worldskills

Standards and Assessment Guide

Joinery

v1.1

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 25 – Joinery

Measurement

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

The total marks allocated to measurement marking may vary from competition to competition depending on the Test Project.

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 column in the table below may include all kinds/formats of resources such as: a link to a YouTube video, a website link, an illustration, a photo, a reference to a book, and so on. It needs to be as detailed as possible to show the differentiation between 0, 1, 2, 3.

Generic rules:

The assessment group comprises three Experts plus one Expert who acts as the supervisor. The supervising Expert will replace an Expert in the marking group to prevent compatriot marking.

The difference of the three Experts' scores may not exceed 1. If this is the situation the Experts must re-score until there is a maximum difference of 1. As long as the three Experts judge within 1, the result can be entered into the CIS.

The total marks allocated to judgement marking may vary from competition to competition depending on the Test Project.

Reference to Assessment Strategies are detailed in the Technical Description:

4.9 Skill assessment strategy and procedures

To view Video Assessment examples, please use https://vimeo.com/ to access files.

Aspect ‘A’ – DRAWING AND SETTING OUT

This marking aspect checks the Competitor’s ability to set out the project. A drawing/set-out is only required in one projection of the project. This would possibly be the front elevation; however, dependent on the CIS, a section view (s) may also be included.

The marking criteria will include:
- **Line work;**
- **Joint details;**
- **Measurements**

NOTE: The Assessment of the Rod Board ONLY takes place at the end of C1 competition working time.

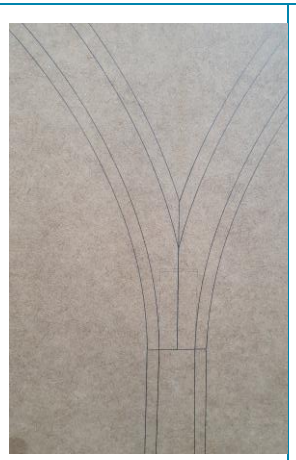
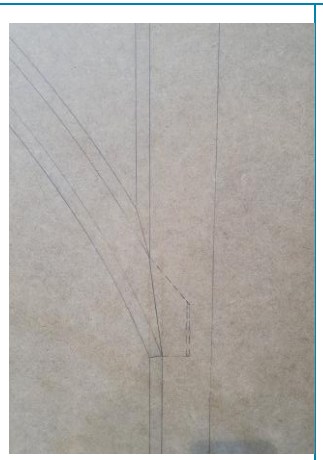
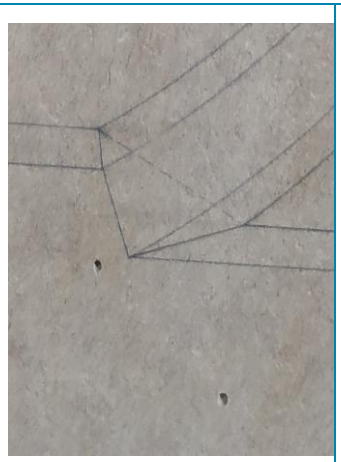
Points to consider when marking (note: CAD drawing A3 or full size is available to have alongside for clarity and reference) are as follows:

- Board is as clean as possible
- Observe greasy hand marks
- It is realistic to work from a Rod Board that has marks on it, it does not prevent the test project being made. An example can be drilled holes to secure geometric equipment to produce graphical detailing and establishing working set up for production; any holes made on the line, or any other detail of the drawing are not permitted.
- Lines are consistent
- Line types are present: object lines, hidden lines, break lines, etc
- Lines have the correct line weights
- Neatness
- Lines may extend from edge of layout in order to transfer angles, sizes, location of joints and other details to the work piece, but no more than 50 mm and must be neat and distinct from object lines (a lighter line density).

