OCCUPATIONAL QUALIFICATION STANDARD

Diploma Engineer in Water Supply and Sewerage, EstQF Level 7

An occupational qualification standard is a document which describes the set of skills, knowledge and attitudes, i.e. competence requirements, needed to successfully accomplish duties. Occupational qualification standards are used for compiling curricula and awarding qualifications.

Occupational title	Level of Estonian Qualifications Framework (EstQF)
Diploma Engineer in Water Supply and Sewerage, EstQF Level 7	7

Possible specialisation and titles on occupational certificate	
Specialisation	**Title on occupational qualification certificate**
Building's water supply and sewerage	Diploma Engineer in Water Supply and Sewerage, EstQF Level 7 Building's water supply and sewerage
External water supply and sewerage	Diploma Engineer in Water Supply and Sewerage, EstQF Level 7 External water supply and sewerage

Part A
DESCRIPTION OF WORK

A.1 Description of work

An engineer in water supply and sewerage (hereinafter referred to as a WSS engineer) acts as a specialist in establishing, expanding and reconstructing water supply and sewerage structures and equipment for buildings and external water supply and sewerage, and in the demolition of water supply and sewerage structures and equipment. The main task of a WSS engineer is developing engineering and technological solutions and implementing project solutions with regard to social, economic and ethical aspects, environmental protection and occupational health and safety. A WSS engineer cooperates with specialists from related fields.

The following occupational qualification standards have been developed in the profession of WSS engineer:
- Engineer in Water Supply and Sewerage, EstQF Level 6
- Diploma Engineer in Water Supply and Sewerage, EstQF Level 7
- Chartered Engineer in Water Supply and Sewerage, EstQF Level 8

The profession of WSS engineer consists of two specialisations:
1) building's water supply and sewerage
2) external water supply and sewerage

Depending on the specialisation, at least one of the following occupations must be chosen:
1) Building's water supply and sewerage
- compiling the construction project for a building's water supply and sewerage
- managing construction
- managing construction operations
- performing owner’s supervision
- providing expert analysis of a building's water supply and sewerage construction project
- auditing a building's water supply and sewerage
- managing design work[1]

2) External water supply and sewerage

- compiling the construction project for external water supply and sewerage
- managing construction
- managing construction operations
- performing owner's supervision
- providing expert analysis of an external water supply and sewerage construction project
- auditing external water supply and sewerage
- managing design work[1]

Diploma Engineer in Water Supply and Sewerage, EstQF Level 7 is a specialist who is responsible for the results of both their own work and that of their team.
The occupational qualification of Certified Engineer in Water Supply and Sewerage, Level 7 entitles the bearer, on a statutory basis, to act as a competent person independently and at their own risk within the limits described as follows:

I COMPILING THE CONSTRUCTION PROJECT FOR A BUILDING'S WATER SUPPLY AND SEWERAGE
All buildings with a heatable area up to 10,000 m^2, with the exception of:
- buildings that are divided into two or more water pressure zones due to their architectural features
- water parks and swimming pools
- research and scientific laboratories
- tunnels and underground constructions
- buildings subject to a high fire risk

II COMPILING THE CONSTRUCTION PROJECT FOR EXTERNAL WATER SUPPLY AND SEWERAGE
a) external water supply (including public water supply), piping with an internal diameter of up to 300 mm;
b) external sewerage (including the public sewerage system) with an internal diameter of up to 300 mm, and an internal diameter of up to 1000 mm in the case of a downstream sewerage system;
c) ditches and canals with flow rates of up to 1.5 m^3/s
d) wastewater treatment plants with a load of up to 50,000 PE,
e) water treatment plants with a capacity of up to 10,000 m^3/d.

III CONSTRUCTION AND CONSTRUCTION MANAGEMENT OF A BUILDING'S WATER SUPPLY AND SEWERAGE
All buildings with a gross surface area of up to 20,000 m^2 which are not high fire risk buildings.

