CONSTRUCTION AND BUILDING TECHNOLOGY

Plastering and Drywall Systems

Technical Description

 TD21 v8.0 WSC2021

worldskills

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

The Technical Description consists of the following:

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1 Introduction

1.1 Name and description of the skill competition

1.1.1 The name of the skill competition is

Plastering and Drywall Systems

1.1.2 Description of the associated work role(s) or occupation(s).

The skilled plasterer may work on both internal and external plastering and rendering work. Much modern internal work is completed using drywall systems which involve the plasterer creating metal frames and installing plasterboard before the application on the final surface. These constructions can be complex and include curves and openings for doors and windows. Traditional plastering involves the preparation of the background prior to application of the plaster surface. The plasterer will prepare materials for use and be fully aware of legislation and official guidance relating to the preparation and use of materials. In addition to plastering flat surfaces, the skilled plasterer will create and install decorative mouldings. Plasterers will also be required to make repairs.

The plasterer may work on large construction sites for domestic, commercial, or industrial use, in single domestic and commercial premises or on historic buildings and heritage sites. Much plastering work on larger sites is sub-contracted and as such many skilled plasterers will be self-employed, meaning that they have to take responsibility for tax and other earnings-related regulation.

A high degree of accuracy, care, and skill is required. Preparation for plastering work will include complex mathematical calculations. The practitioner needs to be able to read, interpret, and analyse complex specifications describing the work required and be able to convert these plans into reality.

A range of materials can be used depending on the site and the planned use of the finished building. Some materials can be harmful, so care must always be taken by the plasterer to prevent injury or damage in use or disposal of waste.

Plasterers often form part of a team, working efficiently, and effectively with other skilled craftsmen in a logical and well-planned manner.

1.1.3 Number of Competitors per team

Plastering and Drywall Systems is a single Competitor skill competition.

1.1.4 Age limit of Competitors

The Competitors must not be older than 22 years in the year of the Competition.

1.2 The relevance and significance of this document

This document contains information about the standards required to compete in this skill competition, and the assessment principles, methods and procedures that govern the competition.

Every Expert and Competitor must know and understand this Technical Description.

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

1.3 Associated documents

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

- WSI – Code of Ethics and Conduct
- WSI – Competition Rules
- WSI – WorldSkills Occupational Standards framework
- WSI – WorldSkills Assessment Strategy
- WSI online resources as indicated in this document
- WorldSkills Health, Safety, and Environment Policy and Regulations.

2 The WorldSkills Occupational Standards (WSOS)

2.1 General notes on the WSOS

The WSOS specifies the knowledge, understanding, and specific skills that underpin international best practice in technical and vocational performance. It should reflect a shared global understanding of what the associated work role(s) or occupation(s) represent for industry and business (www.worldskills.org/WSOS).

The skill competition is intended to reflect international best practice as described by the WSOS, and to the extent that it is able to. The Standard is therefore a guide to the required training and preparation for the skill competition.

In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will only be separate tests of knowledge and understanding where there is an overwhelming reason for these.

The Standard is divided into distinct sections with headings and reference numbers added.

Each section is assigned a percentage of the total marks to indicate its relative importance within the Standards. This is often referred to as the "weighting". The sum of all the percentage marks is 100. The weightings determine the distribution of marks within the Marking Scheme.

Through the Test Project, the Marking Scheme will assess only those skills that are set out in the Standards Specification. They will reflect the Standards as comprehensively as possible within the constraints of the skill competition.

The Marking Scheme will follow the allocation of marks within the Standards to the extent practically possible. A variation of up to five percent is allowed, provided that this does not distort the weightings assigned by the Standards.

2.2 WorldSkills Occupational Standards

Section		Relative importance (%)
1	**Work organization and management**	5

The individual needs to know and understand:

- Laws relating to hygiene, safety, and related to plastering and drywall systems
- Different types of personal protective equipment (PPE)
- Precautions for the safe use of power and cordless tools
- Building methods and construction technology
- Relevant areas of electricity, plumbing, drainage, and security systems
- Integrated entertainment systems
- Safe use, storage, and appropriate uses for materials
- The balance between economics and quality, dependent on the expected output and circumstances
- The need for security for the storage of tools and materials
- Methods of safe waste disposal and recycling
- Methods for establishing an optimal and economically organized construction site. regarding construction plan and equipment, organization and procedures, material management, staffing, and timelines
- Principles and methods for determine the correct calculations and estimates

The individual shall be able to:

- Create and maintain safe and hygienic working environments
- Install work areas to avoid injury, especially to the back, elbows, shoulders, and knees
- Apply standards and laws relating to security, safety, and hygiene in plastering and drywall systems
- Use the appropriate personal protective equipment (PPE)
- Use correct power and cordless tools in a safe manner
- Store plasterboards and related products safely and securely
- Be proactive in own continuous professional development in order to keep abreast of methods of working in the construction industry and changing technologies, for example acoustics, sustainability, and environmental impact.
- Work effectively as part of teams
- Work effectively with other trades
- Take appropriate care of customers' fixtures, fittings, carpets, and belongings

Section		Relative importance (%)
2	**Plan and interpret plans/technical drawings**	8

The individual needs to know and understand:

- The impact of buildings' use on the techniques and materials used
- Mathematics and geometry relevant to the occupation
- The required quality and standards such as the Q standard
- How to prioritize work and plan its order with other trades
- Principles and methods for sourcing materials
- Stock control and rotation including the importance of use by dates
- Principles and methods of formal and informal communication
- Constructions drawings
- The creation and use of material lists and timetables
- The demands and specific properties and qualities of different building materials, such as organic and inorganic materials, coating materials, mounting materials, jointing and adhesive material
- How to choose the correct materials and document these.
- Primary elements such as floor, wall and ceiling systems, and storefronts
- Manufacturing guidelines for subgrade and other purposes
- How to choose efficient attachments, and the correct material for cement, wood and steel constructions
- The difference between dry and wet constructions
- How to fabricate ceiling elements to correlate with heat insulation systems, soundproofing and fire protection systems, and decorative aspects in the design of walls and ceilings
- Principles and methods of technical construction
- The relationship between the properties and characteristics of building materials and their impact on comfortable living spaces
- the variety of building materials, their chemical and physical processes, capillary action, porosity, diffusion, and condensation, as well as their implications for recycling.

