PLUMBING AND HEATING (15)

EuroSkills Technical Description

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CONTENTS

WorldSkills Europe, by a resolution of the Competition Development Committee (CDC) and in accordance with the Constitution, the Standing Orders and the Competition Rules, has adopted the following minimum requirements for this skill for the EuroSkills Competition.

The Technical Description consists of the following:

Effective 12.02.2018

Mr Guillaume Suteau
Chair - CDC

Ms Szofia Csiszar
Vice Chair - CDC

1 INTRODUCTION

1.1 NAME AND DESCRIPTION OF THE SKILL COMPETITION

1.1.1 THE NAME OF THE SKILLS COMPETITION IS

Plumbing and Heating

1.1.2 DESCRIPTION OF THE ASSOCIATED WORK ROLE(S) OR OCCUPATION(S)

A plumbing and heating technician works on commercial, residential, agricultural and industrial projects. There is a direct relationship between the nature and quality of the product required and the payment made by the customer. Therefore the practitioner has a continuing responsibility to work professionally in order to meet the requirements of the customer and thus maintain and grow the business. Plumbing and heating is closely associated with other parts of the construction industry, and with the many products that support it, normally for commercial purposes.

The plumbing and heating technician works internally, including the homes of customers and on small and major projects. He or she will select and install, commission, test, report, maintain, fault find and repair systems to a high standard. Work organization and self-management, communication and interpersonal skills, problem solving, flexibility and a deep body of knowledge are the universal attributes of the outstanding practitioner.

Whether the plumbing and heating technician is working alone or in a team the individual takes on a high level of personal responsibility and autonomy. From working to provide a safe and reliable plumbing and heating service, in accordance with relevant standards, through to diagnosing malfunctions, programming and commissioning home and building automation systems, concentration, precision, accuracy and attention to detail every step in the process matters and mistakes are largely irreversible, costly and potentially life threatening.

With the international mobility of people the plumbing and heating technician faces rapidly expanding opportunities and challenges. For the talented practitioner there are many commercial and international opportunities; however these carry with them the need to understand and work with diverse needs, cultures and trends. The diversity of skills associated with plumbing and heating is therefore likely to expand.

1.2 THE CONTENT, RELEVANCE AND SIGNIFICANCE OF THIS DOCUMENT

This document incorporates a Role Description and Standards Specification which follow the principles and some or all of the content of the WorldSkills Standards Specifications. In doing so WSE acknowledges WorldSkills International's (WSI's) copyright. WSE also acknowledges WSI's intellectual property rights regarding 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:

- WSE – Competition Rules
- WSI – WorldSkills Standard Specification framework
- WSE – WorldSkills Europe Assessment Strategy
- WSE – Online resources as referenced in this document
- Host Country – Health and Safety regulations

2 THE STANDARDS SPECIFICATION

2.1 GENERAL NOTES REGARDING WSSS / WSESS

Where appropriate WSE has utilised some or all of the WorldSkills International Standards Specifications (WSSS) for those skills competitions that naturally align between the two international Competitions. Where the skill is exclusive to the EuroSkills Competition, WorldSkills Europe has developed its own Standards Specification (WSESS) using the same principles and framework to that used for the development of the WSSS. For the purposes of this document the use of the words “Standards Specification” will refer to both WSSS and WSESS.

The Standards Specification 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/WSSS) *(TBA for WorldSkills Europe)* Helpfully, for the global consultation on the WSSS in 2014, around 50 per cent of responses came from European industry and business.

Each skill competition is intended to reflect international best practice as described by the Standards Specification, and to the extent that it is able to. The Standards Specification 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 not be separate tests of knowledge and understanding.

The Standards Specification 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 Specification. The sum of all the percentage marks is 100.

