worldskills

Standards and Assessment Guide

Concrete Construction Work

v1.0

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 46 – Concrete Construction Work

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.

Measurement and Judgement – CIS

- All Experts involved in assessment and marking must remain untouchable.

We achieve this by:

- Always having a double check by more than 1 Expert
- Experts must sign off the marking procedure has been carried out fairly.
- Experts must check what they have stated is the written information and is correct.

A Key part of the assessment is ensuring all Experts are aware of the marking procedures and carry them out with the highest integrity, this will ensure all Experts are untouchable.

Experts should and may use reading glasses. Experts should be able to correctly read millimetres on a ruler. The next value after the decimal point should be estimated accurately.

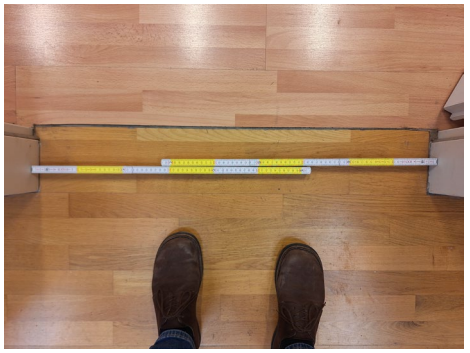
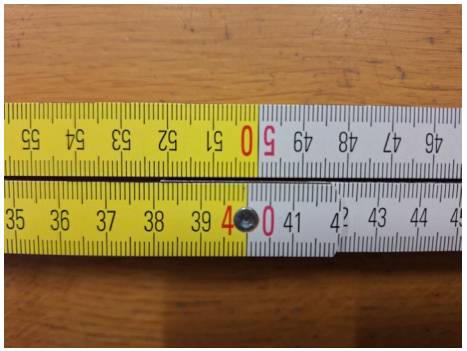
Aspect – Construction formwork Wall - vertical

WSOS section as per TD	Descriptor	Resource
E Vertical - Plumb	• **Accuracy of measurement** • **Accuracy Rating** Vertical: tolerance +/- 2mm Coin of Convex/Concave Vertical: tolerance +/- 1mm each direction= no deduction It is vital that all measurement equipment is calibrated correctly prior to marking. Example – 3 mm deviation = 0.2 deduction of mark, 2 mm deviation = 0.1 deduction 0 to <1mm deviation = no deduction 0 mm – 1.0 mm = no deduction 1.1 mm – 2.0 mm = 0.1 deduction 2.1 mm – 3.0 mm = 0.2 deduction 3.1 mm – 4.0 mm = 0.3 deduction	 

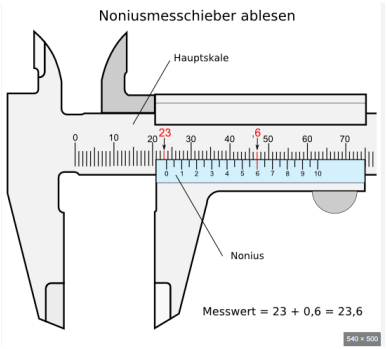
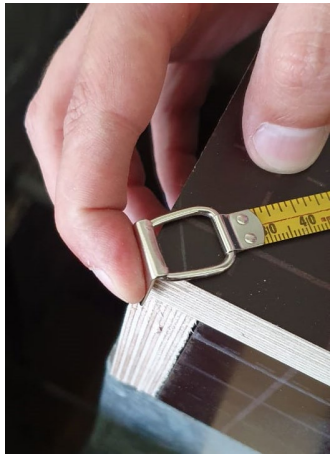
Aspect – Filling of formworks and treatment - horizontally and levelness

WSOS section as per TD	Descriptor	Resource
G Horizontal Measurement - Level	• **Accuracy of measurement** • **Accuracy Rating** horizontal: tolerance +/- 2mm Coin of Convex/Concave horizontal: tolerance +/- 1mm each direction= no deduction It is vital that all measurement equipment is calibrated correctly prior to marking. Tolerance horizontally = +-1mm each direction/Deduct 0.1 of the mark for each mm error Example 3 mm deviation = 0.2 deduction of mark, 2 mm deviation = 0.1 deduction 0 to <1mm deviation = no deduction 0 mm – 1.0 mm = no deduction 1.1 mm – 2.0 mm = 0.1 deduction 2.1 mm – 3.0 mm = 0.2 deduction 3.1 mm – 4.0 mm = 0.3 deduction	

