurement is to be checked if not described on the assessment sheet. This cannot be changed once marking on the criteria has started.</i> <i>One judge holds the rod while another checks it is vertical/horizontal before all judges confirm the result.</i> <i>Judges to witness the CIS upload.</i>	Full Marks

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
A Dimension	4 & 1,2,5	Tolerance. Compound measurements. To be used where the measurement is made up of multiple pieces of timber. Is the measurement within the tolerance of -/+ 0.5mm? Full marks Is the measurement within the tolerance of -/+ 0.6mm to -/+ 0.9mm? ½ Marks Zero marks over -/+ 1.0	<i>Method</i> <i>Internal and external measure rods/sticks are to be used as appropriate. Measuring go-no-go sticks are to be pre-made.</i> <i>Before commencing marking it must be agreed precisely where the measurement is to be checked if not clear on the assessment sheet. This cannot be changed once marking on the criteria has started.</i> <i>One judge holds the rod while another checks it is vertical/horizontal before all judges confirm the result.</i> Height measurements may be taken at all 4 corners or the SCM marking group may randomly choose 1 or 2 corners to evaluate. This must be decided before any marking has started. Alternatively, the Test Project developer can choose the locations to measure. It will be used a benchmark ruler which competitor can check their rulers against and sign to confirm.	Full marks ½ Marks Zero marks

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
B Conformity To Drawing (During competition)	4 & 2	<i>Have any non-conformities to drawing issues been identified during the competition which will not be visible after the project is completed?</i> <i>Full deduction for non-conformity, which either affects the strength of the final project or is a shortcut reducing the work required</i> <i>Full deduction</i> <i>For minor non-conformity, which would not affect the stability of the final project and is not a reduction in work</i> <i>e.g., an additional lemello/domino/drill hole cut is not a big issue if it is unseen once the project is finished.</i> <i>½ mark deduction</i>	• Examples of non-conformity: Any substantial alteration of a joint after marking that would weaken, ease assembly or strengthen a joint (is • A deduction is given for each incorrect interpretation of the drawing. • A suspected shortcut has been used. • Only one deduction is given if the multiplied error is clearly the result of a single machine setup. Any deductions will be recorded, and the error named and kept by SCM for release after C4. Two or more experts are to witness the nonconformity issue and bring it to the attention of the SMT to clarify if marks will be deducted. If it is the SMT's own competitor, the SCM and/or EL for assessment will stand in. If still contested, then it will be put to the vote of all experts. Judges are to witness the CIS upload.	Zero per error

B Conformity To Drawing (After completion)	4 & 1,3	<i>After completion of the competition, have any conformity to drawing issues been identified on the show/visible faces?</i> <i>After completion of the competition have any conformity to drawing issues been identified on the Nonshow/non-visible faces?</i>	None conformity could include the following: Door hinged opposite to plan. : Joints /grooves in the wrong place. : Tapers or mouldings different to plan. : Machining faults such as mortices in the wrong place/ biscuit cuts coming through etc (These error should not be marked down on Aspect F Surfaces) Full mark deduction for Major, non-repairable errors that affect the overall appearance of the piece to the point of rendering it unsellable. ½ mark deduction for minor errors on show faces ½ mark deduction major errors on non show faces ½ mark deduction for well done repairs that would not affect the sale of the final project No deduction for minor errors on non show faces Before C1 experts will be informed of non-show surfaces which will only have ½ mark deduction. There could be different assessment teams for each of the above (show & non-show faces). • <i>Single mark deduction for wrong set up of the machine leading to multiple errors.</i> <i>Note - a non-completion is not a non-conformity issue, for example if a moulding could still be added without damaging the item is a non completion no conformity.</i>	½ mark deduction per error
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Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
			<i>Note – if by not doing something it makes them making of the project easier then this can be a non conformity and then the joint made easier will also be marked down. For example the taper on the legs is missing then its one non conformity deduction and any joint made easier with all be marked down on each joint.</i> <i>After the competition conformity <u>must be the last assessment to be completed</u> to avoid double marking and by then the marking scheme is visible for all.</i> The number of biscuits/screws etc shown on the drawing should be a minimum and if a competitor uses more this should not be penalised but if the position of a screw is clearly marked on the drawing this could be a minor error if on a show face. <i>If a repair is well done and would not after finishing affect the final sale of the project after finishing, then a 1/2 mark deduction only is applied</i> Notes If a nonconformity issue has already been penalized by another marking team, then it should not be double marked/penalized - so no deduction is made. For example, if a mortice has been over-cut and filled it should only be penalized once.	

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
B Conformity to Drawing (As per the assessment scheme)	1 & 2, 3, 5	Has the identified task on the assessment sheet been completed satisfactorily?	For example, has the carcass been attached to the leg frame correctly.	Zero as pt assessment sheet
B Conformity to Drawing Waterfall of carcass veneer	3&2	Does the veneer grain on the carcass follow around the sides and the top?	Visual check viewed from 1m away. The waterfall should be as close as reasonably expected given that some materials will be lost in the cutting process.	Marks awarded
B Conformity to Drawing Curved element produced using jigs on the spindle	3 & 4,5, 6	Is the curved component correct as per the template produced by CNC	Visual check only. The expert holds the template against component to check if it is visually correct.	Marks awarded