IV CONSTRUCTION AND CONSTRUCTION MANAGEMENT OF EXTERNAL WATER SUPPLY AND SEWERAGE
a) external water supply (including public water supply), piping with an internal diameter of up to 600 mm;
b) external sewerage (including the public sewerage system) with an internal diameter of up to 1500 mm;
c) ditches and canals with flow rates of up to 3 m^3/s
d) wastewater treatment plants with a load of up to 100,000 PE,
e) water treatment plants with a capacity of up to 20,000 m^3/d.

V PERFORMING OWNER'S SUPERVISION
1) Water supply and sewerage inside or outside a building
All buildings with a heatable area up to 10,000 m^2, with the exception of:
- buildings that are divided into two or more water pressure zones due to their architectural features
- water parks and swimming pools
- research and science labs
- tunnels and underground constructions
- buildings subject to a high fire risk
2) External water supply and sewerage
- external water supply (including public water supply), piping with an internal diameter of up to 300 mm;
- external sewerage (including the public sewerage system) with an internal diameter of up to 300 mm, and an internal diameter of up to 1000 mm in the case of a downstream sewerage system;
- ditches and canals with flow rates of up to 1.5 m^3/s
- wastewater treatment plants with a load of up to 50,000 PE,
- water treatment plants with a capacity of up to 10,000 m^3/d.

VI PROVIDING EXPERT ANALYSIS OF A BUILDING'S WATER SUPPLY AND SEWERAGE CONSTRUCTION PROJECT
All buildings with a heatable area up to 10,000 m^2, with the exception of:
- buildings that are divided into two or more water pressure zones due to their architectural features
- water parks and swimming pools
- research and scientific laboratories
- tunnels and underground constructions
- buildings subject to a high fire risk

VII PROVIDING EXPERT ANALYSIS OF AN EXTERNAL WATER SUPPLY AND SEWERAGE CONSTRUCTION PROJECT
a) external water supply (including public water supply), piping with an internal diameter of up to 300 mm;
b) external sewerage (including the public sewerage system) with an internal diameter of up to 300 mm, and an internal diameter of up to 1000 mm in the case of a downstream sewerage system;
c) ditches and canals with flow rates of up to 1.5 m^3/s
d) wastewater treatment plants with a load of up to 50,000 PE,
e) water treatment plants with a capacity of up to 10,000 m^3/d.

VIII AUDITING A BUILDING'S WATER SUPPLY AND SEWERAGE
All buildings with a heatable area up to 10,000 m^2, with the exception of:
- buildings that are divided into two or more water pressure zones due to their architectural features
- water parks and swimming pools
- research and scientific laboratories
- tunnels and underground constructions
- buildings subject to a high fire risk

IX AUDITING EXTERNAL WATER SUPPLY AND SEWERAGE
a) external water supply (including public water supply), piping with an internal diameter of up to 300 mm;
b) external sewerage (including the public sewerage system) with an internal diameter of up to 300 mm, and an internal diameter of up to 1000 mm in the case of a downstream sewerage system;
c) ditches and canals with flow rates of up to 1.5 m^3/s
d) wastewater treatment plants with a load of up to 50,000 PE,
e) water treatment plants with a capacity of up to 10,000 m^3/d.

X DESIGN MANAGEMENT
Equal to the competence involved in compiling construction projects for a building’s water supply and sewerage (I) and external water supply and sewerage (II).

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[1] Design management refers not to the management of a narrow speciality but to project management for an entire design project

A.2 Tasks

A.2.1 Mandatory competences of engineer in water supply and sewerage
1. Following the requirements of professional ethics
2. Professional self-improvement
3. Participating in teamwork and managing a team
4. Applying the principles of environmental protection and energy efficiency
5. Applying specialised knowledge to work
6. Digital competence and language skills

Specialised areas of work

BUILDING'S WATER SUPPLY AND SEWERAGE
A.2.2 Building's water supply and sewerage
1. Conducting and organising work within the limits of competence provided by the occupational qualification level
2. Quality control of completed works and their parts
3. Complex compliance and suitability control of completed works

