

Test Project

Skill 15 plumbing & heating skills

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Admission

Sanitary and heating installations are a skill in the national SkillsPoland competition dedicated to the best vocational young plumbers and students aged 18-21, selected during the pre-qualification, from among vocational young plumbers and students nominated by 27 technical secondary schools and technical universities across Poland.

The SkillsPoland 2025 competition in the sanitary and heating skills will have the same standard as the international competition WorldSkills 2023 in Lyon, France and EuroSkills 2025 in Herning, Denmark and will present the competitors with a real challenge, which is to win a nomination for the WorldSkills 2026 competition and the title of the best young Installer in Poland in 2025.

This year, the competitors will face completely new challenges, which, in addition to the already used copper installation, flush-mounted elements, underfloor heating, i.e. MLC and PEX installations, heat interface unit, safety fittings (safety valve and expansion vessel), hydraulic clutch. This year, a new task type has been introduced, i.e. speed task module. All technologies and tasks have been selected in such a way as to effectively verify the knowledge and practical skills acquired by the competitors, to check their resistance to stress and operation under time pressure, and most importantly to assess the quality and productivity of the competitors during the 16 hours of the SkillsPoland competition.

Description of the project and tasks

This year's competition project brings with it new challenges that require the competitors to work quickly and with high quality using traditional skills. All modules of project A, B, C, D, E, have been described in a strict time regime. Completing the first module allows the player to start the next one. The competitor must combine productivity with quality and use his skills for a simulated assembly of the boiler room and bathroom. This competition will test a wide range of skills used in water installations and heating systems.

The installer works on commercial, residential, agricultural and industrial projects. There is a direct relationship between the nature and quality of the expected result of the work performed and the payment made by the client. Therefore, the professional in question is responsible for the correct execution of the installation and aims to meet the requirements of the customer and thus the maintenance and development of the installer's company. Plumbing and heating systems are closely related to other sectors of the construction industry and to many of the products that support them, usually for commercial purposes.

The installer works indoors and outdoors, including in customers' homes and on small and large projects. Its task is to plan and design, as well as selection and installation, commissioning, decommissioning, testing, maintenance, detection of faults and repair of installations in accordance with stringent standards. Work organization and self-control, communication and interpersonal skills, problem solving, flexibility and a wide range of knowledge are universal attributes of an outstanding practitioner in a given profession.

Whether the installer works alone or in a team, this person is characterized by a high level of personal responsibility and autonomy. From the execution of the work itself, to ensure safe and reliable plumbing and heating services, in accordance with relevant standards, to the diagnosis of failures, to the commissioning of plumbing, sewage and heating systems and components, features such as precision, accuracy and attention to detail at each stage of the process are important, and errors are largely irreversible, costly and potentially life-threatening.

Competition project No. 15, sanitary and heating installations has been divided into 5 modules, which are detailed below.

Module A – a typical bathroom installation in a multi-floor building includes the installation of frames (toilet and washbasin), the installation of a flush-mounted element for the shower and sewage system in accordance with the manufacturer's instructions.

Module B – a typical bathroom installation in a multi- floor building includes the execution of cold and hot water installations, in accordance with the manufacturer's instructions.

Module C – a typical heating system in a boiler room in a single-family building includes central heating installation, connection of a hydraulic clutch, circulation pumps, connection of distributors to the floor system, according to the manufacturer's instructions.

Module D – a typical bathroom installation in a single-family building includes the installation of underfloor heating, in accordance with the manufacturer's instructions.

Module E – a typical heating system in a bathroom in a multi- floor building includes the execution of a central heating installation.

Instructions for the player

Since the projects for each task are intended to be as challenging as possible for the competitors, and the drawings for the tasks and the manufacturers' instructions do not require additional translations, a description of the project with a brief discussion of the tasks will be provided to all competitors by November 15, 2025.

When performing the installation, it is the athlete's responsibility to follow the information contained in the description of tasks, installation drawings, and in the case of installation of equipment, to follow the manufacturer's instructions.

The total duration of the SkillsPoland competition in sanitary and heating systems is 16 hours.

Competitors will receive drawings of the Modules on days C1 to C3 and will return them as control documents to the Lead Expert at the end of each work on days C1 to C3.

Module A – Bathroom installation – frames, concealed shower element and sewage system

The task includes the installation of frames (toilet and washbasin), a concealed shower element and the installation of sewer pipes. After completing module A, contestant can move on to module B. Contestant will not be able to return to module A when they move on. It is the player's responsibility to notify the Experts about the completion of module A.