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
C Face Marking and Joints before Gluing. (Face marks)	2 & 1 ,4,5	Are the face marks present and clearly usable to identify the correct position and orientation of the components?	<i>Any usable face/making system allowed.</i> Triangle, traditional. Face/marks must be clear, consistent, and readable by judges. If required, the compatriot Expert may be asked to explain the markings to the SMT group before assessment begins. Triangles do not have to line up, face/marks can be drawn on tape for a clean result. Warning - a number system may not provide full information. Full marks are awarded if all judges can easily assemble components using the face marks. If the face marking is unreadable the parts will be returned to a competitor for clarification with the assistance of the compatriot Expert. This will not affect the marking on the joint, but the face mark marks will be deducted.	C Face Marking and Joints before Gluing. (Face marks)

C Face Marking and Joints before Gluing. (Pick-up test Can be used on mortice, tenons bridles as a standalone assessment but only on tenons of 30mm or over in depth)	5 & 6	Does the tenon pick up from both sides in the pick-up test? Does the tenon only pick up from one side in the pick-up test? Does the tenon not pickup from both sides in the pick-up test?	Pickup test To be used on mortice, tenon and bridle joints as a stand-alone assessment (Cannot be used on mitre joints) The joint is to be pushed together at a 45-degree angle from each side to check that the tenon is not tapering and is the correct size.  The above picture shows a joint that would be awarded full marks. Method One judge carries out the test in a clear view of the other judges.	Full marks ½ marks awarded NOT TO BE USED ON JOINTS WHERE THE FIT IS MARKED BY A JUDGMENT MARK. This is to avoid double marking.
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C Face marking and Joints before Gluing (Carcass joints)	5 & 6	Have the biscuits/lamello, Dominos been cleanly machined, spaced correctly and the number is the same as on the drawing or more. Competitor will place on their trolley/cart and move to just outside of their area and inform Expert that its ready for assessment.	Full marks: The correct number of joints, cut cleanly and spacing looks appropriate and/or as per drawing. No repairs or double cuts. Half marks: Correct number of joints, cut cleanly and spacing looks appropriate and or as per drawing. Repairs allowed. Zero marks awarded: Incorrect number of joints and/or spacing not appropriate or as specified in the drawing. Mistakes and not repaired or poorly completed Biscuit/ lamello is in the wrong place, and the competitor glues a lamello inside the slot, trim it flush and redo the slot at the right place then no marks lost If there is no repair or too many slots at the same place, the competitor should lose points because it is affecting the strength of the joint. Method. Visual check before gluing that all joints are cut correctly, competitors to place components on their trolley so that all jointing cuts are visible and move to just outside of their area and notify expert it ready for visual check. Expert do not pick up the carcass item during assessment as mitres on MDF boards are very easily damages so it's just a visual check on the trolley/cart.	Full marks Half marks Awarded Zero marks
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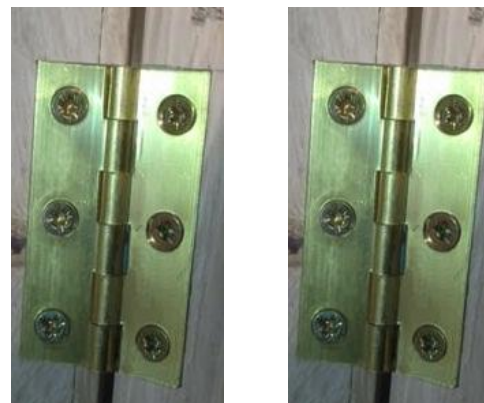
Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
			There is no need for experts to observe the glue up as this ties up experts for a long time and often required at to benches at the same time and put unnecessary pressure on competitors. If it's noticed while experts are walking around a competitors does not put it a biscuit then we can mark this down on conformity.	
C Face Marking and Joints before gluing (Cross Halving)	5& 6	Do both halves of the halving joint pick up? Does only one side of the halving joint pick up?	PICK UP TEST FOR CROSS-HALVING JOINT Fit the timber section away from the joint into the cut slot on each side (the aim is to test fit each slot against the timber section) Full marks: Picks up on both slots. Half marks: Joint picks up from 1 side only. Zero: Does not pick up on either side. Notes Preferred method of marking Not to be used if the joint is marked using a judgment mark. This is to avoid double marking.	Full marks 1/2 marks