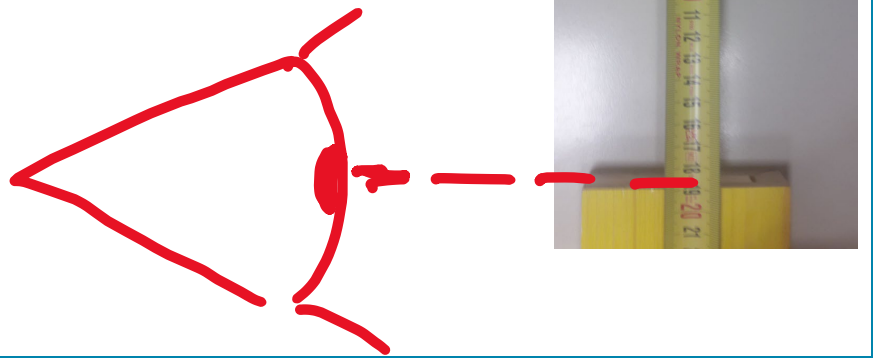
Aspect – Thickness, width, length measurement – setting out and measurement

WSOS section as per TD	Descriptor	Resource
D-E Thickness – Width - Length Measurement	• **Accuracy of measurement** • **Accuracy Rating** Acceptable – no more than 1mm tolerance +/- 1mm each direction= no deduction **Measurement of built-in length – between two fixed points** ⇨ **Example: 400+502 = 902 mm** Example 3 mm difference = 0.2 deduction of mark, 2 mm difference = 0.1 deduction 0 to <1mm difference = no deduction 0 mm – 1.0 mm = no deduction 1.1 mm – 2.0 mm = 0.1 deduction 2.1 mm – 3.0 mm = 0.2 deduction 3.1 mm – 4.0 mm = 0.3 deduction **Measurement of free length – between two fixed points** *0 mm starting point – fix it* *Example: 445 mm reading point – fix it* • *The lower reading on the scale is the correct and important one!* *It's important to know that the difference between the top and bottom readings on the scale indicates that the measuring edge isn't at a right angle.*	   

Aspect – Thickness, width, length measurement – setting out and measurement

WSOS section as per TD	Descriptor	Resource
D-E Thickness – Width - Length Measurement	• **Accuracy of measurement** • **Accuracy Rating** Acceptable – no more than 1mm tolerance +/- 1mm each direction= no deduction Example 3 mm difference = 0.2 deduction of mark, 2 mm difference = 0.1 deduction 0 to <1mm difference = no deduction 0 mm – 1.0 mm = no deduction 1.1 mm – 2.0 mm = 0.1 deduction 2.1 mm – 3.0 mm = 0.2 deduction 3.1 mm – 4.0 mm = 0.3 deduction	   

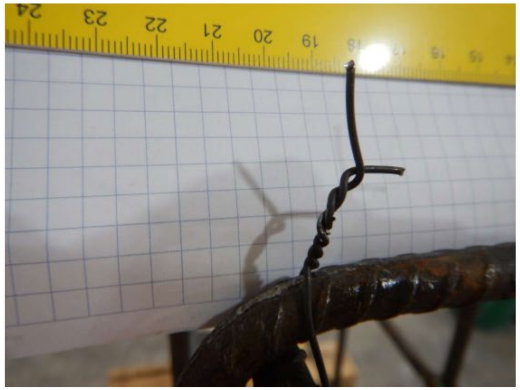
Aspect – Height measurement

WSOS section as per TD	Descriptor	Resource
C-D-E Height Measurement	• **Accuracy of measurement** • **Accuracy Rating** Acceptable – no more than 1mm tolerance +/- 1mm each direction= no deduction	  

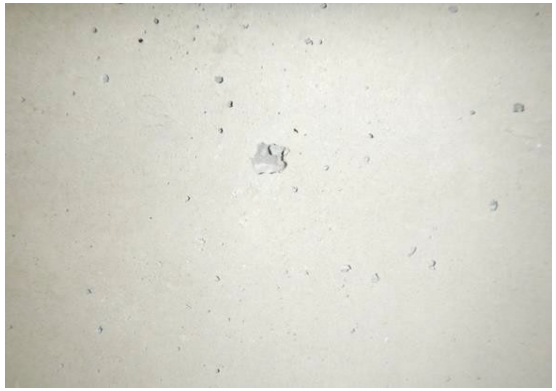
Aspect – Construction of reinforcement – Reinforcement hanger positions