The individual shall be able to:

- Read and interpret documentation from a variety of sources
- Interpret and work from different accepted specifications
- Prepare specifications
- Provide advice and guidance to other professionals such as architects and quantity surveyors
- Read and interpret drawings and specifications
- Calculate materials in accordance with plans and specifications
- Keep essential notes on each installation process
- Explain complex specialist and technical information about installations to clients and other professionals
- Apply mathematic geometry principles to the calculation of angles, areas, perimeters, curves, arcs, volumes, ratios, etc.

Section		Relative importance (%)
3	**Construction of drywall systems**	35

The individual needs to know and understand:

- Standards and laws for constructing partitions and ceilings in plasterboard
- Specialist terminology
- Construction methods including timber framed buildings
- Framing systems used in construction of walls and ceilings
- Screws and fastenings used in construction of walls and ceilings
- Different types of plasterboard and fibre cement boards
- different drywall systems and the handling of the common equipment and materials
- how to correctly execute works, including complex wall shapes and covers, and the integration of metal frames and sanitary components
- The requirements for fire and sound protection and isolation
- Methods for creating decorative designs for walls and ceiling.
- Techniques for realizing designs for arched walls and ceilings
- Methods for building decorative and sound protection/improvements
- Accepted methods for making and providing detailed materials lists

The individual shall be able to:

- Set out the different elements of walls and ceilings
- Measure accurately
- Accurately cut metal profiles
- Erect framing with inserts for windows and doors – square, plumb, and levelled
- Screw, fix, or crimp metal components
- Channel and stud metal profiles
- Install curved metal work such as archways, barrelled ceilings
- Cut and fix with adhesives and screws plasterboard sheets
- Cut and fix with adhesives and screws fibre cement boards
- Construct frames using Expanded Metal Lath (EML)

4	**Insulation**	6

The individual needs to know and understand:

- Standards, laws and codes of practice relating to;
  - Thermal insulation in buildings;
  - Acoustic insulation in buildings;
  - Fire Rating and Regulations
- Safety regulations relating to the storage, handling, and installation of insulation materials
- Materials used in:
  - Thermal insulation in buildings;
  - Acoustic insulation in buildings;
  - Fire Rating and Regulations

Section		Relative importance (%)

	• Appropriate use of materials used in;
	  • Thermal insulation in buildings;
	  • Acoustic insulation in buildings:
	• Fire Rating and Regulations Impact of building regulations
	• The influence of sustainability and environmental impact on insulation products and techniques
	• Current and changing technologies and practices for insulation
	• Principles and methods for choosing correct insulation systems for inner and outer constructions, depending on the setting.
	• The equipment and machinery for working on joints, edges, corners, connections and finishing.	

	The individual shall be able to: • Install and fix acoustic products • Install and fix thermal products • Install and fix fireproof material and other materials to prevent the spread of fire • Use resilient material • Test installations and modify accordingly.	
5	**Finishing of plasterboards**	10
	The individual needs to know and understand: • Different methods of finishing plasterboards • Materials and techniques used in finishing plasterboards • The applicable standards for finishing, including the use of glass fibre and paper tape • How to finish angles with sharp edges, metal angle beats, non-coat beats and all types of outside and inside corner beats	
	The individual shall be able to: • Prepare plasterboards to receive finishes • Cut beads and trims • Mix plastering compounds • Finish plasterboard joins manually by taping and jointing finishes • Manually sand finished joints • Apply full surface coatings • Finish plasterboard using skim coats of Gypsum plaster	

Section		Relative importance (%)
6	**Internal and External Plastering**	20

The individual needs to know and understand:

- Types of plaster and their uses
- Types of background surfaces and their impact on plastering
- Techniques and practices for plastering
- Tools and equipment used in plastering
- How to complete patching and repairs
- Techniques for cutting internal and external mitred corners
- The use of plaster coatings
- Legislation and guidance for the application of external plastering and coatings
- Safe working practices in relation to external plastering including the use of scaffolding platforms
- The equipment and PPE needed for external plastering work
- The characteristics, quality, uses, and limitations, of available materials and techniques
- Methods of application
- The appropriate and safe disposal of waste
- Principles and methods for evaluating and assigning subgrade and plaster
- The composition of plasters and which problems can occur regarding their adhesive properties
- Structural plasters, trowel techniques, special plasters and their applications
- methods for working with, and restoring, graffito and stucco marquetry, stucco and cracks, joints, edges, corners and finishes.

The individual shall be able to:

- Prepare surfaces for plastering
- Mix plaster to the correct consistency
- Apply render, float, skim, and set coats to straight and curved surfaces
- Apply smooth coat finishes
- Repair plasterwork
- Meet contract specifications
- Apply legislation and official guidance to working methods
- Use and maintain PPE, equipment and resources appropriately and effectively
- Dispose of waste safely
- Measure, mark out, apply, and finish
- Prepare materials and apply to external backgrounds:
  - Brick and/or block and/or concrete surfaces
  - Plinths
  - Internal and external angles
  - Reveals
  - Walls
  - Installation of Expanded Metal Lath (EML)
  - Form industry recognized external rendering finishes
  - Two-coat work
  - Three-coat work

Section		Relative importance (%)
	• Internal and external angles • Reveals • Apply textured coated finishes.	
7	**Creation and fitting of decorative mouldings**	8
	The individual needs to know and understand: • Methods and principles for making decorative mouldings • The range and use of decorative mouldings • Specialist finishes such as Scraffito, Venetian Plaster, textured mixtures, and other specialist techniques • Adhesives used in fitting decorative mouldings • Methods for creating all types of mouldings.	
	The individual shall be able to: • Listen to, interpret, and respect the opinion of customers • Interpret proposed themes • Cut products • Create internal and external mitres • Apply and stick decorative coatings • Prepare and run in-situ moulds • Measure and cut components • Cut and fix paper-faced cornices • Match, mitre and install cast ornamental cornices and panel mouldings including: • Moulds • Arches • Coving • Dado rails • Cornices • Skirting • Panel moulds • Ceiling roses • Repair decorative mouldings.	