E Movable parts & Fittings (Drawer rack Up/Down)	6 & 5	Is the rack from up & down less than 1.5mm? Is the rack from up & down between 1.5-3mm? Is the rack from up & down more than 3mm?	 Use measuring rod Method One Judge to pull the drawer ½ way out. Then holding the drawer in the centre moves it up and down to assess movement (rack). While another holds a straight edge above or below with a ruler resting on the drawer to check movement, done in the centre or as near as possible. No more than 2mm allowed (tolerances subject to discussion and may vary depending on the drawer size) • Can be repeated so all judges can see the result A value between 1 & 2 % <u>(The tolerance may vary. EG. if it's a large drawer then it could be increased to 2mm)</u> Judgment mark on operation should be used in conjunction with this measurement mark.	Full marks ½ mark Zero
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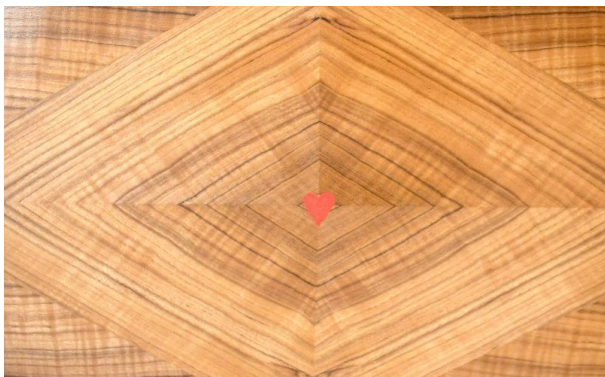
E Movable parts & fittings (Drawer Rack Side to Side)	5 & 6	Is the rack from side to side less than 1.5mm? Is the rack from side to side between 1.5-3mm? Is the rack from side to side more than 3mm?	 Use a measuring rod (rack L/R) Method One Judge to pull the drawer ½ way out. Then holding the drawer in the centre moves it side to side to assess movement (rack). While another holds a straight edge on the side with a ruler resting on the drawer to check movement, done in the centre or as near as possible. No more than 2mm allowed (tolerances subject to discussion and may vary depending on the drawer size) Can be repeated so all judges can see the result. Value between 1 & 2 % <u>(The tolerance may vary e.g. if it's a large drawer then it could be increased to 2mm)</u> Judgment mark on operation should be used in conjunction with this measurement mark as assessing different skills.	Full marks ½ mark Zero
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Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
E Movable parts & fittings (Hinge test)	6 & 5	With the door fully closed, is the gap on the hinge side of the door even along its full length as per the drawing? Is there some small variation of the gap along the hinge side of the door or does look a little large or small as per the drawing and could be reworked? Is the gap on the hinge side of the door very uneven or much to large or small and would require major reworking to fix?	Method With the door fully closed judges would visually assess if the gap were even and to the dimension stated on the drawing. Judgment mark on operation should be used in conjunction with this and another measurement mark on door assessment.	Full marks ½ mark Zero

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
E Movable parts & fittings (Door position when closed to assess both twist and resting position)	6 & 5	Does the door rest flush/as per drawing and tight against the door stop? Is the door not sitting correctly and or has a small twist but could be fixed? Is the door twisted and or does not rest in the positions shown on the drawing and would require re making of the door?	Method With the door in the fully closed position each judge shall The marking team should assess a few projects to set the standard before commencing marking. (Random projects -visual only). Pressing top check movement	Full marks ½ mark Zero
E Movable parts & fittings (Falls with Stay attached)	6 & 4	Does the fall rest in the 90 deg position or as intended by the design? Is the fall not resting correctly in the 90 deg position or as intended by the design and the stay would require-positioning?	Method Judges open fall to its fully opened position and visually assess its resting position.	Full marks Zero

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
E Hinge fitting Cutting in of the hinge	6 & 4	Is the hinge correctly fitted? Is the hinge tight on the bottom and but has a small gap on the sides and all screws present and would not require resetting? Are the gaps on all sides and would require resetting?	Are there no gaps on the top or bottom of the hinge and only a small gap on the side of the hinge. The hinge is not spaced /packed, Outside knuckle even. Method Open door fully visual check only. 	Full marks ½ mark Zero
Screw on hinges			All screws are present and heads flush with hinges. If screws are a little large/small, are they evenly spaced above/below the hinge face.	

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
F Veneering Conformity to design	3 & 5	Does the veneered panel match the design plan?	Design and grain direction correct and if relevant does it line up with the corners?	Full marks
		Does the veneered panel match the design plan, but the corners are out of line?	Visual check only - not to be measured.	½ mark
		Is the veneer panel layout and grain direction incorrect?		Zero

F Veneering (Use of veneer to create a design)	3 & 5	Does the orientation of the veneer grain create the required design to an acceptable standard to realise the design? Is the veneer orientation incorrect and does not match the design?	 Correct layout The walnut grain should be creating a box as far as the veneer grain allows, this does not.  Method If possible, we can explain the expectations of grain alignment on final veneer design. Visual check only and viewed from 1 m away.	Full marks Zero
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H H&S	1	Has the competitor received two warnings for the same H&S violation?	H&S statement • Use of safety boot used at all times. • Hearing protection to be used at all times by competitors during competition No hearing protection with electrical elements are allowed. • Approved eye protection must be used at all times when using power tools that remove material. Eye protection may only be removed if using hand tools (non-powered) or performing layout work at their bench. • Face masks must be used during all sanding operations including when the sander has extraction. <u>Method</u> 1st Warnings - No marks deducted. • When a warning / yellow card is given. The Competitor must be informed of what the violation was for. • If a competitor makes a different H&S violation, then there is a new warning given. And again, they must be informed what the violation was. • Mark deducted only if they repeat an H&S violation for which they have already been warned for. A violation has to be noted by at least 2 members of the H&S assessment team, if one of their competitors is involved then SMT and assessment also have to note it. The SMT must be notified and recorded in the skill binder for upload end of C4 to CIS.	Mark deducted
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H H&S Jig Making for ring fence on the spindle	1 & 3, 4,	Has the spindle moulding jig been made correctly to ensure it's safe to use?	Elements to check: Components correctly screwed together. Toggle clamps set up correctly. Is handguards in place. Is the lead-in and take-off sufficient? Are the stops in place. Has nonslip abrasive paper been added in suitable places? Is the component secure in the jig? Note This has to be checked by the assessment team before use on the spindle. If it's not up to standard, then the competitor will be told what the issue is, and they will have to resolve before using it. 	Full marks
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Videos:



<https://youtu.be/RNSQAEsnkc>



https://youtu.be/TDgJNIDru_s



<https://youtu.be/4R19JDa64Dg>

Aspect	WSOS section as per TD	Question	Descriptor	Points/marks
I Materials Replacement materials	5	Has the competitor requested replacement pieces of timber after the start of the competition?	This has to be recorded at the time of the replacement component being handed out. If a natural fault is noticed after the start of the competition, then this should be brought to the attention of the SMT who will decide if a replacement is allowed without a deduction. The SMT must be notified, and the replacement recorded in the skill binder for upload end of C4	Mark deducted

