

TECHNICAL DESCRIPTION

LANDSCAPE GARDENING



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WorldSkills International, by a resolution of the Technical 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 skill**

1.1.1 The name of the skill is

Landscape Gardening

1.1.2 Description of skill

The scope and applications of the landscape gardener vary with a wide range of skill sets and competencies required overall. The practice of landscape gardening is usually relegated to installation and maintenance; however other aspects such as design, project management, and teaching are also part of many practitioners' careers.

Plant knowledge in name, culture and care are required knowledge and skills. Use of tools, equipment and machinery for installation and maintenance are also required. Landscape gardeners work from prepared plans and/or specifications, layouts in plan and elevation formats, along with detail and section drawings, notes and manufacturer's specifications.

Natural stone, along with precast concrete units, are used in the construction of walls, pavements, steps, and water features. Stone work requires specialised skills for installation, cutting or shaping, and finishing.

Timber work may include overhead structures such as arbours and pergolas, gazebos, fences and screens, decks and steps, and even retaining walls. While a natural material, timber is always cut and/or fashioned individually piece by piece, to suit the project, requiring skills in measuring, layout and marking and cutting accurately.

Landscape projects most often involve soil and aggregate installation, for plants or turf areas and for structures, respectively. Understanding the proper materials to use, and knowing how to install and prepare base layers of these materials, is important. Plants require careful handling during installation; turf areas are required to be smooth, firm and the sod joints properly meshed.

Landscape gardeners may be required to install water features, which may range from small pre-constructed pools and fountains to large, lined ponds with natural aspects such as waterfalls, rockery and stone or pebble layers. Electric pumps and the plumbing to make the system work may be required.

Often pre-manufactured items are included in a landscape, such as playground equipment, small ponds, drainage structures such as catch basins or tiling, site furniture including benches, pergolas, lighting fixtures, garbage receptacles and related items such as electrical or plumbing equipment or structures. Knowledge of their installation requirements and procedures is necessary for the suitable completion of projects.

1.1.3 Number of Competitors per team

Landscape Gardening is a team skill with 2 Competitors per team.

1.2 **Scope of application**

1.2.1 Every Expert and Competitor must know this Technical Description.

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

1.3 Associated documents

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

- WSI - Competition Rules
- WSI - Online resources as indicated in this document
- Host Country - Health and Safety regulations

2. **COMPETENCY AND SCOPE OF WORK**

The Competition is a demonstration and assessment of the competencies associated with this skill. The Test Project consists of practical work only.

2.1 Competency specification

Measure, mark, level and plumb

The Competitor shall be able to:

- read plans and dimensions, and measure to scale from plans
- translate measurements to full scale, and mark on materials for cutting with appropriate marking instruments, or on the site for layout with string-line
- install structural elements horizontally level or sloped as prescribed: for example, paving, steps, decks, turf, and other 'flat' areas
- install structural elements vertically level (plumb): for example, posts
- create surface drainage through slope and related manipulation of grades of finished surfaces

Cut and place stones, slabs and precast units

The Competitor shall be able to:

- cut natural or man-made materials to required sizes and/or shapes using hammer and chisel, table-mounted stone saw, or hand-held powered stone saw
- place single items and/or assemble multiple items as prescribed: for example, steps, walls, walks, patios and paths
- understand the various installation methods required for each type of structure and the manner in which the assembled pieces are best worked
- be knowledgeable and skilled in various styles of (dry) joints, ranging from natural and 'loose' to tight-fitting

Cut and assemble timber structures

The Competitor shall be able to:

- measure and accurately cut timber/wood pieces as prescribed
- understand angles, square-cut, bevel, mitre and other manners of cutting and joining timber/wood elements as prescribed in the drawings/specifications
- assemble timber/wood members using fasteners such as nails, screws, bolts, lags, brackets and fittings
- finish timber/wood assemblies through sanding and/or smoothing, staining or painting or other special treatments

Placing substrate, soil and mulch

The Competitor shall be able to:

- install aggregate bases of various descriptions for structures, including base materials in various layers and compact as prescribed
- install soil and/or soil amendments for planting as prescribed
- install organic and/or inorganic mulch materials for plantings or for other purposes

Installing rolls or slabs of turf or lawn

The Competitor shall be able to:

- prepare the soil area, firming it and levelling it as prescribed
- install the sod/turf rolls or slabs with joints as prescribed
- finish the turf area with rolling or flattening for a firm contact between root mass and soil and eliminate bumps or hollows and spaces as prescribed

Planting

The Competitor shall be able to:

- install trees and/or shrubs in planting pits or holes, removing root ball coverings and containers
- install perennials, annuals and/or ground covers in prepared planting beds as prescribed
- prune or trim branches and/or shoots as required, following standard horticultural practices for plant health as necessary and/or as prescribed