Judgement Marking – Rod Board	Method	Criteria for a 3	Criteria for a 2	Criteria for a 1	Criteria for a 0	Notes
NEATNESS: **Visual check to assess the aesthetics of the produced Rod Board; as near as possible replicating an Auto CAD plotted DWG, free from blemishes or any other visual imperfections. Cleanliness of the drawing, linework and marks on the drawing This does NOT include assessment of line weight or line type.**	This criterion is assessed FIRST, so no damage can occur prior to other assessment taking place. Observation by 3x Experts, managed by an assessment coordinator.	Drawing neatness is excellent - No marks present on the drawing	Drawing neatness is good - Little to no marks on the drawing present	Drawing neatness is acceptable - Marks on the drawing present	Drawing neatness is unacceptable - Dirty drawing	If the Rod Board produced is a good standard, then award the outcome as a '3' There is no valid reason to NOT award a '3' if it is justified. Assessment coordinator will check and ask for re-assessment if they are NOT happy with assessment. If there are inconsistencies in assessment, the CE/ SCM will exchange an Expert(s) if required.

Image Sample	All Experts view test project Rod Boards, in a random order, with bench number hidden from view and only accessible by assessment coordinator, who then records the score.					For clarity, further training will be provided at WS If there are clean drilled holes in the Rod Board to attach technical drawing and/ or equipment to produce curved templates or components, this is permitted as long as the holes are not on a line type. Holes should not spoil the surface of the board.

Judgement Marking – QUALITY OF LINEWORK:	Method	Criteria for a 3	Criteria for a 2	Criteria for a 1	Criteria for a 0	Notes
Visual check to assess the aesthetics of the produced Rod Board in terms of Lineweight; this assessing crispness and clarity of line work.	This criterion is assessed for line work. It is assessed for consistency to ensure all line weight is the same, ensuring there is little or no variation. Experts will visually check the line work without discussion or prompt, then a Judgement score given to the assessment coordinator.	Linework is to an excellent standard - Is of consistent line density with NO variation	Linework is to a good standard - Is of consistent line density with minimum mistakes	Linework is to an acceptable standard - Has inconsistent line density.	Linework is to an unacceptable standard - Is not consistent.	If the line work produced is all there and there is little to no variation, award the outcome as a '3' There is no valid reason to NOT award a '3' if it is justified. Assessment coordinator will check and ask for re-assessment if they are NOT happy with assessment. If there are inconsistencies in assessment, the CE/ SCM will exchange an Expert(s) if required.

Image Sample	All Experts view test project Rod Boards, in a random order, with bench number hidden from view and only accessible by assessment coordinator, who then records the score.					Measurement criteria for Linework will be assessed as a **YES/ NO**, to ensure it is present and everything is there as per DWG. This criterion is different to Judgment marking.

MEASUREMENT OF ROD BOARD **These criteria will check all measurement of the test project rod board and NOT the test project, as this will be assessed separate. This will include for example, height, width, radius, angle or other dimensions highlighted on CIS.**	**Points to consider when marking are as follows:** Measurements within 1.0 mm 100%; Measurements over 1.0 mm and up to and including 2mm 50%. Measurements over 2.0 mm 0%. See images for suggested measuring methods	Reference blocks can be held up against a datum, with a steel rule held against, to correctly check the measurement for Primary and Secondary measurements.	More complex Secondary measurements can be checked using the same method. Or can be checked with CNC templates and/ or gauge rod measuring sticks.	Curves can be checked using a CNC template, with any deviation being checked with a measure.		

CONFORMITY OF ROD BOARD	Joint details: Judgement and Measurement Marking Points to consider when marking are as follows: Joint geometry and proportions are shown accurately. Outcome will be a YES/ NO, or a reducing score as detailed in marking scheme.		Image shows an example of a non conformity, with a hidden detail line missing at the bottom of the mortice. This will be Test Project specific and according to the mark scheme.	This image may be what is shown and as required by CIS, so may be classed as correct.		

Aspect ‘B’ – INTERNAL JOINTS

Internal joints assessment is conducted before project glue, with up to 3x separate marking groups.

Each marking group will assess a particular set on internal joints according to the assessment structure, identified from 3x separate marking details identified on the test project:

A group will each assess internal fit of the joint according to the below description and/ or aspect description created for the specific test project.

The same group will check measurement marking of any aspect of the dimensions or again, as per aspect description.

Each internal joint will be assessed once only as per marking group. for example, three Experts will view the joint checking for quality of manufacture, cleanliness of cut, while checking for correct fit of the internal joint ONLY. Gaps to shoulders are NOT assessed, as this will be assessed at project completion.