H H&S	1	Has the competitor received two warnings for the same H&S violation?	H&S statement • Use of safety boot used at all times. • Hearing protection to be used at all times by competitors during competition No hearing protection with electrical elements are allowed. • Approved eye protection must be used at all times when using power tools that remove material. Eye protection may only be removed if using hand tools (non-powered) or performing layout work at their bench. • Face masks must be used during all sanding operations including when the sander has extraction. <u>Method</u> 1st Warnings No marks deducted. • When a warning / yellow card is given. The Competitor must be informed of what the violation was for. • If a competitor makes a different H&S violation, then there is a new warning given. And again, they must be informed what the violation was. • Mark deducted only if they repeat an H&S violation for which they have already been warned for. A violation has to be noted by at least 2 members of the H&S assessment team, if one of their competitors is involved then SMT and assessment also have to note it. The SMT must be notified and recorded in the skill binder for upload end of C4 to CIS.	Mark deducted
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Judgement

Judgement is used to assess the quality of performance about which there may be small differences of view when applying the external benchmarks.

The Resources section in the table below is for all kind of resources: a link to a YouTube video or a website, a picture, a reference to a book, etc. It needs to be as detailed as possible.

Generic rules:

The assessment group comprises three Expert + 1 Expert. It is forbidden for Experts to assess their own compatriot Competitor.

The deviation of the three Experts may not exceed ONE mark: As long as the three Experts judge within 1 mark, the result can be determined for entering into CIS. If Experts have a larger deviation than 1, there must be a brief discussion referenced to the descriptors and a new vote.

Aspect C Joints before gluing (Surfaces Bridle and mortice & tenons)

Method & Notes

3rd All judges to inspect both parts of the joint.

When more than one joint is being marked, follow the above process for all joints at the same time.

We are only accessing surfaces of the joint that will not be visible after gluing. We are not assessing the alignment of two parts as this would be a surface finish.

Surfaces of the joint should not be sanded to improve the appearance

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	Joint has over cuts, under cutting, surfaces very rough, mortice rough <u>Remaking required.</u>	
	1	Joint surfaces rough areas, under cutting or knife marks. Mortice with rough surfaces. usable with little reworking.	
	2	Joint surfaces clean, small area of rough surfaces, some under cutting. Mortice has little roughness and joint can be glued straight away	
	3	Joint surfaces clean, odd mark ok /no under cutting. Mortice clean. Joint can be glued straight away.	 

Aspect C Joints before gluing (Fit of bridle and mortice & tenons)

Method & Notes

Fit *(two methods, judgment or measurement, only one type can be used on a joint to avoid double marking)*

Only one judge to carry out fitting

Joint to be pushed in to within 5mm of the shoulder but not up to the shoulder.

Expert to visually represent how tight the fit. All judges can inspect joint when together. Can be knocked apart.

Surfaces of the joint should not be sanded to improve the fit of the joint

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	Joint <i>drops in or will not push together</i> Even under a large amount of pressure. Signs of cracking the joint when pushed in.	
	1	Joint <i>pushed together by hand with noticeable change of pressure.</i> All judges can inspect joint when together. Tap the joint apart is acceptable. Joints tight but could be quickly made to fit better. Joint needs to go together at least half way in.	
	2	Joint <i>pushed together by hand and pressure changes a little though its travel.</i> All judges can inspect joint when together. Tapping joint apart is acceptable.	
	3	Joint <i>pushed together by hand and even pressure through its travel.</i> All judges can inspect joints when together. A light tap can be employed to take the joint apart with a rubber mallet.	

Aspect C Surfaces Cross Halving

Method & Notes

All judges are to inspect both parts of the joint.

When more than one joint is being marked follow the above process for all joints at the same time.

Surfaces on non-visible surfaces of the joint only. We are not assessing the alignment of two parts as this would be a surface finish.

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	<i>Joint has over cuts, under cutting, surfaces very rough, <u>Re-making required</u>.</i>	
	1	<i>Joint surfaces have rough areas, undercutting or knife marks.</i>	
	2	All joint surfaces clean, with small area of rough surfaces, some undercutting and a little roughness.	
	3	<i>All joint surfaces clean, odd mark ok /no undercutting.</i>	

Aspect C - Fit Cross halving joint.

Method & Notes

Either Measurement or Judgment marking to be used. Not both to avoid double marking

Joint to be pushed in to within 3mm of the shoulder but not up to the shoulder.

Expert to visually represent how tight the fit. All judges can inspect joint when together. Can be knocked apart.

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor
5 & 6, 4	0	Joint <i>drops in or will not push together</i> even under a large amount of pressure. Signs of cracking the joint when pushed in. Side-to-side movement when together. Would require reworking.
	1	Joint <i>pushed together by hand with a noticeable change of pressure.</i> All judges can inspect joint when together. Tapping the joint apart is acceptable. 3/ Joints tight but could be quickly made to fit better. but they do need to go together at least 3/4-way in.
	2	Joint <i>pushed together by hand and pressure changes a little</i> though its travel. All judges can inspect joint when together. Tapping joint apart is acceptable
	3	Joint <i>pushes together by hand with even pressure</i> through its travel. All judges can inspect joint when together. A light tap can be employed to take the joint apart with a rubber mallet.