Plumbing, electrical, drainage, irrigation

The Competitor shall be able to:

- install, connect and test plumbing lines and fittings for successful water feature operation as prescribed
- install, connect and test low-voltage lighting system wiring and components as prescribed
- install drainage structures such as drain inlets, catch basins, underground piping and/or storage basins as prescribed
- install, connect, test and troubleshoot in-ground irrigation system components as prescribed

2.2 Theoretical knowledge

2.2.1 Theoretical knowledge is required but not tested explicitly.

2.2.2 Knowledge of rules and regulations is not examined.

2.3 Practical work

The landscape gardeners work in teams of two Competitors (of the same Member country/region) and must carry out, unaided and with expertise, the work necessary for the tests mentioned below, and must comply with regulations concerning safety and the protection of the environment with regard to the installation of a range of landscape works described in paragraph 1.1.2 above.

One day before the beginning of the Competition all materials, equipment and tools are to be allocated to each workstation. Experts will verify the quantity and quality of the allocated resources to ensure consistency.

The Competitors are to inspect all materials in their work space before the Competition commences and sign against the materials list.

3. THE TEST PROJECT

3.1 Format / structure of the Test Project

A single Test Project, it will be conducted in modular form and will be evaluated every day.

3.2 Test Project design requirements

- The Test Project should fill a space with a minimum of 30m² and a maximum of 50m².
- The Test Project involves the layout of a small garden by preparing and using various materials, such as natural stones, concrete, wood and/or plastics, soil, lawn and plants arranged according to an approved plan and specifications.

- At least three and a maximum of four of the following components will be required in addition to layout of green space (minimum 40% and maximum 60% of total area):
 - Pavement and/or other surfacing
 - Walls, retaining and/or freestanding
 - Stairs and/or steps
 - Wooden or similar construction
 - Water feature
- For a sample marking scale and instructions for Experts please refer to previous Competition documentation.

3.3 Test Project development

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

| Time | Activity |
|-----------------------------------|---|
| 6 months prior to the Competition | The Test Project is developed by the Host Member Practicing Landscape Designer with the Chief Expert. |
| 3 months prior to the Competition | The Test Project is circulated on the WSI website. The Test Project is validated by the Experts on the Discussion Forum. |
| At the Competition | The Experts form teams to determine the 30% change. |

- 3.3.1 Who develops the Test Project / modules
The Test Project / modules are developed by:

The Host Member with the Chief Expert

- 3.3.2 How and where is the Test Project / modules developed

Independently by a Practicing Landscape Designer using locally available materials with regard to the Assessment Criteria

- 3.3.3 When is the Test Project developed
The Test Project is developed:

By 6 months before the current Competition

3.4 Test Project marking scheme

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Section 5.

- 3.4.1 The marking scheme proposal is developed by the person(s) developing the Test Project. The detailed and final marking scheme is developed and agreed by all Experts at the Competition.

- 3.4.2 Marking schemes should be entered into the CIS prior to the Competition.

3.5 Test Project validation

The Test Project will be validated by the Experts prior to the Competition on the Landscape Gardening Discussion Forum.

3.6 Test Project selection

The Test Project is selected as follows:

Practicing Landscape Designer from the Host Member

3.7 Test Project circulation

The Test Project is circulated via WorldSkills International website as follows:

3 months before the current Competition

3.8 Test Project coordination (preparation for Competition)

Coordination of the Test Project will be undertaken by:

Chief Expert with Host Member

3.9 Test Project change at the Competition

The Experts will break into teams to determine the 30% change and vote on the final Test Project.

Before discussion of the 30% change a sample of all unique materials must be provided, with full botanical plant names in place of plant samples. It must be noted that changes may only be made that use the existing materials and should not require the addition of new materials.

3.10 Material or manufacturer specifications

Materials and specifications are to be posted on the WorldSkills International website (including photographs) with the Test Project 3 months before the current Competition.

4. SKILL MANAGEMENT AND COMMUNICATION

4.1 Discussion Forum

Prior to the Competition, all discussion, communication, collaboration and decision making regarding the skill must take place on the skill-specific Discussion Forum (<http://www.worldskills.org/forums>). All 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 moderator for this forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

4.2 Competitor information

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

This information includes:

- Competition Rules
- Technical Descriptions
- Test Projects
- Other Competition-related information

4.3 Test Projects

Circulated Test Projects will be available from [worldskills.org](http://www.worldskills.org) (<http://www.worldskills.org/testprojects>) and the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

4.4 Day-to-day management

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

5. **ASSESSMENT**

This section describes how the Experts will assess the Test Project / modules. It also specifies the assessment specifications and procedures and requirements for marking.