There will be a TIME LIMIT imposed on assessment of 30 seconds per joint, per Expert, to ensure continuous and efficient assessment not delaying assessment outcome. If an Expert does not use their 30 seconds correctly to assess, they will miss the opportunity and the components will pass to the next Expert.

When competitors hand in components for marking they must not be assembled and laid flat with their ID/ Bench Number facedown. Competitors must identify which joints are to be assessed on their joints for the internal joint marking paper, with clear identification to the joint assembly being assessed.

Judges need to be awarding 3’s strictly according to the aspect descriptor; think of a 3 as being in the top 33%, it does not have to be perfect – again aspect description MUST be followed at all times during assessment. Any breach or inconsistency in assessment, will render an offending Expert being swapped with another to ensure fair and consistent assessment. World Skills International monitor inconsistent assessment using CIS software.

When assessing the fit of joints, the principle ‘a very tight joint,’ which could be made to fit would score higher than one which was very lose or one that damaged the joint when pushing together.

Assessment training will be given at the competition; however, it must be observed again that aspect descriptors take priority over personal opinion.

Fit of Joint ***(two methods, judgement and measurement will be used for this aspect)*** It is important to note, the Aspect descriptor for ALL assessment criteria must be observed and strictly followed. What is Excellence? This cannot be clearly defined other than what is described in the Aspect Descriptor only. Regardless of Expert Judgment, the correct outcome will be achieved in all cases when following the Aspect Description.	All judges to carry out fitting with each having a time limit of 30 seconds ONLY to assess. Standard joints such as mortice and tenon; bridle; combe joints, can either be pushed fully together, or be assembled three quarters of the way. Complex joint assemblies such as curved halving joints and dovetail type joints can be assembled at least two thirds of the way to prevent any damage during assessment, they do not have to be full assembly. ALL Experts are to ensure NO damage occurs to a competitor work piece.	**Joint *push together by hand and even pressure* though its travel**. All judges can inspect joint when together. **A light tap can be employed to take joint apart.**	**Joint *push together by hand and pressure changes a little* thought it travel.** All judges can inspect joint when together. tapping joint apart is acceptable

EXAMPLES OF JOINTS – THIS IS NOT A COMPLETE LIST, BUT SAME PRINCIPLES APPLY.

JOINT Bridles and mortice & tenons	Method (fitting of joint to be completed by hand, on a bench, with no vice or tools used)	Criteria for a 3	Criteria for a 2	Criteria for a 1	Criteria for a 0	Notes
JUDGMENT	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.*	Joint has been made to an excellent standard - clean shoulders, minimal gaps on all sides of the joint, joint is correct, pushed approx. 2/3 together without force and joint is flat / straight. **Joint *pushes together by hand and even pressure* through its travel.** **A light tap can be applied by hand to take joint apart.**	Joint has been made to a good standard - joint slightly loose or tight, some marks on shoulders, shoulders square, joint pushes all the way with ease and has some gaps on the sides of the joint **Joint *pushes together by hand and pressure changes a little* through travel.**	Joint has been made to an acceptable standard - some rough shoulders, shoulders not square, undercutting of joint, joint not clean and fit is very loose **Joint *pushes together by hand with a noticeable change of pressure*** ***Following the aspect descriptor, most competitors will achieve a minimum of this score.***	Joint has been made to an unacceptable standard - extremely loose, does not fit or non attempt. Joint has over cuts, under cutting, surfaces very rough, mortice rough Remaking required **Joint *drops in or will not push together***	Face: non visible surfaces of the joint We are not assessing the alignment of two parts; this will be surface finish. We are not assessing shoulders of any joint part when dry fitted; this will be external joint marking only.

Video/ Picture		https://vimeo.com/928827673?share=copy Video link shows an example of a mark to be awarded for cut and fit.		https://vimeo.com/920028381?share=copy Image shows bottom of mortice cleaned with a chisel which is flat. If the joint fits well following the aspect description, then this can be assessed for the image box shown. This is no different for a mortice that would be cut using a machine and shows tooling marks on the bottom, but again must be flat.		
MEASUREMENT	During this assessment, Joint components are to be kept separate, but assessed at the same time with all Experts agreeing outcome.	Joint parts are measured using digital callipers and/ or a steel ruler	Assessment outcome will be YES / NO for outcome, or a score as defined by mark criteria.			