Aspect C FIT Bridle joints Single, twin & mitre

Method & Notes

1st Joint to be pushed together at an angle of 45% from each side to test if the tenon is tapering and the correct size.

Then the joint is to be pushed into within 5mm of the shoulder but not up to the shoulder. All judges can inspect joint when together.

You should not be marking gaps which will be visible after gluing.

We are not assessing the alignment of two parts. This would be a surface finish issue or joints after.

Surfaces of the joint should not be sanded to improve the fit of the joint

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	Joint does not pick up and <i>joint drops in or will not push together.</i> <u>Remaking required</u> Even under a large amount of pressure, it does not fit together. Excessive spreading or cracking of joint.	
	1	Joint only picks up from the bottom shoulder on both sides of the tenon. <i>Joint pushes together by hand but has a noticeable change in pressure.</i> Usable with a little reworking. All judges can inspect joint when together. Some spreading but would clamp up well. Joints tight but could be quickly made to fit better but they do need to go together at least halfway in.	

2	Joint picks up from the bottom shoulder and both sides of the tenon <i>pushes together by hand and pressure changes a little</i> through its travel. <i>Joint can be glued straight away.</i> Little sign of spreading of the sides. All judges can inspect joint when together.	
3	Joint picks up from the bottom shoulder on both sides of the tenon. <i>Joint pushes together by hand, even pressure though its travel.</i> No sign of spreading of the sides. <i>Joint can be glued straight away.</i> All judges can inspect joint when together.	

Aspect C Surfaces Dovetails Thorough, laps (blind) and finger joints

Method & Notes

The appearance of components will be looked at by judges before fitting the joint together.

On appearance, you should only be assessing the surfaces that cannot be seen after gluing, shoulder line and front of a lap (blind) dovetail as this could be clamped up when gluing.

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor
5 & 6, 4	0	Rough surfaces, undercutting would require remaking. Very rough, the bottom of joint and shoulders undercut, more than 3 areas of break out or torn grain, and a number of knife marks showing on visual timber. Excessive undercutting on the back and bottom.
	1	Rough areas and some undercutting. Surfaces rough, the bottom of joint and shoulders undercut, more than 2 areas of break out, knife marks showing. On the lap some under-cutting on the back and bottom. Saw cuts marks on the sides of the tails and pins are acceptable
	2	Dovetails have Few rough areas and a bit of undercutting. Surfaces a little rough or one small area of torn grain, up to 2 small breakouts, small knife marks, and little undercutting. Little undercutting on the back of laps but none on the bottom. Saw cuts marks on the sides of the tails and pins are acceptable
	3	Dovetail clean on all surfaces, few marks, no undercutting on the shoulder line, no tear out on should line. Tail and lap cut cleanly on all surfaces, Saw cut marks on the sides of the tails and pins are acceptable with very little or no breakout or torn grain, chips, or minimal/no undercutting - especially on the lap. Shoulder on tails clean and minimal undercutting or torn grain. Saw cuts marks on the sides of the tails and pins are available

Aspect C Fit Dovetails thorough and laps (blind)

Method & Notes

Vice required to hold pins component when fitting the joint.

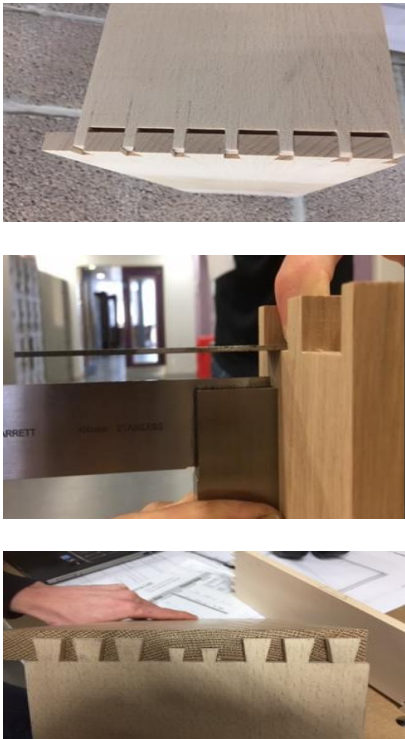
1. Only one expert will test the fit in full view of the other judges. The expert will push the joint together by hand and needs to clearly show when fitting the joint if one side is looser than the other. *(With dovetail judges cannot request it to be fitted more than twice).*

The joint should not be pushed home but around 2-3mm off the base.

Once pushed in all the judges can look at the joint before the same judge removes the tail while still in the vice. A light tapping is acceptable on removal.

Any grooves need to be run before handing in for marking

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	<i>Excessively loose or tight requires remaking.</i> It cannot be pushed together beyond halfway without cracking. Pressure changes are very noticeable and or a lot more pressure is required on one side than the other. Joint either drops in or is too tight to fit in.	
	1	<i>Lose or tight fit, the pressure required changes noticeably, tighter on one side than the other.</i> Throughout travel, a lot more pressure required on one side than the other. It must travel at least 70% of the way in by hand pressure, tapping the joint apart is ok.	

	2	<i>Little loose or tight, the pressure required changes and varies across joint.</i> Changes throughout its travel, one side has less pressure required than the other side, indicating that not all faces are making full contact. Also, it has to push in too within 3-5mm of the shoulder. A light hammer tapping is ok for removal.	
	3	<i>Smooth hand pressure and pressure even across the joint, making contact on all faces.</i> Also, it must push within 3-5mm of the shoulder. Tapping joint apart with a small hammer and block is ok.	