Section		Relative importance (%)
8	**Heritage and decorative techniques**	8
	The individual needs to know and understand: • Various specialist materials used on heritage sites and historical buildings • The history of a building, its fabrication and building techniques • The laws and regulations relating to planning and conservation • Specialist finishes such as Scraffito, Venetian Plaster, textured mixtures, and other specialist techniques • drawing, plan reading, designing, and sketching • Methods for combining personal creativity and talents with design skills • the process of preparing models, cogging, and plastering • How to apply core and arming materials, anti-friction and parting agents, and basic constructions of arches • The design of ceiling surfaces with manufactured stucco and cast elements • constructions and plaster cutting techniques.	
	The individual shall be able to: • Respect buildings' history • Interpret and follow plans and specifications • Communicate effectively with clients and officials • Prepare materials • Prepare buildings ready for renovation or repair for both internal and external surfaces • Apply appropriate plastering techniques according to buildings' history and fabrication, whilst maintaining their integrity for both internal and external surfaces.	
	Total	**100**

3 The Assessment Strategy and Specification

3.1 General guidance

Assessment is governed by the WorldSkills Assessment Strategy. The Strategy establishes the principles and techniques to which WorldSkills assessment and marking must conform.

Expert assessment practice lies at the heart of the WorldSkills Competition. For this reason, it is the subject of continuing professional development and scrutiny. The growth of expertise in assessment will inform the future use and direction of the main assessment instruments used by the WorldSkills Competition: the Marking Scheme, Test Project, and Competition Information System (CIS).

Assessment at the WorldSkills Competition falls into two broad types: measurement and judgement. For both types of assessment, the use of explicit benchmarks against which to assess each Aspect is essential to guarantee quality.

The Marking Scheme must follow the weightings within the Standards. The Test Project is the assessment vehicle for the skill competition, and therefore also follows the Standards. The CIS enables the timely and accurate recording of marks; its capacity for scrutiny, support, and feedback is continuously expanding.

The Marking Scheme, in outline, will lead the process of Test Project design. After this, the Marking Scheme and Test Project will be designed, developed, and verified through an iterative process, to ensure that both together optimize their relationship with the Standards and the Assessment Strategy. They will be agreed by the Experts and submitted to WSI for approval together, in order to demonstrate their quality and conformity with the Standards.

Prior to submission for approval to WSI, the Marking Scheme and Test Project will liaise with the WSI Skill Advisors for quality assurance and to benefit from the capabilities of the CIS.

4 The Marking Scheme

4.1 General guidance

This section describes the role and place of the Marking Scheme, how the Experts will assess Competitors' work as demonstrated through the Test Project, and the procedures and requirements for marking.

The Marking Scheme is the pivotal instrument of the WorldSkills Competition, in that it ties assessment to the standard that represents each skill competition, which itself represents a global occupation. It is designed to allocate marks for each assessed aspect of performance in accordance with the weightings in the Standards.

By reflecting the weightings in the Standards, the Marking Scheme establishes the parameters for the design of the Test Project. Depending on the nature of the skill competition and its assessment needs, it may initially be appropriate to develop the Marking Scheme in more detail as a guide for Test Project design. Alternatively, initial Test Project design can be based on the outline Marking Scheme. From this point onwards the Marking Scheme and Test Project should be developed together.

Section 2.1 above indicates the extent to which the Marking Scheme and Test Project may diverge from the weightings given in the Standards, if there is no practicable alternative.

For integrity and fairness, the Marking Scheme and Test Project are increasingly designed and developed by one or more independent people with relevant expertise. In these instances, the Marking Scheme and Test Project are unseen by Experts until immediately before the start of the skill competition, or competition module. Where the detailed and final Marking Scheme and Test Project are designed by Experts, they must be approved by the whole Expert group prior to submission for independent validation and quality assurance. Please see the Rules for further details.

Experts and Independent Assessors are required to submit their Marking Schemes and Test Projects for review, verification, and validation well in advance of completion. They are also expected to work with their Skill Advisor, reviewers, and verifiers, throughout the design and development process, for quality assurance and in order to take full advantage of the CIS's features.

In all cases a draft Marking Scheme must be entered into the CIS at least eight weeks prior to the Competition. Skill Advisors actively facilitate this process.

4.2 Assessment Criteria

The main headings of the Marking Scheme are the Assessment Criteria. These headings are derived before, or in conjunction with, the Test Project. In some skill competitions the Assessment Criteria may be similar to the section headings in the Standards; in others they may be different. There will normally be between five and nine Assessment Criteria. Whether or not the headings match, the Marking Scheme as a whole must reflect the weightings in the Standards.

Assessment Criteria are created by the person or people developing the Marking Scheme, who are free to define the Criteria that they consider most suited to the assessment and marking of the Test Project. Each Assessment Criterion is defined by a letter (A-I). *The Assessment Criteria, the allocation of marks, and the assessment methods, should not be set out within this Technical Description. This is because the Criteria, allocation of marks, and assessment methods all depend on the nature of the Marking Scheme and Test Project, which is decided after this Technical Description is published.*

The Mark Summary Form generated by the CIS will comprise a list of the Assessment Criteria and Sub Criteria.

The marks allocated to each Criterion will be calculated by the CIS. These will be the cumulative sum of marks given to each Aspect within that Assessment Criterion.

4.3 Sub Criteria

Each Assessment Criterion is divided into one or more Sub Criteria. Each Sub Criterion becomes the heading for a WorldSkills marking form. Each marking form (Sub Criterion) contains Aspects to be assessed and marked by measurement or judgement, or both measurement and judgement.

