CONSTRUCTION AND BUILDING TECHNOLOGY

Plastering and Drywall Systems

WorldSkills Occupational Standards

 WSC2022_WSOS21_Plastering_and_Drywall_Systems

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WorldSkills Occupational Standards (WSOS)

Occupation description and WSOS

The name of the occupation is

Plastering and Drywall Systems

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.

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.

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**

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.**onet**online.org/)

This WSOS 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 2022.

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