5.1 **Assessment criteria**

This section defines the assessment criteria and the number of marks (subjective and objective) awarded. The total number of marks for all assessment criteria must be 100.

| Section | Criterion | Marks | | |
|----------------|-----------------------|-------------------------------|-----------|------------|
| | | Subjective (if applicable) | Objective | Total |
| A | Work process | 20 | 0 | 20 |
| B | Layout of green space | 10 | 10 | 20 |
| C | Pavement | 3 | 12 | 15 |
| D | Walls and Stairs | 2 | 8 | 10 |
| E | Water feature | 2 | 8 | 10 |
| F | Wood constructions | 3 | 12 | 15 |
| G | General impression | 10 | 0 | 10 |
| Total = | | 50 | 50 | 100 |

5.2 **Subjective marking**

Scores are awarded on a scale of 1 to 10

5.3 **Skill assessment specification**

The skill assessment criteria are clear concise aspect specifications which explain exactly how and why a particular mark is awarded.

Skill assessment criteria will be determined by the Expert Panel after the 30% change has been determined. All objective marks will have tolerances in exact locations to ensure reliability during the marking process.

- Each criterion must have a maximum of 10 aspects
- Measurement and dimension aspects are as objective aspects in Section B, C, D, E and F.

Below is a guide to the aspects which will be assessed in each section of the Test Project.

A. Work process

- Cleanliness of site and security
- Organisation of work patterns and logistics
- Teamwork
- Use of tool, equipment and material
- Ergonomics, health and safety, personal protection

B. Layout of green space

- Placement of a specific tree
- Dimension of a specific flowerbed
- Skill of planting
- Planting to the plan
- Jointing of turf

C. Pavement

- Distance from front to corner of paving
- Height of stepping stone
- Paving level even
- Continuous even rows along length
- Finish of cuts

D. Walls and Stairs

- Distance from left side to corner of wall
- Height of upper stair stone
- Batter of wall
- Impression of front face of wall
- Stones evenly distributed across wall

E. Water feature

- Width of front of pond
- Height of water level
- Correct installation of pond liner-no leaks
- Position and stability of pond border stones
- Correct installation of water stone

F. Wood constructions

- Length of front side deck
- Height of pergola post
- Stability of construction of deck
- Precision of cuts of deck
- Correct use of fixings and screws of pergola

G. General impression

- Aesthetic appearance
- Creativity
- Overall cleanliness
- General appearance
- Combination of plants

5.4 Skill assessment procedures

A separate judging group/team will be designated to do specific objective measurements, and a system of procedures to develop and implement graduated/descriptive subjective marking will be developed.

- Marking will be objective and subjective in accordance with the marking scale.
- The criteria for each assessment must be practical to be marked at the completion of the Test Project or assessment points can be nominated to be assessed during the Competition provided a clear timeframe is given by the Chief Expert in the familiarisation period.
- Tolerances on each criterion must reflect industry standards.
- Marks will vary according to the marking scale as defined for the Competition, but will align to the following ranges within the skill groups as defined in paragraph 5.1.
- For each criterion there will be changes made to the Expert marking teams. In each team there must be Experts with different experience, culture, language and continent.
- A team of Experts marks similar aspects for all Competitors.
- Each Expert marks the same percentage of evaluation criteria where possible.

A - Work process

- The work process is subjective marking with description if possible
- Work process is assessed every day

B - Layout of green space

- Take location measurements of green objects with 2% tolerance to centre of stem/trunk
- Take dimensions of green objects with 2% tolerance
- Judge planting to plan only on main points as determined by consensus of Experts
- Turf joints must be tight and at the same level
- Turf is even with 6 mm tolerance under a level over a 1 m length

C - Pavement

- Take location measurements of pavement with 1% tolerance
- Take dimensions of pavement with 1% tolerance
- Natural stone pavement is even with 4 mm tolerance under a level over a 1 m length
- Artificial stone pavement is even with 2 mm tolerance under a level over a 1 m length
- Joints must be alternate in their pattern or design

D - Walls and Stairs

- Take location measurements of walls and stairs with 1% tolerance
- Take dimensions of walls and stairs with 1% tolerance
- Steps of a stair must be equal in height (rise)

E - Water feature

- Pond liner must be completely hidden

F - Wood constructions

- Take location measurements of timber constructions with 0.5% tolerance
- Take dimensions of timber constructions with 0.5% tolerance
- Posts of fences must be plumb
- Screws and nails must be aligned to each other

G - General impression

- General impression is subjective marking, with description if possible

All results may be displayed in the Competition area as per previous Competitions. This will be progressive marking for all sections of the Competition and will display the current total aggregate result per country/region team.

6. SKILL-SPECIFIC SAFETY REQUIREMENTS

Refer to Host Country Health & Safety documentation for Host Country regulations.