WSOS section as per TD	Descriptor	Resource
F Reinforcement lay, and bind reinforce	Reinforcement Pos 1 - measurement point/line: closed corner opposite to angle hook - MORE QUANTITY THAN QUALITY +-8mm	(tolerance = +-8mm each direction) Deduct 0.10 marks for each bar Error Yes/No for each bar
	Reinforcement Pos 1 - measurement point/line: closed corner opposite to angle hook - QUALITY +-5mm	(tolerance = +-5mm each direction) Deduct 0.10 marks for each bar Error Yes/No for each bar
	Reinforcement Pos 1 - measurement point/line: closed corner opposite to angle hook - BEST QUALITY +-2mm	(tolerance = +-2mm each direction) Deduct 0.10 marks for each bar Error Yes/No for each bar
		YES or NO

Aspect – Construction of reinforcement – Reinforcement bar, cover, lay and bind

WSOS section as per TD	Descriptor	Resource
F Reinforcement lay, and bind reinforce	Reinforcement lay and bind reinforce - done and keeps the load: the reinforcement cage is for a man to lift and climb - correct wire binding: bent or maximum excess length 10mm Deduct 0.10 marks for each bad knot Yes/No for each knot Reinforcement layout and wire binding/complete and keeps the load: the reinforcement cage is for a man to lift and climb - correct wire binding: bent or maximum excess length 10mm Count the number of error - Deduct 0.10 marks for each bad knot	QUALITY OF KNOTS – 0 **Worst ~~firmly~~ connected – worst ~~more than three~~ twists and turns – bad turned away – more 5mm into the cover**  **Worst ~~firmly~~ connected – worst ~~more than three~~ twists and turns – bad turned away – more 5mm into the cover** 

Aspect – Filling of formworks and treatment - surface

WSOS section as per TD	Descriptor	Resource
G Filling of formworks and treatment	Cavity è 15mm is a cavity. Count the number of Cavity = 15 mm and more Deduct 0.05 of the mark for each count cavity error Deduct 0.05 of the mark for each count cavity error	

Aspect – Filling of formworks and treatment - surface

WSOS section as per TD	Descriptor	Resource
G Filling of formworks and treatment	Surface Side – Concrete pocket horizontal A pocket is more than: h ≤ 10 mm d ≥ 1 mm Count the length of the indentations that are higher > 10 mm or deeper > 1mm. Deduct 0.10 of the mark for each DECIMETER (10 cm) of the indentation count pocket error	

Aspect – Filling of formworks and treatment - surface

WSOS section as per TD	Descriptor	Resource
G Filling of formworks and treatment	Surface Side – Concrete pocket vertical A pocket is more than: h ≤ 10 mm d ≥ 1 mm Count the length of the indentations that are higher > 10 mm or deeper > 1mm. Deduct 0.10 of the mark for each DECIMETER (10 cm) of the indentation count pocket error	

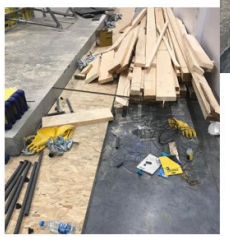
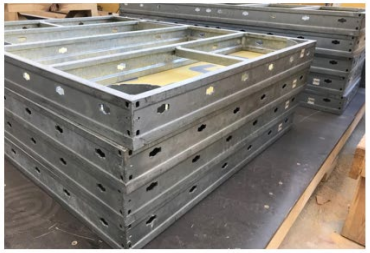
Aspect – Filling of formworks and treatment - surface

WSOS section as per TD	Descriptor	Resource
G Filling of formworks and treatment	Surface side – nails overcame. Nails overcome < 2mm Count the number of nails overcome 2 mm and more Deduct 0.1 of the mark for each count error.	

Aspect – Filling of formworks and treatment - surface

WSOS section as per TD	Descriptor	Resource
G Filling of formworks and treatment	Surface Side- Texture: Join- no layer; Pouring storage. Join- no layer; Pouring storage length > 50 cm Count the visible layer and deduct the mark for a layer error YES or NO	

Aspect – Removal of formworks and reprocessing

WSOS section as per TD	Descriptor	Resource
H Workshop finished clean	Workshop: finished - clean (only with the brooming) Removal of formworks and reprocessing YES or NO	 Yes ☺ Yes ☺ **Example** No ☹   No ☹ YES or NO  **Example**  ➔Removeable plywood clean and sorted ➔Removable formwork clean and sorted ➔Without nail, screw and triangle YES or NO

Aspect – Removal of formworks and reprocessing

WSOS section as per TD	Descriptor	Resource
H Workshop finished clean	Workshop - finished - toolbox is closed and ready for shipment Toolbox is closed and ready for shipment YES or NO	 YES or NO **Example** 

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.