JOINT Cross Halving on curve and/ or straight	Method (fitting of joint to be completed by hand, on a bench, with no vice or tools used)	Criteria for a 3	Criteria for a 2	Criteria for a 1	Criteria for a 0	Notes
JUDGMENT	All judges to inspect all parts of the joint *When more than one joint is being marked follow the above process for all joints at the same time.* *Any gaps visually sighted through are not to be included in this assessment. This will be measurement during External Joints assessment.*	Joint has been made to an excellent standard - clean shoulders, minimal gaps on all sides of the joint, joint is correct, pushed approx. 2/3 or full of minimum resistance or without force and joint is flat / straight. **Joint *pushes together by hand and even pressure* through its travel. Joint assembles to approximately two thirds to three quarters or full depth.** **A light tap can be applied by hand to take joint apart.**	Joint has been made to a good standard - joint slightly loose or tight, some marks on shoulders, shoulders square, joint pushes all the way with ease and has some gaps on the sides of the joint **Joint *pushes together by hand and pressure changes a small amount* through travel.**	Joint has been made to an acceptable standard - some rough shoulders, shoulders not square, undercutting of joint, joint not clean and fit is very loose **Joint *pushes together by hand with a noticeable change of resistance.*** ***Following the aspect descriptor, most competitors will achieve a minimum of this score.***	Joint has been made to an unacceptable standard - extremely loose, does not fit or non attempt. Joint has over cuts, under cutting, surfaces very rough, mortice rough Remaking required **Joint *drops with large gaps or will not push together* at all.**	Face: non visible surfaces of the joint We are not assessing the alignment of two parts; this will be surface finish. We are not assessing shoulders of any joint part when dry fitted; this will be external joint marking only.

Video/ Picture		https://vimeo.com/929100524?share=copy	https://vimeo.com/920047310?share=copy			
MEASUREMENT	During this assessment, Joint components are to be kept separate, but assessed at the same time with all Experts agreeing outcome.	Joint parts are measured using digital callipers and/ or a steel ruler. Area to measure will be thickness of each timber part remaining, this either being equal or a given measurement.	Assessment outcome will be YES / NO for outcome, or a score as defined by mark criteria.	 Image shows position of mid point of timber cut face be equal in thickness.		

JOINT Bridle joints Single, twin & mitre	Method (fit of all joint to be done in a vice)	Criteria for a 3	Criteria for a 2	Criteria for a 1	Criteria for a 0	Notes
JUDGEMENT Due to joint proportions, size and timber section, this assessment is carefully considered.	Joint to be push together at an angle of 45% from each side to test if the tenon is tapering and correct size **then** joint to be push in to within 5mm of the shoulder but not up to the shoulder. Experts can inspect joint when together. *You should not be marking gaps which will be visible after gluing during External Joint assessment.*	Joint has been made to an excellent standard - clean shoulders, minimal gaps on all sides of the joint, joint is correct, pushed approx. 2/3 together without force and joint is flat / straight. **Joint picks up from the bottom shoulder both sides of the tenon** **Joint pushes *together by hand, travels with even pressure*** ***Joint can be glued straight away*** All judges can inspect joint for fit. Little side of joint/ timber	Joint has been made to a good standard - joint slightly loose or tight, some marks on shoulders, shoulders square, joint pushes all the way with ease and has some gaps on the sides of the joint **Joint picks up from the bottom shoulder both sides of the tenon *pushes together by hand and pressure changes a little*** All judges can inspect joint when together. Some signs of joint spreading to the sides	Joint has been made to an acceptable standard - some rough shoulders, shoulders not square, undercutting of joint, joint not clean and fit is very loose **Joint only picks up from the bottom shoulder both sides of the tenon** **Joint *pushes together by hand but has noticeable change of pressure*** **Usable with little reworking** All judges can inspect joint when together. Some	Joint has been made to an unacceptable standard - extremely loose, does not fit or non-attempt. Joint has over cuts, under cutting, surfaces very rough, mortice rough. **Joint does not pick up** ***joint excessively drops in or will not push together* at all.** **<u>Remake required</u>** Even under a large amount of pressure. Excessive spreading or risk of cracking joint.	Face: none visible surfaces of the joint Assessing of the alignment of two parts is NOT being assessed, this would be surface finish and will be assessed during a later stage of assessment.