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

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

2.2 STANDARDS SPECIFICATION

SECTION		RELATIVE IMPORTANCE %
1	**Work organization and self-management**	**10**
	The individual needs to know and understand: • The purposes, uses, maintenance and care of all equipment, together with their safety implications • The purposes, uses, care and potential risks associated with materials and chemicals • The purposes and uses of manufacturers’ specifications and drawings • Search methods for specific and non-specific information,	

	specifications and guidance • The time available an associated with each activity • The parameters within which activities need to be scheduled • The health and safety standards applying at any one time • The use of new technologies as a work aid • Principles and their application to good housekeeping in the work environment	
	The individual shall be able to: • The purposes, uses, maintenance and care of all equipment, together with their safety implications • The purposes, uses, care and potential risks associated with materials and chemicals • The purposes and uses of manufacturers' specifications and drawings • Search methods for specific and non-specific information, specifications and guidance • The time available an associated with each activity • The parameters within which activities need to be scheduled • The health and safety standards applying at any one time • The use of new technologies as a work aid • Principles and their application to good housekeeping in the work environment	
2	**Communication and interpersonal skills**	**10**
	The individual needs to know and understand: • The range and purposes of documentation, including text, graphical, paper based and electronic • Drawing notation and the symbols for pipe work, fittings and appliances • The technical language associated with the skill • The standards required for routine and exceptional reporting in oral, handwritten and electronic form • The nature of the reports provided by measuring equipment, together with their interpretation • The required standards for customer service and care	
	The individual shall be able to: • read, interpret and extract technical data and instructions from manuals and other documentation • communicate in the workshop by oral, written and electronic means using standard formats with clarity, effectiveness and efficiency • use a standard range of communications technology • respond to customer's needs face to face and indirectly	
3	**Design and Adapt installation systems**	**10**
	The individual needs to know and understand: • The information requirement underpinning the design of any installation system: • The principles and conventions used in specifications and	

	drawings • The range of specifications and drawings in use, and their purposes • The uses and limitations of the generally available drawing tools	
	The individual shall be able to: • Design installation systems within given parameters • Produce simple freehand sketches including isometric to support given architect drawings to aid install process, using standard conventions and symbols • Estimate the requirement for equipment and materials • Select the equipment and materials according to given criteria, including price • Check the price, recommend alternatives and either order the equipment and materials or amend the design of the system	
4	**Install plumbing and heating pipe-work brackets and clips and prefabricate the required pipe-work layouts into sub-assemblies**	**40**

	The individual needs to know and understand:
	• The uses and limitations of the specified bending and jointing methods, materials and fittings in order to complete a leak-free installation
	• Methods of connection to services from utilities provider
	• The range and characteristics of bending / jointing methods, materials and fittings
	• Properties of the piping material available:
	• for example:
	  • Copper
	  • Steel
	  • Stainless steel
	  • Cast – iron
	  • Polymer pipe
	  • Plastic (single- or multi-layered)
	• In order to handle, cut, bend, joint and form sub-assemblies
	• The safe operation of the cutting, bending, threading, soldering, and testing equipment provided
	• The applications appropriate to
	  • Surface wall installation
	  • Hot water installations
	  • Cold Water Installations
	  • Heating systems
	  • Underfloor heating
	  • Air to water systems of heating	

	The individual shall be able to: • Read and interpret drawing for a range of systems and appliances • Interpret drawings to facilitate pipe-work fabrication and the installation of appliances • modify the area and surfaces, as required, to permit fixing and assembly • take and transfer measurements and angles from given drawings	