Aspect C Surfaces Dowel joints

Method & Notes

Appearance of components will be looked at by judges before fitting the joint together. Dowels can be left on one side of the joint but both dowels should be on the same side before fitting.

WSOS section as per TD	Points	Descriptor	Resource
5 & 6, 4	0	Appearance before fitting. <i>Rough, uneven depth, burning. Off centre. Requires remaking or reworking.</i>	
	1	Appearance before fitting. <i>A Little rough, depth varies. Little off centre. Some burning of the hole.</i>	
	2	Appearance before fitting. <i>Mainly clean, round, and are centred on the timber, with even depth and little burning of holes.</i>	
	3	Appearance before fitting. <i>Very clean, round, and are centred on the timber, with even depth.</i> <i>No burning of the holes.</i>	

Aspect C Fit Dowel joints

Method & Notes

Only one expert will test the fit in full view of the other judges. The expert will push the joint together by hand and needs to clearly show when fitting the joint if one side is looser than the other. The joint should be fully fitted to ensure that the holes have been drilled to the correct depth and that the joint sits square.

WSOS section as per TD	Points	Descriptor
5 & 6, 4	0	Joint either <i>drops in or cannot be pushed fully together, requiring remaking or adjustment.</i> <i>Not square or only square and sits twisted considerably.</i>
	1	The joint is <i>tight or loose but does push home. Pressure may change</i> throughout its travel. Must push down full. If not totally square can be aligned with a little twist. Light tap with a hammer to take apart is fine.
	2	<i>The joint is a little tight or loose, pressure is even though out its travel and across the joint pushes home.</i> When fully fitted it sits square with very little twisting movement possible. Light tap with a hammer to take apart is fine.
	3	The Joint <i>pushes together with gentle pressure, even though out its travel and across the joint, and pushes home.</i> When fully fitted it sits square with no twisting movement possible. Light tap with a hammer to take apart is fine.

Aspect D - All joints after Gluing

Judges need to be awarding excellence and should be happy to award 3s, think of a 3 as being in the top 33%, it does not have to be perfect.

When judging the joints after gluing the principal **close to --or beyond repair** needs to be considered, e.g. gaps/faults on show faces need to be marked down more than on faces that are hidden when viewing the project as a customer would.

Aspect D Tenons/Bridles/dowel joints

Method & Notes

Two judgment methods are available but only one can be used on a single joint, not to avoid double marking.

Faults within 10mm of the joint when either the joint was made or assembled will be marked down under this criterion. If the fault is a surface preparation over-sanding or the glue not cleaned off, then it's marked under surfaces.

All judges to inspect the joints being assessed.

Priority weighting should be given to the faces of the joint which are clearly visible when looking at the test project as when a customer would view the project.

E.G. the back of a tenon joint which would not be seen unless looking under the project should carry less importance than those faces which are show surfaces.

WSOS section as per TD	Points	Descriptor	Resource
6,3,4,5	0	<i>Beyond repair would require remaking.</i>	
	1	<u>1/Shoulder lines.</u> <i>Shoulder closed or short narrow glue lines on show face. Hidden during finishing.</i> Gaps or glue lines on hidden shoulders ok. <u>2/Other visible elements of the joint e.g., on a bridle or through tenon.</u> <i>Glue line/gap on show faces, hidden during finishing.</i> <i>Gaps/glue lines on non-visible faces.</i>	

	2	<u>1/Shoulder lines.</u> Shoulder closed on show face. Gaps or glue lines on hidden faces ok. <u>2/Other visible elements of the joint e.g., on a bridle or through tenon.</u> A little gap & narrow glue lines if show element, short glue lines or gap if not visible.	
	3	<u>1/Shoulder lines</u> Shoulder closed on show face. A small gap or glue line on hidden faces. <u>2/Other visible elements of the joint e.g., on a bridle or through tenon.</u> Closed if show element, very small glue line or gap if not visible.	

Aspect D Tenons/Bridles/dowel joints

Alternative judgement marking of joints after gluing using Glue lines one on individual joints or by face

Method & Notes

Faults within 10mm of the joint made when either the joint was made or assembled will be marked down under this criterion. If the fault is a surfaces preparation over-sanding or the glue not cleaned off, then it's marked under surfaces.

All judges to inspect the joints being assessed.

Priority weighting should be given to the faces of the joint which are clearly visible when looking at the test project as a customer would see the project.

e.g. the back of a tenon joint which would not be seen unless looking under the project should carry less importance than those faces which are show surfaces.

For use with through tenons and bridle joints only. It will be for the SCM to decide how many glue lines there are on a joint or face and enter this into the marking scheme.

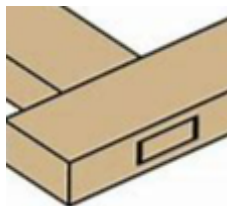
All Judges to inspect joint to assess number of glue lines. (0-6 possible).

Through tenons (not marking top and bottom)

4 around the end of the through

Tenons and 2 on the shoulders.

Total 6



Bridle joints (not marking very short joint)

2 on the end, 2 on the top and 2 on the shoulder.

Total 6



Twin tenons (not marking top and bottom)

4 on the end

2 on the shoulders.



All Judges to inspect joint to assess number of glue lines 0-5 possible.