		spreading of the sides.		spreading or a little tight. 3/ Joints tight but could be quickly made to fit better but they do need to fit at least half way.		
Video/ Picture			https://vimeo.com/922458595?share=copy			Teaching Aids will be provided at the competition for training and discussion

Aspect ‘C – EXTERNAL JOINTS

Reminder - can include Measurement and Judgement Marking for complex joints including exposed end grain

This marking aspect checks the Competitor’s ability to produce an assembled project with good strong joints with little to no gaps.
Points to consider when marking are as follows:

External Joint: **Judgement Marking (J)** - all complex joints identified with end grain showing are assessed as Judgment due to multiple faces and high degree of work to manufacture.

Judges should be happy to award 3s based on following the aspect descriptor, think of a 3 as being in the top 33%, it does NOT have to be perfect. Following industry standard, an external joint can have a limited amount of glue that would not affect the appearance and/ or structure of the joint – it should not be excessive; again, follow the aspect descriptor.

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

External Joint: **Measurement Marking (M)** - are for all other external joints including standard joints; Inspect for gaps on the external joint; The joint is made according to the drawing.

Judgment marking

External Joints after gluing JUDGMENT	Method	Criteria for a 3 Performance wholly exceeds industry standard	Criteria for a 2 Exceed industry standard	Criteria for a 1 Industry standard	Criteria for a 0 Below industry standard	Notes
JUDGEMENT **All complex and Standard Joints**	All judges to inspect joints being assessed. Priority should be given to any exposed End Grain of the joint only, which is clearly visible when looking at the test project as a customer would see the project. Aspect Descriptors MUST be followed and adopted during this assessment process.	**Joint has been made to an excellent standard** **Minimal or no glue line may be visible due to glue up; hair line gap may be present or no gap**	**Joint has been made to a good standard** **A glue line will be visible due to glue up, a slightly larger gap may also be present**	**Joint has been made to an acceptable standard** **Glue line will be visible due to glue up, larger gap will be present, but not affecting over all product for a customer when finish is applied**	**Beyond repair would require remaking, or no attempt at making at all**	Paper based marking to be used and/ or Tablet Marking.

JOINT	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.	Clean end grain, minimal gaps on all sides of the joint, joint is correct, and joint is flat along the shoulders.	Has some gaps on the end grain of the joint	Some rough end grain shoulders, cutting not square or straight, joint not clean with gaps	Very large gaps, beyond repair would require remaking.	
Photos	Joint to be inspected by observation only – no measurement is required for this aspect element. Assessment will be timed at 30 seconds for each Expert to facilitate efficient marking. All Aspect Descriptors provided in CIS will be followed.			 		

Video	Other examples of aspect scoring following descriptors; feeler gauge used to highlight joint gaps for clarity.	https://vimeo.com/929094010?share=copy ***OR IT COULD BE AS THE BELOW EXAMPLE*** https://vimeo.com/929094869?share=copy	https://vimeo.com/929094869?share=copy	https://vimeo.com/929095172?share=copy		

External Joints after gluing MEASUREMENT	**Method** Assessment of all shoulders, including internal/ external edges where applicable ONLY. Narrow glue lines are permitted, with assessment incorporating the use of measuring equipment – Feeler Gauge. Measurements used for this aspect criteria will be as follows: Up to and including 0.2mm = 100% Anything over 0.2mm up to and including 0.4mm = 66% Anything over 0.4mm up to and including 0.6mm = 33% Over 0.6mm = 0%	**Criteria for 100%** https://vimeo.com/929094010?share=copy ***OR IT COULD BE AS THE BELOW EXAMPLE*** https://vimeo.com/929094869?share=copy	**Criteria for 50%** https://vimeo.com/929095172?share=copy	**Criteria for 0%**		**Notes** **If the feeler gauge being used is a tight fit and touches the sides, the mark can be awarded as the mark scheme.**

Aspect ‘D’ – FINISH & APPEARANCE

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.