	to surfaces and piping materials • Select suitable fixing methods for the available surfaces, appliances and environment • Fix an appropriate number and diameter of pipe brackets/clips in the correct or specified configuration • Determine the optimal way to use the given materials to complete the assembly in a sustainable manner • Create freehand sketches for the purposes of pipe bending and assembly • Limit the generation of scrap and waste • Determine and use the correct positions for cutting the piping material • Measure, set out and mark the materials and pipe-work • Determine the correct positions for bending the piping material • Select an appropriate method and safe method for cutting the piping material • Utilize the chosen method to bend the piping material safely • Utilize the chosen jointing method to form the pipe-work sub-assemblies • Install the pipe-work sub-assemblies utilising the previously fitted brackets/clips • Connect the pipe-work to the appliances/utilities • Build up gas, water, heating and effluent pipe installations • Process commercial materials into installations	
5	**Connect and test completed pipe-work modules / Commission plumbing and heating assemblies and appliances**	**15**
	The individual needs to know and understand: • The procedures, equipment and legislative requirements for applying soundness tests to systems • The methods of establishing that utilities adequately supply all components within the system • The actions to take where pre-commissioning checks or tests reveal system or component defects • How to complete commissioning documentation confirming the safe commissioning of systems and components • The sources of information on the performance of systems or components • The procedures for establishing correct system or component performance and checking against the design specification • The routines and sequences for commissioning systems or components • The actions to take when components being commissioned do not meet design requirements • System handover procedures and demonstrating the operation of systems and components to end users	
	The individual shall be able to: • Perform all pre-commissioning / commissioning tasks • Connect test equipment to the pipe-work • Pressure test the pipe-work to ensure conformity to specification • Fill the pipe-work and appliance and assess the flow rate / pressures to specifications	

6	**Repair, maintain or replace a range of plumbing and heating appliances / Problem solving, innovation and creativity**	**15**
	The individual needs to know and understand: • Features of excellent customer service • Kinds of questioning and listening techniques would you use to find out what your customer is looking for • The range of information that should be available on the routine and non-routine service and maintenance requirements of systems and components • The methods of protecting customers' property within the range of locations in which the work is carried out • The maintenance procedures necessary to ensure compliance with industry requirements for routine and non-routine maintenance activities • How to complete records and reports of the maintenance of systems and components • The action to take when the system or component does not work to full performance specification • The measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures • Research the main features of each possible option, including risk factors • Select and use different methods for exploring the problem, including dividing it into sub-problems, and analyse its features • System handover procedures and demonstrating the operation of systems and components to end users	
	The individual shall be able to: • Prepare the work area, safeguarding surrounding areas • Diagnose the quality or deficiencies of appliances, components and systems • Identify the relative advantages or possibilities of maintenance, repair or replacement • Identify the method of maintaining, repairing or replacing the appliances or systems • Acquire components or replacements as determined • Maintain, repair or replace the appliances or systems, as advisable and agreed • Open valves, recharge with air (2 bar) and check for leaks • Re-commission system • Check for correct function (flow, pressure, performance etc. as specification • Restore the area to its former condition • Hand over the installation to the customer • Provide the customer with all appropriate user information and answer questions	
	Total	**100%**

3 THE ASSESSMENT APPROACH & PRINCIPLES

3.1 GENERAL GUIDANCE

Note: this Section and Section 4 summarize a great deal of new information and guidance regarding assessment. Please refer to the Competition Rules for greater detail.

The Competition Development Committee (CDC) establishes the principles and techniques to which assessment at the EuroSkills Competition must conform.

Expert assessment practice lies at the heart of the EuroSkills 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 EuroSkills Competition: the Marking Scheme, Test Project, and Competition Information System (CIS).

Assessment at the EuroSkills Competition falls into two broad types: measurement and judgement. Where the earlier terms “objective” and “subjective” still occur, these must be understood to mean measurement and judgement for all procedural and practical purposes. All assessment will be governed by explicit benchmarks, referenced to best practice in industry and business.

The Marking Scheme must include these benchmarks and follow the weightings within the Standards Specification. The Test Project is the assessment vehicle for the skill competition, and also follows the Standards Specification. The CIS enables the timely and accurate recording of marks, and has expanding supportive capacity.

The Marking Scheme, in outline, will lead the process of Test Project design. After this, the Marking Scheme and Test Project will be designed and developed through an iterative process, to ensure that both together optimize their relationship with the Technical Description and the principles for assessment as set out in the WSE Assessment Strategy. They will be agreed by the Experts and submitted to WSE for approval together, in order to demonstrate their quality and conformity with the Standard Specification.