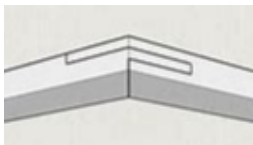
Mitre bridle joints (not marking very short joins)

2 on the end

1 on the top

1 on the shoulder

1 on the mitre



Twin Bridle joint (not marking very short joins)

4 on end

4 on top

2 on shoulder

Total 10



Judgment mark by face using glue lines on multiple joints

SCM to identify number of glue lines per face

WSOS section as per TD	Points	Descriptor	Resource
6,3,4,5	0	More than 4 glue lines or any more than 0.5mm present	
	1	3-4 glue lines	
	2	2 glue lines	
	3	0 to 1 narrow glue lines	

Aspect D Cross Halving joints

Method & Notes

All judges inspect the joints being assessed.

Priority weighting should be given to the faces of the joint which are clearly visible when looking at the test project as a customer would see the project.

WSOS section as per TD	Points	Descriptor	Resource
6,3,4,5	0	<i>Beyond repair and would require remaking.</i>	
	1	<i>Closed or short narrow glue lines on the show face. Hidden during finishing, gaps or glue lines on hidden areas ok.</i> <i>Closed on show face. Gaps or glue lines on hidden faces ok</i>	
	2	<i>Closed on show face. Gaps or small glue lines on hidden faces ok.</i>	
	3	<i>Closed on show face and only very small gaps or glue line on hidden faces.</i>	

Aspect D Dovetails and finger joints

Method & Notes

All judges to inspect joints being assessed.

Priority weighting should be given to the faces of the joint which are clearly visible when looking at the test project as a customer would see the project.

Inside the drawer corner priority and top edge second, so on

WSOS section as per TD	Points	Descriptor	Resource
6,3,4,5	0	1/Shoulder (inside and outside) Gaps or large glue lines on show faces & or on non-visible faces. 2/ Tails many large gaps. 3/Beyond repair would require remaking.	
	1	1/Shoulder (inside and outside) <i>Shoulder closed or repairable</i> during finishing the <i>top /inside of the drawer is the priority face.</i> Some gaps or glue lines. 2/ <i>Tails some glue lines on the side the of tails.</i> <i>(On laps (blind) some gaps).</i>	
	2	1/Shoulder (inside and outside) <i>Shoulder closed; top/inside is the priority face. narrow gap or glue lines on other faces.</i> 2/ <i>Tails, One or two short & narrow glue lines on the tails.</i>	

		(On laps (blind) only very small gaps.)	
	3	1/Shoulder (inside and outside) <i>Shoulder closed top/inside priority</i> faces. <i>Narrow and short gaps or guidelines on other faces.</i> <i>2/ Tails, very short & narrow glue lines on the tails.</i> <i>(On laps (blind) closed fully at end.)</i>	

Aspect D CARCASS Joints

Method & Notes

All judges to inspect the joints being assessed.

Priority weighting should be given to the faces of the joint which are clearly visible when looking at the test project as a customer would see the project.

EG inside joints are not as important as visible joints, assessment could be split into external and internal if required.

WSOS section as per TD	Points	Descriptor	Resource
6,3,4,5	0	Gaps on faces that <i>would require reworking beyond repair.</i>	
	1	<i>Good joints on all show joints and nothing would affect the final piece.</i> <i>Gaps on none show areas</i> , e.g. inside of drawer box.	
	2	<i>All joints</i> which would affect the sale of the final piece are <i>tight or very quickly sorted before finishing, small gaps on less important faces.</i>	
	3	<i>All show joints</i> which would affect the sale of the final piece are <i>tight, with a few small gaps on less important faces.</i>	

Aspect E

Judges need to be awarding excellence and should be happy to award 3s, think of a 3 as being in the top 33%, it does not have to be perfect.

There are three different making criteria for a drawer fit as it's a critical element of a cabinet maker's skills. All three criteria should be used. The concept of close to or beyond repair should also be applied to the fit of movable parts. E.g. a tight-fitting drawer or door is better than a loose drawer or door.

Aspect E Drawer operation

Method & Notes

To be used in conjunction with measurement marks on drawer rack.

The criteria to achieve a glide fit would normally have a value of 2% as it's a critical skill assessing many combined elements.

Load the drawer with 0.5 kg piece of MDF. Pull the drawer out $\frac{3}{4}$ of the way, set this distance by a rod so every competitor is the same. (This may change a little depending on the width of the drawer).

All judges should use the handle of the drawer and gently push it fully home, opening and closing as many times as required so as to be able to come to a fair assessment of the drawer's operation.

WSOS section as per TD	Points	Descriptor	Resource
3 & 4,5,6	0	<i>The drawer does not fit or will not close, and lots of work is required to fix it.</i>	Loaded drawer 

	1	<i>Slides closed or almost, it can be fixed.</i>	
	2	<i>Slide fully closed but pressure required varies.</i>	
	3	<i>Slides to fully closed with even pressure.</i>	

Aspect E Drawer/slide on mechanical runners

Method & Notes

With a loaded drawer/slide experts operate the drawer/slide using the handle as many times as required to make a fair assessment of the drawer/slides operation.

Could be a mensurement mark

WSOS section as per TD	Points	Descriptor	Resource
3 & 4,5,6	0	Would require the removal of runners and resetting.	
	1	Drawer runners would require a little adjustment but are achievable without the removal of the runners.	
	3	The drawer/slide operated easily throughout its travel and closes very close to the correct position and almost flush with the carcass as per the drawing.	
	3	The drawer/slide operated easily though out its travel and closes in the correct position, flush with the carcass as per drawing.	

Aspect E Drawer gaps on all sides for use with side-hung drawers or mechanically run drawers only

Method & Notes

Visual inspection by expert group. Close the drawer fully allow it to settle into position. Check for slop by wiggling side to side and then allow it to settle.