4. Arranging the transfer of completed works to the client EXTERNAL WATER SUPPLY AND SEWERAGE A.2.3 External water supply and sewerage 1. Conducting and organising work within the limits of competence provided by the occupational qualification level 2. Quality control of completed works and their parts 3. Complex compliance and suitability control of completed works 4. Arranging the transfer of completed works to the client
Elective areas of work
A.2.4 Compiling the construction project for a building's water supply and sewerage 1. Preparing the project within the limits of competence provided by the occupational qualification standard 2. Collecting and analysing source data 3. Designing technical solutions 4. Forwarding source data to other parties involved in the project 5. Compiling the explanatory letter 6. Preparing and formulating the building's water supply and sewerage project 7. Cooperating with the design team 8. Performing designer’s supervision 9. Preparing additional documents A.2.5 Compiling the construction project for external water supply and sewerage 1. Preparing the project within the limits of competence provided by the occupational qualification standard 2. Collecting and analysing source data 3. Designing technical solutions 4. Forwarding source data to other parties involved in the project 5. Compiling the explanatory letter 6. Preparing and formulating the external water supply and sewerage project 7. Cooperating with the design team 8. Performing designer’s supervision 9. Preparing additional documents A.2.6 Managing construction operations 1. Managing construction operations within the limits of competence provided by the occupational qualification level 2. Compiling tenders 3. Planning construction operations 4. Planning construction resources 5. Organising subcontractor procurements and entering into contracts 6. Procuring construction supplies 7. Organising construction operations during construction 8. Organising quality control and surveying 9. Preparing construction site transfer documentation 10. Arranging the transfer of the construction site A.2.7 Construction management 1. Managing construction within the limits of competence provided by the occupational qualification level 2. Conducting needs assessment surveys 3. Preparing procurements and compiling procurement documentation 4. Planning the building life cycle 5. Performing construction cost calculations 6. Preparing design work and organising work 7. Selecting designers and preparing contracts 8. Preparing for construction work 9. Tender documentation preparation 10. Selecting subcontractors 11. Coordinating the construction process as the client's representative 12. Transferring the construction site and taking it into use

13. Overseeing warranty-period procedures A.2.8 Performing owner’s supervision 1. Performing owner’s supervision within the limits of competence provided by the occupational qualification level 2. Developing a supervision programme 3. Verifying the compliance of the design project with requirements 4. Verifying the compliance of construction work with the contract 5. Performing and assessing quality control 6. Verifying compliance with safety requirements 7. Verifying required documentation 8. Accepting the building 9. Distributing information 10. Making proposals A.2.9 Providing expert analysis of a building's water supply and sewerage construction project 1. Conducting expert analysis of the design project within the limits of competence provided by the occupational qualification level 2. Familiarising themselves with the project, collecting and analysing source data 3. Determining the volumetric accuracy of the design project 4. Determining the compliance of project solutions with their purpose and requirements 5. Compiling an expert analysis report A.2.10 Providing expert analysis of an external water supply and sewerage construction project 1. Conducting expert analysis of the design project within the limits of competence provided by the occupational qualification level 2. Familiarising themselves with the project, collecting and analysing source data 3. Determining the volumetric accuracy of the design project 4. Determining the compliance of project solutions with their purpose and requirements 5. Compiling an expert analysis report A.2.11 Auditing a building's water supply and sewerage 1. Conducting facility audits within the limits of competence provided by the occupational qualification level 2. Familiarising themselves with the system, collecting and analysing source data 3. Organising additional studies and tests 4. Performing control calculations and additional measurements 5. Compiling an audit report A.2.12 Auditing external water supply and sewerage 1. Conducting facility audits within the limits of competence provided by the occupational qualification level 2. Familiarising themselves with the system, collecting and analysing source data 3. Organising additional studies and tests 4. Performing control calculations and additional measurements 5. Compiling an audit report A.2.13 Managing design 1. Preparing the design contract 2. Assembling the design team 3. Organising the exchange of information 4. Coordinating design and managing quality 5. Arranging designer’s supervision
A.3 Work environment and specific nature of work
Civil engineers work both indoors and outdoors. The workload may be distributed unevenly.
A.4 Tools
In addition to conventional office equipment and software, special computing programmes and equipment (measuring and marking tools etc.) are used.