Prior to submission for approval to WSE, the Marking Scheme and Test Project will be reviewed by the WSE Skill Advisors in order 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 EuroSkills Competition, in that it ties assessment to the standards that represent the skills to be tested. It is designed to allocate marks for each assessed aspect of performance in accordance with the weightings in the Standards Specification.

By reflecting the weightings in the Standards Specification, the Marking Scheme establishes the parameters for the design of the Test Project. Depending on the nature of the skill 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 Specification, if there is no practicable alternative.

The Marking Scheme and Test Project may be developed by one person, or several, or by all Experts. The detailed and final Marking Scheme and Test Project must be approved by the whole Expert Jury prior to submission for independent quality assurance. The exception to this process is for those skill competitions which use an external designer for the development of the Marking Scheme and Test Project.

In addition, Experts are encouraged to submit their Marking Schemes and Test Projects for comment and provisional approval well in advance of completion, in order to avoid disappointment or setbacks at a late stage. They are also advised to work with the CIS Team at this intermediate stage, in order to take full advantage of the possibilities of the CIS.

In all cases the complete and approved Marking Scheme must be entered into the CIS at least eight weeks prior to the Competition using the CIS standard spreadsheet or other agreed methods.

4.2 ASSESSMENT CRITERIA

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

Assessment Criteria are created by the person(s) developing the Marking Scheme, who are free to define 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 Mark Summary Form generated by the CIS will comprise a list of the Assessment 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 of assessment 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 EuroSkills marking form.

Each marking form (Sub Criterion) has a specified day on which it will be marked.

Each marking form (Sub Criterion) contains Aspects to be assessed and marked by measurement or judgement. Some Sub Criteria have assessment by both measurement and judgement, in which case there is a separate marking form for each method

4.4 ASPECTS

Each Aspect defines, in detail, a single item to be assessed and marked together with the marks, or instructions for how the marks are to be awarded. Aspects are assessed either by measurement or judgement and appear on the appropriate marking form.

The marking form lists, in detail, every Aspect to be marked together with the mark allocated to it, the benchmarks, and a reference to the section of the Standards Specification.

The sum of the marks allocated to each Aspect must fall within the range of marks specified for that section of the Standards Specification. 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).

	CRITERIA									TOTAL MARKS PER SECTION
STANDARD SPECIFICATION SECTIONS	A	B	C	D	E	F	G	H	I	
1										
2										
3										
4										
5										
6										
7										
8										
9										
TOTAL MARKS PER CRITERION										100

4.5 ASSESSMENT AND MARKING BY JUDGEMENT

In addition to measurement, Experts are expected to make professional judgements. These are normally judgements about quality. Benchmarks will be designed, agreed and recorded during the design and finalization of the Marking Scheme and Test Project in order to steer and support these judgements.

Marking through judgement uses the following scale:

- 0: performance below industry standard to any extent, including a non-attempt
- 1: performance that meets industry standard
- 2: performance that both meets industry standard and surpasses that standard to some extent
- 3: excellent or outstanding performance relative to industry standards and expectations.

4.6 ASSESSMENT AND MARKING BY MEASUREMENT

Unless otherwise stated, only the maximum mark or zero will be awarded. Where they are used, partial marks will be clearly defined within the Aspect.

4.7 ASSESSMENT OVERVIEW

For both measurement and judgement there will be three Experts in the assessment team.

Good practice in assessment comprises measurement and judgement applied both specifically and broadly. The final proportions of measurement and judgment, whether specific or broad, will be determined by the standards, their weightings and the nature of the Test Project.

4.8 COMPLETION OF SKILL ASSESSMENT SPECIFICATION

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

SECTION	CRITERION	MARKS		
		Judgement	**Measurement**	**Total**
	Total =			**100**

4.9 SKILL ASSESSMENT PROCEDURES

The Chief Expert divides the Experts of the Jury in such way that 3 Experts must be assigned to assess each Aspect of a Sub Criterion. Each marking group must mark the same Aspects of a Sub Criterion for every Competitor to ensure standardisation of marking. For equality of marking, each marking group should, where possible, mark a similar number of Aspects of a Sub Criterion.