There is a difference between the appearance of a gap and a broken edge that looks like a gap.

WSOS section as per TD	Points	Descriptor	Resource
3 & 4,5,6	0	Gaps are larger than specified and <i>more or less than 50 % are uneven in appearance.</i> Tapered in length.	
	1	<i>Gaps are similar however larger/smaller than specified.</i> Maximum 50 % larger than plan specified.	
	2	<i>Marks awarded if gaps are similar.</i> However smaller than plan specified. Drawer still functions with clearance.	
	3	Excellent visually or a very small variation. May be related to a broken edge.	

Aspect E Door/falls operation

Method & Notes

Both Measurement and Judgment marking should be used as both are assessing different aspects of the critical skill of hanging doors & falls

This judgment mark does not include assessing the closed-door position just its operation. A 2% value is recommended as this is a critical skill.

Holding the door by the handle fully open the door and with one finger push the door fully closed.

All judges are to try this before marking.

WSOS section as per TD	Points	Descriptor
3 & 4,5,6	0	The door does not close, considerable work is required to close, and or a noticeable spring back on the door when closed. There would be visible strain on the butt hinges. Would require remaking.
	1	The door closes but does not move freely and binds a little, not flush but all repairable . More than 0.9mm out of flush on one or more surfaces. Little spring back allowed. Visual checks only.
	2	The door swings freely though out its travel but the pressure required changes. It stays closed and flush to within 0.9mm. Visual check only.
	3	The door swings freely though out its operations with light pressure . Once closed it should be closed flush with the frame around the door on all sides to within 0.5mm and stay there. Visual check only.

Aspect E Door Gap

Method & Notes

With door fully closed each judge will visually assess the door gap on the three non-hinged sides. They would be looking to assess it's per drawing. They should not consider the hinged side in this assessment.

WSOS section as per TD	Points	Descriptor
3 & 4,5,6	0	Gaps, uneven and would require remaking.
	1	Some small variation on gaps on 2 sides but could be corrected easily. It would not require re-making.
	2	Gap on 2 sides is correct with some small variation on 3rd side. This could be corrected easily and would not require re-making
	3	Gap on the 3 none hinged sides are even and as per drawing. Visual check only.

Aspect F Veneering

Method & Notes

Visual check only

WSOS section as per TD	Points	Descriptor
3 & 4,5,6	0	<i>Gaps and chips, would require reworking before finishing.</i>
	1	<i>Small gaps and chips in corners that could be filled before finishing.</i> All joints are tight although 1 or 2 small gaps are visible along with a small corner chip
	3	All joints are tight, although 1 or 2 small gaps are visible along the joint line, but not in the corners and would not require filling before finishing
	3	All joints are tight although 1 or 2 very small gaps are visible. Nothing that would be an issue after finishing.

Aspect G SURFACES

Criteria: Ready to receive a finish

Judges need to be awarding excellence and should be happy to award 3s, think of a 3 as being in the top 33%, it does not have to be perfect. Faults within 10mm of the joint as a result of either making or assembly of the joint should not be marked down on surfaces to avoid double marking but if it's a fault created by sanding or something which should have been remove during sanding such as pencil marks, glue over spill it would come under surfaces.

Method & Notes

Marking by faces

E.G. front face, left side, right side and back inside as a whole, bottom, so can be weighted in the marking scheme by importance of the face e.g. front carries most marks, bottom and back least marks. Priority faces would need to be set for an individual project before hand by SCM and shared before competition, Experts agrees on what is show surface and useable surfaces.

Drawer and other elements could still be marked as one.

WSOS section as per TD	Points	Descriptor	Resource
7 & 5	0	Scratches / damage present on many surfaces which would <i>requires considerable reworking before finishing.</i>	
	1	<i>1/Show surfaces ready to finish but with issues. These could be fixed quickly before finishing</i> allowing for two small areas of roughness which could be coverup if finished <i>2/Hidden areas sanded and a few area not sanded.</i> Some roughness allowed - tear out/ roughness or damage but could be sorted.	

	2	1/Show surfaces ready to finish allowing only small issues fixable when finishing with two small areas of roughness which could be coverup if finished. 2/Hidden areas less well sanded but must have been sanded. Some roughness allowed tear out/ roughness or damage.	
	3	1/Show and hidden surfaces well sanded ready to receive finish with no tear outs/ roughness or damage. Few sanding scratches. End grain sanded with minimal milky end grain appearance.	

Aspect G Arises/broken edge

Method & Notes

As arises on corners needs to be marked by the element, EG leg frame, drawer, etc.

Priority weighting should be given to the faces which are clearly visible when looking at the test project as a customer would see the project.

Over arising is worse than under arising.

Experts agree on what is show surface and useable surfaces.

WSOS section as per TD	Points	Descriptor
7 & 5	0	<i>Not done or over rounded especially where a customer would feel.</i> Many arises in important areas are over rounded which would negatively affect the finished look of the piece.
	1	1/ All edges on the show faces and anywhere <i>a customer would feel them. There must be evidence of arises but not over rounded.</i> 2/ <i>Hidden area evidence of arises in most areas.</i>
	2	1/ Consistent arises, All edges on show faces and anywhere <i>a customer would feel must have a arises. but none over arised.</i> 2/ <i>Hidden, most edges have been arising</i> although small sharp areas ok
	3	1/ Constance arises, All edges on show and anyw <i>here a customer would feel them have a good arises.</i> 2/ <i>Hidden edges arised</i> but quality can be less than show faces.