Each marking form (Sub Criterion) specifies both the day on which it will be marked, and the identity of the marking team.

4.4 Aspects

Each Aspect defines, in detail, a single item to be assessed and marked, together with the marks, and detailed descriptors or instructions as a guide to marking. Each Aspect is assessed either by measurement or by judgement.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it. The sum of the marks allocated to each Aspect must fall within the range of marks specified for that section of the Standards. This will be displayed in the Mark Allocation Table of the CIS, in the following format, when the Marking Scheme is reviewed from C-8 weeks. (Section 4.1 refers.)

		CRITERIA								TOTAL MARKS PER SECTION	WSSS MARKS PER SECTION	VARIANCE
		A	B	C	D	E	F	G	H			
STANDARDS SPECIFICATION SECTION	1	5.00								5.00	5.00	0.00
	2		2.00					7.50		9.50	10.00	0.50
	3								11.00	11.00	10.00	1.00
	4			5.00						5.00	5.00	0.00
	5				10.00	10.00	10.00			30.00	30.00	0.00
	6		8.00	5.00				2.50	9.00	24.50	25.00	0.50
	7			10.00				5.00		15.00	15.00	0.00
TOTAL MARKS		5.00	10.00	20.00	10.00	10.00	10.00	15.00	20.00	100.00	100.00	2.00

4.5 Assessment and marking

There is to be one marking team for each Sub Criterion, whether it is assessed and marked by judgement, measurement, or both. The same marking team must assess and mark all Competitors. Where this is impracticable (for example where an action must be done by every Competitor simultaneously, and must be observed doing so), a second tier of assessment and marking will be put in place, with the approval of the Competitions Committee Management Team. The marking teams must be organized to ensure that there is no compatriot marking in any circumstances. (Section 4.6 refers.)

4.6 Assessment and marking using judgement

Judgement uses a scale of 0-3. To apply the scale with rigour and consistency, judgement must be conducted using:

- benchmarks (criteria) for detailed guidance for each Aspect (in words, images, artefacts or separate guidance notes)
- the 0-3 scale to indicate:
  - 0: performance below industry standard
  - 1: performance meets industry standard
  - 2: performance meets and, in specific respects, exceeds industry standard
  - 3: performance wholly exceeds industry standard and is judged as excellent

Three Experts will judge each Aspect, normally simultaneously, and record their scores. A fourth Expert coordinates and supervises the scoring, and checks their validity. They also act as a judge when required to prevent compatriot marking.

4.7 Assessment and marking using measurement

Normally three Experts will be used to assess each aspect, with a fourth Expert supervising. In some circumstances the team may organize itself as two pairs, for dual marking. Unless otherwise stated, only the maximum mark or zero will be awarded. Where they are used, the benchmarks for awarding partial marks will be clearly defined within the Aspect. To avoid errors in calculation or transmission, the CIS provides a large number of automated calculation options, the use of which is mandated.

4.8 The use of measurement and judgement

Decisions regarding the choice of criteria and assessment methods will be made during the design of the competition through the Marking Scheme and Test Project.

4.9 Skill assessment strategy

WorldSkills is committed to continuous improvement. This particularly applies to assessment. The SMT is expected to learn from past and alternative practice and build on the validity and quality of assessment and marking.

Section A: Measurement

This will be assessed using the following criteria for module 1 and module 2.

- The accuracy of the measurement before the application of any tapes, beads, or coatings.

On module 3 and module 4 the measurements will be taken on the completion of the modules. It will be of the plaster components fixed to the modules and will be taken from the beads and tapes because the module will have been previously plastered or taped and jointed.

Section B: Squareness/plumbness/level

This will be assessed using the following sub criteria for modules 1, 2, and 3:

- The Plumbness of the construction of modules one and two before the application of any tapes, beads, or coatings;
- The Squareness of the construction of modules one and two before the application of any tapes, beads, or coatings;
- The levels of the construction of module 1 and module 2 before the application of any tapes, beads, or coatings;
- The Plumbness of the mouldings in module 4;
- The Squareness of the mouldings in module 4 (internal and external angles);
- The levels of the components mouldings in module 4.

Section C: Plaster finishing/taping and jointing

- The straightness of the tapes and beads;
- The smoothness of the tapes;
- The straightness of the coatings;
- The smoothness of the coatings;
- The cleanness of the coatings

Section D: Mouldings

- The cleanness of the mouldings;
- The precision of the cutting and filling of the internal and external mitres on the components mouldings in module 4;
- The straightness of the internal and external mitres of the mouldings in module 4;
- The smoothness of the internal and external mitres of the mouldings in module 4;
- The cleanness of the internal and external mitres of the mouldings in module 4.

Section E: Speed module

This will be assessed using the following criteria:

- The completion of the task;
- Time used to complete the work from fastest and slowest time;
- The accuracy of the measurements;
- The cleanliness and accuracy.

Section F: Technical conformity

This will be assessed using the following criteria for modules 1, 2, 3, and 4.

- Is the Test Project completed as drawn on the plan;
- Is the Test Project built as described in the project brief;
- Has the Test Project been built with the components and materials specified by the Competitors in their Components and materials list (section 5.4.2)
- Is the Test Project built to industry standards;
- Are the screw centres correct;
- Are the screw depths correct;
- Are the studs spaced correctly;
- The cleanliness of the finish of modules 1, 2, 3, and 4;
- The volume of the Competitors toolbox (section 8.2)

Section G: Freestyle module

This will be assessed using the same criteria as for modules 1, 2, 3, and 4. In addition, there will be the following further assessment criteria.

- Does the module conform to recognized industrial practice;
- Is the module in the correct place;
- Do the dimensions on the module conform to the drawing;
- Was the model completed within the time allowed?