Specific safety requirements for Landscape Gardening when necessary for the Test Project been carried-out include but may not be limited to:

- Eye and Ear Protection
- Gloves
- Dust Mask
- Knee Protection
- Safety Boots
- Long Sleeved Shirt

7. MATERIALS & EQUIPMENT

7.1 Infrastructure List

The Infrastructure List details all equipment, materials and facilities provided by the Host Country.

The Infrastructure List is online (<http://www.worldskills.org/infrastructure/>).

The Infrastructure List specifies the items & quantities requested by the Experts for the next Competition. The Competition Organiser will progressively update the Infrastructure List specifying the actual quantity, type, brand/model of the items and provide photos where possible. Competition Organiser supplied items are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director 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.

7.2 Materials, equipment and tools supplied by Competitors in their toolbox

The team must bring all additional equipment. This may include:

- Levelling instruments (e.g. auto level, laser level)
- Double metre, tape measure
- Pencil / greasy chalk
- Alignment string
- Plumb line
- Lump hammer (non-recoil mallet, etc)
- Trowel
- Mason's hammer
- Square
- Spirit level
- Point tools
- Bolster (stone chisel)
- Jointer
- Carpenters saw
- Wood chisels
- Mallet
- Spade
- Pruning shears/secateurs
- Pruning saw
- Personal protection material (glasses, ear protection, gloves, safety boots, knee protection, long sleeve shirts and dust mask etc.)

No power tools will be allowed, they will be provided by the Competition Organiser as required. Tool box size is to be limited to 0.72 m³ inside, excluding measuring devices and personal protection equipment which can be transported in separate containers. No toolbox greater than this size is allowed in the Competition area.

This list is not intended to be exhaustive, additional equipment may be included as the teams deem necessary.

7.3 Materials, equipment and tools supplied by Experts

Not applicable

7.4 Materials & equipment prohibited in the skill area

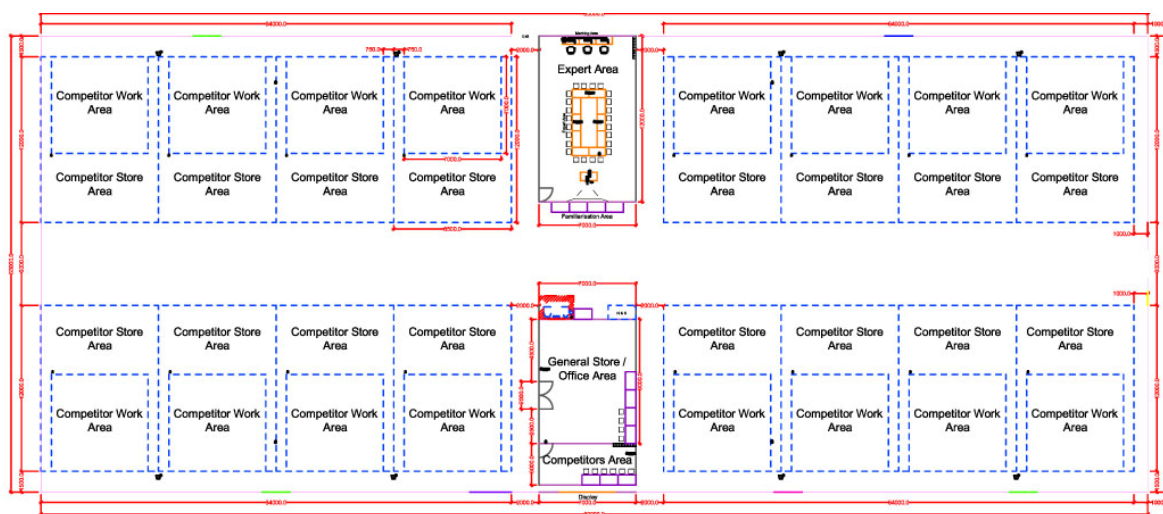
Materials and equipment which do not reach the required safety regulation will be prohibited.
Angle cutters are prohibited.

When completed the Test Project cannot include any material not provided by the Competition Organiser.

7.5 Proposed workshop and workstation layouts

Workshop layouts from London are available at:
http://www.worldskills.org/index.php?option=com_halls&Itemid=540

Workshop layout:



8. MARKETING THE SKILL TO VISITORS AND MEDIA

8.1 Maximising visitor and media engagement

To maximise visitor and media engagement in Landscape Gardening the following may be considered:

- "Try A Trade"
- Display screens
- Test Project descriptions/plans/drawings
- Enhanced understanding of Competitor activity
- Competitor profiles
- Career opportunities
- Daily reporting of competition status
- Visitor choice of "Best Garden"

8.2 Sustainability

- Recycling of materials after the competition, or use of recycled materials
- Use of 'green' materials and techniques
- Use of completed Test Projects (or parts thereof) after the Competition