As a general rule, the marking groups will be organised so that Experts do not mark their compatriot Competitors.

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 skills in each section of the Standards Specification.

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

The Test Project will not cover areas outside the Standards Specification, or affect the balance of marks within the Standards Specification other than in the circumstances indicated by Section **Fout! Verwijzingsbron niet gevonden.**.1.

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 the Euro Skills Competition's rules and regulations.

This Technical Description will note any issues that affect the Test Project's capacity to support the full range of assessment relative to the Standard Specification. Section 2.1 refers.

5.2 FORMAT/ STRUCTURE OF THE TEST PROJECT

[ ] Test Project assessed at end of Competition

[ ] Test Project with separately assessed modules

[X] Test Project assessed in stages

[ ] Series of standalone modules

[ ] Other

If other, please specify here:

5.3 TEST PROJECT DESIGN REQUIREMENTS

- The accepted project shall reflect current commercial, domestic plumbing and heating standards and practices; please see Section 2 for these.
- The project should be as small as practical and materials available in the host country for sustainability.
- Copper pipe supplied by the Competition Organizer must be of a grade that permits bending by hand operated machines.

- All piping materials supplied by the Competition Organizer must be uniform wall thickness throughout.
- The use of solvent weld adhesives on PVC pipe – work and components is not permitted.
- The bronze welding of copper pipe and copper fittings is not permitted.
- The work may only involve the use of the following materials.
- Galvanized , Black Mild Steel , Stainless Steel and light cast iron pipes.
- Copper pipes (half hard temper bending quality in straight lengths).
- Plastic pipes (PE , PEX , PB , HDPE , PP , PVC , composite pipe) for water supply , heating.
- Commercially available fittings to suit all piping materials as required without any adaption.
- Jointing and sealing materials.
- Pipe brackets and fixing materials.
- Leak detection fluid or spray.

The Test Project must:

- Be a Computer Assisted Drawing (CAD) supplied on disk and in hard copy.
- Contain a detailed material list. Note: The materials must be available in the Host country / region.
- Be self–explanatory requiring a minimum of translation.

A comprehensive list of materials and components (including the relevant manufacturer's catalogues) for both the pipework and "' workstation "' components must accompany all projects and must be submitted six months prior the Competition.

5.4 TEST PROJECT DEVELOPMENT

The Test Project MUST be submitted using the templates provided by WSE. Use the Word template for text documents and DWG template for drawings. Please contact jordy.degroot@wordskillseurope.org for guidance.

5.4.1 WHO DEVELOPS THE TEST PROJECTS OR MODULES

[ ] All Experts

[ ] Some Experts

[X] Nominated Experts

[ ] Equipment supplier

5.4.2 HOW AND WHERE IS THE TEST PROJECTS OR MODULES DEVELOPED

The Test Project or modules are developed:

[X] Jointly on the Discussion Forum

[ ] By an external enterprise

[ ] Independently

5.4.3 WHEN IS THE TEST PROJECT DEVELOPED

The Test Project is developed according to the following timeline:

TIME	ACTIVITY
At the previous Competition	not applicable
6 months prior to the Competition	Until 6 months before the current Competition

At the Competition	not applicable

5.5 TEST PROJECT VALIDATION

The Test Project will be developed by the DCE`s and Experts, checked by the Chief Expert and validated by WorldSkills Europe.