Health, safety, and general cleanliness guidelines

Health and safety and cleanliness will be assessed throughout the competition. Any Competitor who breaches the skill-specific safety rules will be stopped until such a time as the breach is rectified.

No Competitor will be allowed to compete without the minimum PPE listed in section 7.

Experts will wear the appropriate personal safety equipment when inspecting, checking, or otherwise working with a Competitor's Test Project.

Tolerances for structure and plasterboard: ±1 mm for the dimensions lower than 300 mm ±2 mm for the dimensions between 301 mm and 1200 mm, ±3 mm for the dimensions higher than 1200 mm.

Tolerance 1 mm = 0 -300 mm

Tolerance 2 mm = 301-1200 mm

Tolerance 3 mm = 1201 mm and higher

Tolerances in straightness for coatings and finishing: ±1 mm for the dimensions lower than 500 mm ±2 mm for the dimensions between 501 mm and 1500 mm ±3 mm for the dimensions higher than 1500 mm.

Tolerance 1 mm = 0 - 500 mm

Tolerance 2 mm = 501-1500 mm

Tolerance 3 mm = 1501 mm and higher

Tolerances for mouldings and ornamentation: ±1 mm for the dimensions lower than 300 mm ±2 mm for the dimensions higher than 300 mm.

Tolerance 1 mm = 0-300 mm

Tolerance 2 mm = 301 mm and higher

All coatings will be assessed using the European Q standards

http://www.eurogypsum.org/wp-content/uploads/2015/04/EUROGYPSUMFINSHINGUK.pdf

- Q2 for taping and jointing
- Q3 and Q4 for full surface coatings

4.10 Skill assessment procedures

Assessment and marking are an intense process that depends upon skilful leadership, management, and scrutiny.

The Chief Expert and Deputy Chief Expert discuss and divide the Experts into marking teams. This is assessed by the WorldSkills Competition experience, culture, and language of the Experts.

The Expert marking teams mark the same aspects on every project.

The measurement, plumbs, level, and square will be assessed using the dual marking process.

5 The Test Project

5.1 General notes

Sections 3 and 4 govern the development of the Test Project. These notes are supplementary.

Whether it is a single entity, or a series of stand-alone or connected modules, the Test Project will enable the assessment of the applied knowledge, skills, and behaviours set out in each section of the WSOS.

The purpose of the Test Project is to provide full, balanced, and authentic opportunities for assessment and marking across the Standards, in conjunction with the Marking Scheme. The relationship between the Test Project, Marking Scheme, and Standards will be a key indicator of quality, as will be its relationship with actual work performance.

The Test Project will not cover areas outside the Standards, or affect the balance of marks within the Standards other than in the circumstances indicated by Section 2. This Technical Description will note any issues that affect the Test Project's capacity to support the full range of assessment relative to the Standards. Section 2.1 refers.

The Test Project will enable knowledge and understanding to be assessed solely through their applications within practical work. The Test Project will not assess knowledge of WorldSkills rules and regulations.

Most Test Projects (and Marking Schemes) are now designed and developed independently of the Experts. They are designed and developed either by the Skill Competition Manager, or an Independent Test Project Developer, normally from C-12 months. They are subject to independent review, verification, and validation. (Section 4.1 refers.)

The information provided below will be subject to what is known at the time of completing this Technical Description, and the requirement for confidentiality.

Please refer to the current version of the Competition Rules for further details.

5.2 Format/structure of the Test Project

The Test Project is a series of five (5) separately assessed modules.

One module will be freestyle with a maximum of two (2) hours. This process will be completed and assessed on the last day of the Competition. The Competitors can prepare some of their work before the competition (templates, drawings, running moulds, rubber moulds, etc.).

The compulsory Test Project consists of five (5) separate modules which will be assessed after the agreed time for the completion of the module:

- Module 1: Internal arrangement
- Module 2: Thermal or acoustic solution
    - Modules one and two may be built together as part of the overall Test Project and assessed upon completion within the agreed build time
- Module 3: Taping and jointing, plastering, external plastering
- Module 4: Decoration and ornamentation this could include a speed test
- Module 5: Freestyle

5.3 Test Project design requirements

The Competitors must carry out, independently, the following tasks without any outside help:

- Set out the walls, ceilings, and decorative elements;
- Build the walls and ceilings using a metal frame and clad them with plasterboard;
- Tape, joint, and finish the plasterboards;
- Measure, cut, and fix the prefabricated decorative moulding sections formed from plaster
- For the freestyle module the Competitor can use a decorative plastering technique to create a plaster effect which can be applied to the required module. This can be moulding sections run by the Competitor, decorative coatings, venetian plaster, and sgraffito or lighting effects. The Competitor has a free choice of technique;
- If need, plasterboard, metal frame, and studs will be provided;
- The provided materials will be listed in the Infrastructure List.
- No completed or pre-made sections can be used in this module. This could be prefabricated sections or a pre-cut template that is placed on the wall and worked to. If this occurs the Competitor will be given 0 marks for the freestyle module.
- The materials for this exercise can be brought to the Competition by the Competitor if they are not on the Infrastructure List but they must contain plaster. Specialist tools can be brought and used by the Competitor as well as special accessories such as spotlights. The Competitors must consider the space implications regarding the workshop floor space as the Competitor will not be allowed to encroach past their allotted space.

Module 1 (build) – Standard construction

- This module cannot exceed 2.2 m in height;
- This module must contain a 2.0 m² straight and plumb surface which will be used for application of module four;
- This module must contain at least one angle and two edges;
- The walls can be straight or curved and can contain door and window openings.
- Specialist plasterboard can be used to construct all or part of this module.

Module 2 (build) – Thermal or acoustic construction.

- This module can be independent or fixed to module 1;
- It must contain some insulating material to improve thermal or acoustic performance;
- Specialist plasterboards can be used to construct all or part of this module

Module 3: Taping and jointing, plastering, external plastering

- This process is completed using materials provided by the Competition Organizer**.**

Module 4: - Decoration and ornamentation

- This is produced by the Independent Test Project Designer and the drawing isgiven to the Competitors at the start of C3.
- This module can be used as a speed test.