This marking aspect determines the Competitor’s ability to produce a project with a good visual and architectural appearance. The marking criteria will include:

- Twist of component.
- Surface finish of the component.
- Edge finish of the component.
- Squareness of the component.
- Fit of any panels.
- Alignment of components.
- Others may be added or some of the above subtracted depending on the nature of the project and the development of CIS (test project specific)

Surface Finish to all faces and internal/ external edges	Method	Criteria for a 3 Performance wholly exceeds industry standard	Criteria for a 2 Exceed industry standard	Criteria for a 1 Industry standard	Criteria for a 0 Below industry standard	Notes
JUDGEMENT Smoothness of ALL Faces - by feel with hand plus checking for scratch and machine marks. Finish is not required to be glass smooth. Industry standard will allow a surface finish to be applied ie. paint or other paint type product to stick to the surface. A surface that is excessively smooth will not allow a product to adhere to the test project.	This aspect is assessed FIRST, to prevent the finished test project being damaged prior to other assessment being conducted. All surfaces are assessed by touch only, feeling for surface finish after sanding with abrasive paper.	Sanding to an excellent standard - no bumps; all areas sanded; no machine marks; very good surface to apply finish	Sanding to a good standard - limited bumps; most areas sanded; little or no machine marks; good surface to apply finish	Sanding to an acceptable standard - some bumps; most areas sanded; some machine marks present; acceptable to apply finish	Sanding to an unacceptable standard - many bumps; areas not sanded; machine marks present; not suitable to apply finish Very few competitors should receive this aspect score, if surfaces have been sanded in some way; minimum score should be a '1'	Paper based marking to be used and/ or Tablet Marking. All aspect descriptors should be followed in all cases.
JUDGEMENT ARRIS CURVES CHAMFERS	Smoothness of all ARRIS - by feel with hand, checking for bumps, cleanliness and consistency	Sanding to an excellent standard - no bumps; all areas sanded; no machine marks; very good edges	Sanding to a good standard - limited bumps; most areas sanded; little or no machine marks; good edges	Sanding to an acceptable standard - some bumps; most arris sanded; some inconsistency	Sanding to an unacceptable standard - many bumps; arris not sanded and inconsistent	

Moveable Parts/ Fittings Assessment (if included as part of the test project)

Marking criteria will be developed as test project is designed, it can be used for fit, so it can carry the correct aspect weighting; it is a necessary element of a Joiners skills. Both criteria could be used.

Movable parts	Method	Marks awarded 100% - YES	50% marks awarded – or NO	No mark awarded - NO	Notes
MEASUREMENT Fit Measurement of component Operation Hardware and/ or fittings	Test project can be designed to incorporate a number of items, not limited to the following: • Moveable parts • Module 1 fitting within module 2 • Hinges • Locks • Fasteners/ other fittings • Fitting within another test project, in another skill competition if appropriate	With the components fully assembled, the gap on all sides of the components should be even all around according to aspect description Tolerance needs checking if feeler gauges are used	Small variation of gap along its length.	Would require reworking	Paper based marking to be used and/ or Tablet Marking. All aspect descriptors should be followed in all cases.

MEASUREMENT Component Component position when fitted to assess both twist and resting postition Care has to be taken not to double mark if using the judgment marking on component operation	Check for Twist (place on flat surface and check the corners using a Feeler Gauge) Check for Squareness (check diagonals)	Up to and including 1 mm = 100% Up to and including 2 mm = 70% Up to and including 3 mm = 40% Over 3 mm = 0%			
Gap around component module 1 and 2	With component fully fitted, each will be measured to assess a gap on all sides. Assessment will be to assess as per drawing	Criteria for this aspect will be measurement as defined in the CIS for the specific test project	Any variation must be parallel and fall within the permitted tolerance. If there is a bow, the biggest dimension will be used		A tight fit must fall within the dimension permitted. If any component does not fit, a score of '0' will be given or as the CIS allows

Hinges and fittings

Assessment of hinges and fittings will depend on those specified by the test project and will need to be written to suit the project. Below is a sample for butt hinges, measurement assessment is used for this aspect.