5.6 TEST PROJECT SELECTION

[X] By vote of Experts at the previous Competition

[ ] By vote of Experts on the Discussion Forum

[ ] By vote of Experts at the current Competition

[ ] By random draw by Technical Director 3 months before the current Competition

[ ] Other

If other, please specify here

5.7 TEST PROJECT CIRCULATION

The Test Project is circulated via the website as follows:

[X] Submitted to Secretariat at previous Competition for validation and circulation 6 months before the current Competition

[ ] Not circulated

[ ] Other

If other, please specify here

5.8 TEST PROJECT COORDINATION (PREPARATION FOR COMPETITION)

Coordination of the Test Project will be undertaken by:

[ ] Skill Management Team

[ ] Chief Expert

[X] Chief Expert and Deputy Chief Expert

[ ] Chief Expert and Workshop Manager

[ ] Chief Expert with selected Experts

[ ] Chief Expert with Competition Organizer

[ ] Experts

[ ] Other

If other, please specify here:

5.9 TEST PROJECT CHANGE AT THE COMPETITION

A 30% change to the content of the Test Project will be organised through a method decided upon at the CPW following consultation with the Experts. The 30% change will not affect the infrastructure list.

5.10 MATERIAL OR MANUFACTURER SPECIFICATIONS

6 months before the current Competition by the Chief Expert on the Discussion Forum.

6 SKILL MANAGEMENT AND COMMUNICATION

6.1 DISCUSSION FORUM

Prior to the EuroSkills Competition, all discussion, communication, collaboration, and decision making regarding the skill competition must take place on the skill specific Discussion Forum, which can be reached via www.worldskillseurope.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 WorldSkills Europe website www.worldskillseurope.org. Please contact jordy.degroot@wordskillseurope.org for guidance.

The information includes:

- Competition Rules
- Technical Descriptions
- Marking Schemes
- Test Projects
- Infrastructure List
- Health and Safety documentation
- Other Competition-related information

6.3 TEST PROJECTS AND MARKING SCHEMES

Circulated Test Projects will be available at the WorldSkills Europe website from www.worldskillseurope.org. Please contact jordy.degroot@wordskillseurope.org for guidance.

6.4 DAY-TO-DAY MANAGEMENT

The day-to-day management of the skill competition during the EuroSkills Competition 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 finalized at the Competition by agreement of the Experts. The Skill Management Plan can be viewed at www.worldskillseurope.org. Please contact jordy.degroot@wordskillseurope.org for guidance.

7 SKILL SPECIFIC SAFETY REQUIREMENTS

Refer to Host Country/Region Health and Safety documentation for Host Country/Region regulations.

The Trade-Specific Safety Requirements will be published 6 months before the Competition by the Chief-Expert.

8 MATERIALS AND EQUIPMENT

8.1 INFRASTRUCTURE LIST

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

The Infrastructure Lists will be available at the WorldSkills Europe website from www.worldskillseurope.org. Please contact jordy.degroot@wordskillseurope.org for guidance.

The Infrastructure List specifies the items and quantities requested by the Experts for the next Competition. The Competition Organizer will progressively update the Infrastructure List specifying the actual quantity, type, brand, and model of the items. Items supplied by the Competition Organizer 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.

8.2 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY COMPETITORS IN THEIR TOOLBOX

Information about materials, equipment and tools supplied by Competitors will be distributed with the Test Project at least 6 months prior the current competition.

8.3 MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY EXPERTS

Not applicable

8.4 MATERIALS AND EQUIPMENT PROHIBITED IN THE SKILL AREA

Competitors are not permitted to bring electric powered equipment to the competition, other than re-chargeable battery operated hand drills, and other equipment, materials will be prescribed by the organisers in H&S regulations.

8.5 PROPOSED WORKSHOP AND WORKSTATION

Workshop layouts from previous competitions are available by contacting the Technical Coordinator at: jordy.degroot@wordskillseurope.org

For workshop development, please check the forums.

9 VISITOR AND MEDIA ENGAGEMENT

- Try a trade
- Display screens
- Test Project descriptions
- Enhanced understanding of Competitor activity
- Competitor profiles
- Career opportunities
- Time based parts of the Test Project

10 SUSTAINABILITY

- Recycling
- Use of ‘green’ materials
- Use of completed Test Projects after Competition