A.5 Personal qualities required for work: abilities and characteristics
Engineering requires analytical abilities, accuracy, spatial imagination, creativity, independence, decision-making, adaptability and communication, leadership and cooperation skills.
A.6 Professional preparation
A certified WSS engineer generally holds a Master's degree or equivalent five-year integrated higher education diploma within the meaning of the Government of the Republic regulation no. 312 of 25 October 2004 in water supply and sewerage or another technical specialty, the curriculum for which includes specialty subjects to a certain volume. Additional practical work experience and training in the volume needed to apply for the qualification. All requirements are specified in more detail in documentation on the procedure for granting the occupational qualification.
A.7 Most common occupational titles
designer, person performing owner's supervision, construction manager, site manager, consultant
A.8 Regulations governing profession
Building Code and its relevant implementing acts Other professional standards, guidelines and norms.

Part B
COMPETENCY REQUIREMENTS

B.1 Structure of occupation
To obtain the qualification, mandatory competence B.2.1 and one or more optional competences from B.2.4-B.2.13 forming part of one specialisation (either B.2.2 or B.2.3) must be certified.

B.2 Competences

MANDATORY COMPETENCES

B.2.1 Mandatory competences of engineer in water supply and sewerage	EstQF Level 7
1. Is guided in their work and occupational activities by generally accepted personal and occupational ethics (see Annex 1 – Engineer's professional ethics). Acts in accordance with agreements and takes responsibility for their decisions and actions. Respects and takes into account the best practice and standards underlying the behaviour of specialists in other occupational sectors. 2. Keeps up to date on technological changes and developments in the sector and contributes to the development of engineering culture directed at innovation and creativity, where possible. Maintains and develops occupational competence through constant self-improvement. Acquires new techniques and methodologies. 3. Actively contributes to teamwork in a result-oriented manner with the goal of achieving the best possible result. Is helpful and open, sharing knowledge and experience with their colleagues. Perceives their role in a team and is able to work in a multidisciplinary team. Leads and organises the work of working groups: delegates tasks and responsibility, verifies implementation of agreements, motivates and advises colleagues and solves problems and conflicts that may arise in the work process. 4. Is guided by the principles of environmental preservation and sustainable development, keeps up to date on and implements the principles of energy efficiency in their activities. 5. Implements knowledge of engineering on the level necessary to accomplish duties that are within the limits of their competence and to find functioning and optimal solutions to any problems that may occur. Possesses and uses to the necessary extent, in addition to the basics of natural sciences, professional disciplines of engineering, including construction mechanics, building physics, geotechnics and hydrogeology, hydrology, hydraulics, hydraulic structures, environmental protection, design and construction technology of the water supply and sewerage of buildings and external water supply and sewerage, design and construction of the technical systems and equipment of structures connected to them (drainage, pumps, water treatment, etc.) and of roads and squares, stormwater drainage and flood prevention solutions; knowledge of water chemistry and biology for the design of wastewater treatment plants and water treatment plants.	

6. Uses a computer on a daily basis for information-processing, safety, communication, content creation and problem-solving at the Independent user level (see Annex 2 – Scale of self-assessment in digital competence). Uses the specialty-specific software solutions, programmes and information technology tools necessary for work. Uses Estonian while working and compiling documents at least at the B2 level of language proficiency (see Annex 3) and at least one foreign language at the B1 level. Uses correct occupational terminology.

COMPETENTCES RELATED TO SPECIALISATION

To obtain the qualification forming part of one specialisation (either B.2.2 or B.2.3) must be certified.