Module 5: - Freestyle

- Each country will provide a freestyle model for their Competitor that best shows the skills of their Competitor and plastering skill to the wider audience.
- The drawing of the proposed freestyle module must be professionally produced and must be recognizable as the actual model that is produced on the wall with some allowances made for colour differences between the drawing and the actual model. The drawing must contain at least two (2) dimensions for assessment.
- The proposals are given to the SMT on C3.
- The number of techniques are considered during assessment.

5.4 Test Project development

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

5.4.1 Who develops the Test Project or modules

The Test Project/modules are developed by an Independent Test Project Designer in collaboration with the Skill Competition Manager.

5.4.2 When is the Test Project developed

The Test Project/modules are developed according to the following timeline:

Time	Activity
Prior to the Competition	• The Test Project/modules and Marking Scheme are developed by an Independent Test Project Designer.
At the Competition on C-2	• The Test Project is given to Competitors for three (3) hours and then taken away. The Expert can work with the Competitor for the first hour only. No digital or optical recording devices are allowed to be used on the stand during C-2 through C+1. • Any notes to be produced on paper provided by WSI (all numbered). All notes to remain "on stand". • The Competitors will produce a list of all components and materials they require to complete the build and finish the Test Project. (track, stud, plasterboards, screws, trims and beads, finishing materials, etc.). This is produced by the Competitors by the end of Familiarization Day and will form part of the Test Project assessment. • The list is given to the Workshop Manager who will provide all the materials to the Competitors work area for Competition start. This is done in consultation with the Competitor.

5.5 Test Project initial review and verification

The purpose of a Test Project is to create a challenge for Competitors which authentically represents working life for an outstanding practitioner in an identified occupation. By doing this, the Test Project will apply the Marking Scheme and fully represent the WSOS. In this way it is unique in its context, purpose, activities, and expectations,

To support Test Project design and development, a rigorous quality assurance and design process is in place (Competition Rules sections 10.6-10.7 refer.) Once approved by WorldSkills, the Independent Test Project Designer is expected to identify one or more independent, expert, and trusted individuals initially to review the Designer's ideas and plans, and subsequently to verify the Test Project, prior to validation.

A Skill Advisor will ensure and coordinate this arrangement, to guarantee the timeliness and thoroughness of both initial review, and verification, based on the risk analysis that underpins Section 10.7 of the Competition Rules.

5.6 Test Project validation

The Skill Competition Manager coordinates the validation and will ensure that the Test Project/modules can be completed within the material, equipment, knowledge, and time constraints of Competitors.

5.7 Test Project selection

The Test Project/modules are selected by the Independent Test Project Designer in collaboration with the Skill Competition Manager.

5.8 Test Project circulation

The Test Project is circulated via the website as follows:

The Test Project/modules are not circulated prior to the Competition. The Test Project is presented to Experts and Competitors on C-2 at the beginning of familiarization.

5.9 Test Project coordination (preparation for Competition)

Coordination of the Test Project/modules is undertaken by the Skill Competition Manager.

5.10 Test Project change

There is no 30% change required to be made to the Test Project/modules at the Competition. Exceptions are amendments to technical errors in the Test Project documents.

5.11 Material or manufacturer specifications

Specific material and/or manufacturer specifications required to allow the Competitor to complete the Test Project will be supplied by the Competition Organizer and are available from www.worldskills.org/infrastructure located in the Expert Centre. However, note that in some cases details of specific materials and/or manufacturer specifications may remain secret and will not be released prior to the Competition. These such items may include those for fault finding modules or modules not circulated.

If the Host Country's norms and manufacturer specifications are required to allow the Competitor to complete the Test Project, the manufacturer/supplier must provide by three (3) months prior to the Competition the necessary documents at least in English:

- Host Country's norms;
- Technical specifications;
- Installation guide.

6 Skill management and communication

6.1 Discussion Forum

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

6.2 Competitor information

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

This information includes:

- Competition Rules
- Technical Descriptions
- Mark Summary Form (where applicable)
- Test Projects (where applicable)
- Infrastructure List
- WorldSkills Health, Safety, and Environment Policy and Regulations
- Other Competition-related information

6.3 Test Projects [and Marking Schemes]

Circulated Test Projects will be available from www.worldskills.org/testprojects and the Competitor Centre (www.worldskills.org/competitorcentre).

6.4 Day-to-day management

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

6.5 General best practice procedures

General best practice procedures clearly delineate the difference between what is a best practice procedure and skill-specific rules (section 9). General best practice procedures are those where Experts and Competitors CANNOT be held accountable as a breach to the Competition Rules or skill-specific rules which would have a penalty applied as part of the Issue and Dispute Resolution procedure including the Code of Ethics and Conduct Penalty System. In some cases, general best practice procedures for Competitors may be reflected in the Marking Scheme.

Topic/task	Best practice procedure
Assessment	• The measurement, plumbs, levels, and squares are assessed using the dual marking system • Where there are differences between both marking teams, the aspect(s) are assessed again by both teams until they agree on the same result.
Marking teams	• The marking teams are chosen by Skill Competition Manager and the Chief Expert

7 Skill-specific safety requirements

Refer to WorldSkills Health, Safety, and Environment Policy and Regulations for Host country or region regulations.

Task	Safety glasses with side protection	Dust mask	Cut protection gloves	Safety shoes with protective cap	Sturdy shoes with closed toe and heel	Tight fitting work clothes (long trousers)	Hearing protection
General PPE for safe areas					√	√	
Using mechanical tools	√	√	√	√		√	√
Sanding of board edges and when sanding/rubbing down of plasters	√	√		√		√	√
Handling metal track and studs and when utilizing sharp point hand tools	√		√	√		√	

8 Materials and equipment

8.1 Infrastructure List

The Infrastructure List details all equipment, materials, and facilities provided by the Competition Organizer.