Competitors will receive the drawings of module A on day C1 and will return them to the Chief expert as a control document after completing the work on day C1.

Time – 2 hours. Day C1.

Module B – Bathroom installation – hot and cold water installation.

The task involves the installation of MLC installations with a diameter of Ø 16 mm, with bending, with clamped fittings to sanitary equipment (frames) and concealed shower elements, as well as to a security group and a home heat interface unit for heating and domestic hot water circulation. The task ends with a pressure test on the hot and cold water installations.

It is the contestant's duty to notify the Experts of their readiness to perform an official pressure test. The competitor has the right to test the installation himself before requesting an official test. The competitor must clean up any leaks before asking the assessing team to check the connection. The test will be conducted by

at least 2 Experts and will last 2 minutes and keep 2 bar. All self-pressure tests must be completed during the duration of the module.

NOTE: The competitor must declare their readiness to perform the official pressure test before the end of the module. The competitor may only do the official pressure test once.

Competitors will receive drawings of Module B on day C1 and will return it to the Chief expert as a control document after completing their work on day C1.

After completing module B, the contestant cannot move to module C.

If a competitor does not complete modules A and B on day C1, he will not be able to complete them on day C2.

Time – 2 hours. Day C1.

Module C – central heating room installation – execution of the central heating installation

The task involves the installation of copper pipes with a diameter of Ø 15 and 18 mm, with bending, with soldering fittings and with the installation of MLC installations with a diameter of Ø 20 mm, with bending, with clamped fittings to the hydraulic coupling, circulation pumps, manifolds for the floor installation and for the home heat interface unit for heating circulation. for the copper installation. The task ends with a pressure test on the central heating installation (2 circuits).

It is the contestant's duty to notify the Experts of their readiness to perform an official pressure test. The competitor has the right to test the installation himself before requesting an official test. The competitor must clean up any leaks before asking the assessing team to check the connection. The test will be conducted by at least 2 Experts and will last 2 minutes and keep 2 bar. All self-pressure tests must be completed during the duration of the module.

NOTE: The competitor must declare their readiness to perform the official pressure test before the end of the module. The competitor may only do the official pressure test once.

Competitors will receive drawings of module c on day C2 and will return it to the Chief expert as a control document after completing their work on day C2.

After completing module c, the contestant cannot move to module D.

Time – 8 hours. Day C2.

Module D – Bathroom installation – installation of the floor heating installation. Task on time.

A typical heating system in a bathroom in a single-family building involves the installation of a floor.

The task involves installing the floor heating installation with PEX of Ø 9.9 mm to the manifold, in accordance with the manufacturer's instructions.

Competitors will receive drawings of module D on day C3 and return it to the Chief expert as a control document after completing work on day C3.

The competitor has 0.5 hours to complete module D. Day C3

Module E – Heating system – hidden module.

The competitors will learn the content of this module on day C3.

Time – 3.5 hours. Day C3.

Information about breaks:

The designated expert will inform competitors 5 minutes before the start of breaks between modules or during them. The designated expert will inform competitors 30 minutes and 15 minutes before the end of the competition on days C1, C2, and C3.

Other useful information:

Each competitor must decide the location and number of MLC and copper mounting points on the wall. The drawings provided for the task modules do not include this information.

All competitors are expected to use tools and products in a way that follows the manufacturer's instructions and with proper care. Soldering should be done in a way that is safe for the competitor and the area around. Soldering on the floor and walls should be done using fireproof mats.

Required equipment, machinery, installations and materials

It is expected that all tasks can be completed using the equipment and materials specified in the Infrastructural list.

If any equipment or material is needed that is not listed on the list, the competitors have been informed about this fact by the main expert at least 10 days before the competition.

The competitor is obliged to bring to the competition:

1. Safety glasses and gloves
2. shoes with toe caps, work pants
3. pencil, marker, pen, notebook / A4 notebook, pencil
4. pocket calculator (you cannot use a mobile phone and digital watch)
5. option - earplugs, headphones without WIFI connection

Health safety

It is expected that all competitors will arrive at the SkillsPoland competition fully healthy. If the competitor falls ill, he is obliged to resign from participating in the competition and to immediately inform SkillsPoland about the inability to participate in the competition. If a competitor falls ill during the competition, he will be removed from participation in the competition, for the sake of the health safety of other competitors.



**Co-funded by
the European Union**