Standard Hinges/ fittings Any variation that is not standard, MUST be detailed on the forum for Experts/ Competitors to prepare	Method	Marks awarded 100% - YES	50% marks awarded – or NO	No mark awarded - NO	Notes
	Open door/ component fully and using feeler gauges check for gaps if required. Screws should be all present and heads flush with hinges (or if screws a little large/small evenly above hinge face. Or below	No gaps on top or bottom of hinge and only small gap to side of the hinge, Hinge is not spaced /packed ensuring correct fit. Test project must be pre-made to test all components will work prior to assessment! Outside hinge knuckle is even and parallel. All screw present, with no heads snapped off.	Tight on the bottom and only small gap on the top and side, would not require reseating. All Screws present	Gaps on all sides possibly would require reseating No screws fitted	The way a hinge is cut in does not match the specification or DWG This could be an issue for conformity does not hinge assessment – depends on CIS requirement The inclusion of all screws has little outcome, compared to the fitting of the hinge and should have a smaller consideration

Aspect ‘E’ – CONFORMITY

This marking aspect determines the Competitor’s ability to build the project exactly as described in the drawing. Penalties can be as follows but the final list are determined by the Skill Competition Manager, Chief Expert and the marking panel during the Competition.

Points considered when marking are as follows:
Missing panel;
Missing frame component;
Other non-conformities e.g. a repair.

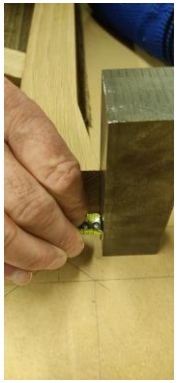
To a maximum loss of five marks. (If an error occurs under two or more criteria, then the greatest loss of marks is deducted).

	Marks awarded 100% - YES	50% marks awarded – or NO	No mark awarded - NO
CONFORMITY Can be any non-conformity as prescribed in CIS	MEASUREMENT Matches DWG in all aspects according to design Visual check only – NO measurement	Matches DWG in all aspects according to design, with some items missing. A deduction will be made to the aspect score, or it could be a YES/ NO outcome Visual check only not to be measured	Does not match DWG in any way according to design, or could be a no attempt Visual check only not to be measured

Aspect ‘F’ – MEASUREMENT

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. If its a fault created by sanding or something which should have been remove during sanding such as pencil marks, glue over spill.

MEASUREMENT OF TEST PROJECT This criterion will check all measurements of the test project. This will include for example, height, width, radius, angle or other dimensions highlighted on CIS/ Test Project DWG.	Points to consider when marking are as follows: Primary Measurements Secondary Measurements	Reference blocks can be held up against a datum, with a steel rule held against, to correctly check the measurement for Primary and Secondary measurements.	More complex Secondary measurements can be checked using the same method. Or can be checked with CNC templates and/ or gauge rod measuring sticks.	Curves can be checked using a CNC template, with any deviation being checked with a measure.		

MEASUREMENTS	Method	Full Marks	Half Marks	0 Marks		
PRIMARY	Check using competitors own measuring equipment. Alternatively, competitors can reference their own equipment against a standardised rule and that used in place if they are happy	Measurements up to and including 1.0 mm 100%	Measurements 1.1 mm and up to and including 2.0 mm 50%	Measurements over 2.0 mm 0%.		Competency in methods of measurement is essential. Experts can be utilised in this aspect, if Judgement Marking is not permitted for any reason
Photo	Examples of how to establish measurements of completed test project for accurate and consistent marking				  	

Aspect ‘G’ – MATERIAL

This aspect of marking allows for the penalizing of points for the replacement of non-usable components.

Materials	Method			Notes
1 mark deducted per replacement component after start of competition	ALL competitors will be required to inspect each component for the following prior to the competition starting; they will be given time to complete this: • Natural defects • Size variation • Machining defects including, twist, bow and out of square This has to be recorded at the time of the replaced component being given out. If a natural fault is notice after the start of the competition, then this should be brought to the attention of the CE, EL who will decide if a replacement is allowed without a deduction.	Replacement of the first piece - 1 mark deduction; Replacement of subsequent pieces - 1 mark deduction; Up to a maximum of 2-mark deduction per module		The Experts responsible for material coordination or CE, must be notified and material replacement recorded in the skill binder. The replaced component post competition start, MUST have the competitor Bench number written on it and stored safely. For upload end of C4