The Infrastructure List is available at www.worldskills.org/infrastructure.

The Infrastructure List specifies the items and quantities requested by the Skill Management Team for the next Competition. The Competition Organizer will progressively update the Infrastructure List specifying the actual quantity, type, brand, and model of the items. Note that in some cases details of specific materials and/or manufacturer specifications may remain secret and will not be released prior to the Competition. These such items may include those for fault finding modules or modules not circulated.

At each Competition, the Skill Management Team must review and update the Infrastructure List in preparation for the next Competition. The Skill Competition Manager must advise the Director of Skills Competitions of any increases in space and/or equipment.

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

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

8.2 Competitors toolbox

Competitors may bring more than one toolbox with the total external volume not exceeding 1.5 m³.

(Volume = Length x Height x Width, or V = L x H x W)

Volume measurement does not include a packing crate, other protective packing material, palette for transportation, wheels, etc.

8.3 Materials, equipment, and tools supplied by Competitors

The following items are allowed to be carried in the toolbox:

Item	Quantity	Photo
Measuring tape (2 m, 5 m);		
Ruler (1 m);		
Square;		
Mitre box;		
Feather edge ruler;		

Item	Quantity	Photo
Trowels, different types;		
Plastering knives and plastering spatulas;		
Plasterer's float, different types;		
Joint rules/mitre tools;		
Hammer;		
Wood and metal saws;		
Special saws for plasterboard;		
Abrasive paper;		
Rubber breakers;		
Brushes;		
Metal stud guillotine;		
Pencils;		
Felt board/felt sponge;		
Japanese spatulas;		
Chalk lines;		
Jig saw;		
Screw gun (single screw or collated);		
Grignoteuse;		
Gouges;		

Item	Quantity	Photo
Sponges;		
Surform plane;		
Tin snips (manual or battery powered)		

This list is not restrictive. Any tool that does not appear on the Infrastructure List is presented to the Experts and a vote will take place as to whether it can be used during the competition. A common-sense approach is taken.

Competitors are required to supply their own Personal Protective Equipment as specified in section 7 skill-specific safety requirements.

8.4 Materials, equipment, and tools supplied by Experts

Experts are not required to bring materials, equipment, or tools. All is supplied by the Competition Organizer.
Experts are required to supply their own Personal Protective Equipment as specified in section 7 skill-specific safety requirements.

8.5 Materials and equipment prohibited in the skill area

All metal sections are to be cut by a drywall guillotine or tin snips (manual or electric) and as a result electrical chop saws (or any saw that has a revolving blade) are prohibited in the Competition.

All mitres to cornice and panel moulds must be cut by hand and as a result electrical mitre saws (or any saw that has a revolving blade) are prohibited in the Competition.

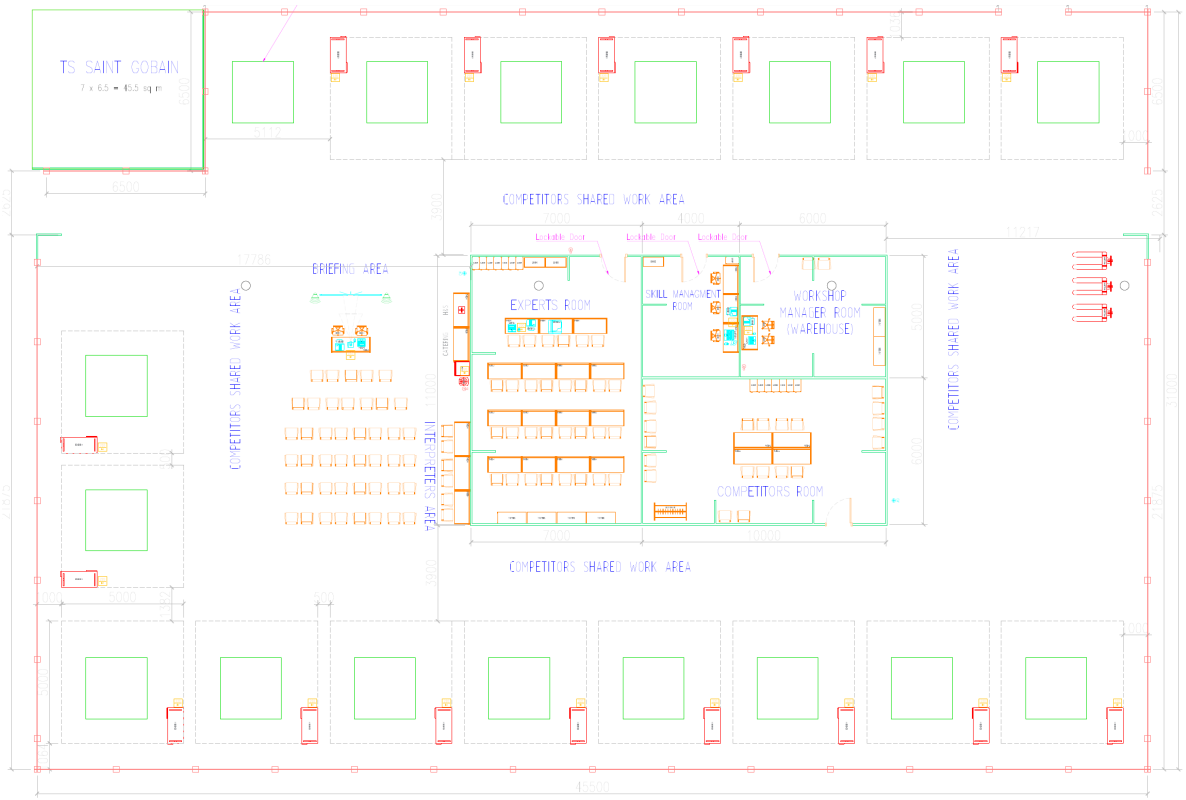
Competitors are not allowed to bring and use circular tools, chop saws etc. or vacuums for cleaning.

Competitors are not allowed to have templates or cutting lists they have prepared prior to the competition (e.g. book ends).

8.6 Proposed workshop and workstation layouts

Workshop layouts from previous competitions are available at www.worldskills.org/sitelayout.

Example workshop layout



9 Skill-specific rules

Skill-specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from skill competition to skill competition. This includes but is not limited to personal IT equipment, data storage devices, Internet access, procedures and workflow, and documentation management and distribution. Breaches of these rules will be solved according to the Issue and Dispute Resolution procedure including the Code of Ethics and Conduct Penalty System.

Topic/task	Skill-specific rules
Use of technology – USB, memory sticks	• Skill Competition Manager, Chief Expert, Deputy Chief Expert, Competitors, Experts, and Interpreters are allowed to have memory devices in the workshop.
Use of technology – personal laptops, tablets, and mobile phones	• Skill Competition Manager, Chief Expert, Deputy Chief Expert, Competitors, Experts, and Interpreters are allowed to use personal laptops, tablets, and mobile phones in the Expert room. • Chief Expert, Deputy Chief Expert, Competitors, Experts, and Interpreters are not allowed to use any recording devices (audio or visual) during C-2, C-1 or C+1 in the competition area.
Use of technology – personal photo and video taking devices	• Skill Competition Manager, Chief Expert, Deputy Chief Expert, Competitors, Experts, and Interpreters are allowed to use personal photo and video taking devices in the workshop from the end of the competition time on C3. • There is no taking of photographs or videos by Experts DCE, CE or Interpreters during the competition time on C3.
Drawings, recording information	• Competitors can only use the official Test Project drawings that are distributed at the competition.

10 Visitor and media engagement

Following is a list of possible ways to maximize visitor and media engagement:

- Try-a-Skill;
- Speed test in module three (decoration and ornamentation);
- Display screens (architectural works in plaster and plasterboard);
- Test Project descriptions;
- Career opportunities;
- Daily reporting of competition status.

11 Sustainability

This skill competition will focus on the sustainable practices below:

- Who of us does not live surrounded by gypsum? What home does not have plaster on the walls or plasterboards for its ceilings and interior lining? Who has not been impressed by offices, hotels, and public institutions whose interiors are shaped into intricate arches and curves, which are made possible by the use of plaster and plasterboards to create an aesthetically pleasing environment?
- Gypsum has been used by man in construction or decoration in the form of plaster and alabaster since 9000 B.C. During the time of the pharaohs, gypsum was used as mortar in the construction of Cheops Pyramid (3000 B.C.). In the Middles ages and Renaissance, decorations and artistic creations were made of plaster. Since then, the range of construction-related uses has continued to expand.
- The process to obtain plaster is simple: the mineral is extracted from the earth's crust (open or underground quarries), it is then exposed to certain thermal processes whereby it is partially dehydrated and after grinding becomes a fine white powder – commonly known as Plaster of Paris – which hardens when moistened and allowed to dry. There isn't any VOC (Volatile Organic Compound) inside.
- Gypsum is furthermore a raw material which can be eternally recycled to manufacture gypsum-based products (closed-loop recycling). We could say that gypsum is in that case close to being a "totally renewable natural resource".
- Incomparable Features:
  - Gypsum is fire protective. Gypsum is non-combustible and able to delay a fire's spread up to four hours. Gypsum acts, in this case, as a fire barrier and thus reduces home or business fire damage
  - Gypsum regulates sound and solutions. Gypsum walls, ceilings, and floors together with insulation materials create quiet zone in the house or business environment. They are designed to provide a physical barrier to sound, incorporate a sound break and minimize reverberation. These solutions are virtually indispensable for the interiors of homes and offices and indeed all types of buildings where people congregate such as school, shops, cinemas, airports, etc.
  - Gypsum acts as a thermal insulator when combined with insulation materials. Thanks to its low thermal conductivity, gypsum plasterboards contribute together with the insulating material to the insulation of external walls and linings.
  - Gypsum equilibrates humidity and heat peaks. Gypsum is capable of storing humidity when a room is humid and automatically releasing this humidity if the indoor air becomes too dry. Plaster and Plasterboards have also a "heat-storing" ability. Small temperature increases are absorbed and radiated back later when the temperature in the room decreases.
  - Gypsum is impact resistant. The gypsum industry provides plasterboards, plaster blocks and plaster with a degree of hardness equivalent to a thick wall heavy masonry construction.

Gypsum is multifaceted, multipurpose, supple, and aesthetic. A richness of forms can be created in plasterboard, plaster, or stucco. For architects, building with gypsum products allows them to answer, even more dramatically to the demands of their customer while remaining within an affordable budget. In Short, gypsum allows the creation of stunning interiors in any and all styles, from the classical to the modern.

12 References for industry consultation

WorldSkills is committed to ensuring that the WorldSkills Occupational Standards fully reflect the dynamism of internationally recognized best practice in industry and business. To do this WorldSkills approaches a number of organizations across the world that can offer feedback on the draft Description of the Associated Role and WorldSkills Occupational Standards on a two-yearly cycle.

In parallel to this, WSI consults three international occupational classifications and databases:

- ISCO-08: (http://www.ilo.org/public/english/bureau/stat/isco/isco08/) ILO 7123
- ESCO: (https://ec.europa.eu/esco/portal/home)
- O*NET OnLine (www.onetonline.org/)

This WSOS (Section 2) appears most closely to relate to *Plasterers*:
http://data.europa.eu/esco/isco/C7123

and Plasterers and *Stucco Masons*:
https://www.onetonline.org/link/summary/47-2161.00

These links also enable adjacent occupations to be explored.

The following table indicates which organizations were approached and provided valuable feedback for the Description of the Associated Role and WorldSkills Occupational Standards in place for WorldSkills Shanghai 2021.

Organization	Contact name
Taiwan Society of Dry Wall System Construction; National Huwei Agricultural & Industrial Vocational Senior High School	Chih-Yen Wu, Director, Executive Director, Director of Educational Affairs Division