Building's water supply and sewerage	
B.2.2 Building's water supply and sewerage	**EstQF Level 7**
1. Leads and organises work associated with the construction of a building's water supply and sewerage according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Bears in mind the primary task, best design and construction practice, the requirements of relevant legal acts and normative documents and agreements with the customer and partners. Takes into account other parties involved in the project and is aware of the impact of their own activities on their parts of the project. 2. Verifies the high quality of the work done during construction of the building's water supply and sewerage within the limits of their competence and according to the quality requirements established in the construction project and other normative documents and instructions. 3. Is familiar with the specific nature of the activities of other parties involved in the project, understands the role and place of the water supply and sewerage part of the project in the construction project as a whole and the connections between them. Ensures that the complexity of the construction project as a whole and the work done on other parts of the project simultaneously are taken into account when construction work is carried out within the limits of their competence. 4. Plans their time and resources and does their best to transfer the completed works to the customer on time and in full. Formulates the necessary documentation according to specific requirements, using correct Estonian and professional terminology.	

External water supply and sewerage	
B.2.3 External water supply and sewerage	**EstQF Level 7**
1. Leads and organises work associated with the construction of external water supply and sewerage according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Bears in mind the primary task, best design and construction practice, the requirements of relevant legal acts and normative documents and agreements with the customer and partners. Takes into account other parties involved in the project and is aware of the impact of their own activities on their parts of the project. 2. Verifies the high quality of the work done during construction of the external water supply and sewerage within the limits of their competence and according to the quality requirements established in the construction project and other normative documents and instructions. 3. Is familiar with the specific nature of the activities of other parties involved in the project, understands the role and place of the external water supply and sewerage part of the project in the construction project as a whole and the connections between them. Ensures that the complexity of the construction project as a whole and the work done on other parts of the project simultaneously are taken into account when external water supply and sewerage construction work is carried out within the limits of their competence. 4. Plans their time and resources and does their best to transfer the completed works to the customer on time and in full. Formulates the necessary documentation according to specific requirements, using correct Estonian and professional terminology.	

OPTIONAL COMPETENCES

To obtain the qualification one or more optional competences from B.2.4-B.2.13 must be certified.

B.2.4 Compiling the construction project for a building's water supply and sewerage	**EstQF Level 7**
1. Compiles projects related to the construction of water supply and sewerage in the building according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when preparing design documentation that exceeds the limits of their competence. 2. Collects and examines source data (technology, architecture, purpose of use of building, quality class, lifespan, environmental impact, etc.) and determines applicable legal acts, standards, rules and instruction materials. 3. Develops technical solutions based on source data. Compares them, selects the most suitable option and submits it to the client for approval. Where necessary, obtains additional source data, performs the necessary calculations and uses simulations and modelling during design. 4. Calculates the required flow rates, dimensions pipelines and equipment, determines the space requirements and layout of equipment, the locations of horizontal and vertical pipelines, the control principles of water and sewerage equipment, etc. Forwards the necessary information to fellow designers. 5. Compiles an explanatory note according to the stage of design. 6. Prepares and finalises the water supply and sewerage project of the building (textual and graphic part) according to the design stage within the limits of their competence. Where necessary, is able to prepare and use building information modelling (BIM). 7. Cooperates with the parties involved in the project, participates in design and expert assessment meetings, etc. Analyses the information obtained and evaluates its impact on their part of the project. 8. Performs supervision during construction activities and provides consultation on project-related issues within the limits of their competence. Participates in the handover of the completed facility to the client, where necessary. 9. Prepares a demolition project, implementation documentation, operating and maintenance instructions, draws up product drawings, etc. within the limits of their competence or under the supervision and responsibility of a highly qualified HVAC engineer.	
B.2.5 Compiling an external water supply and sewerage project	**EstQF Level 7**
1. Compiles projects related to the construction of external water supply and sewerage according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when preparing design documentation that exceeds the limits of their competence. 2. Collects and examines source data (purpose of use of facility, quality class, lifespan, environmental impact, etc.) and determines applicable legal acts, standards, rules and instruction materials. 3. Develops technical and technological solutions based on source data. Compares them, selects the most suitable option and submits it to the client for approval. Where necessary, obtains additional source data, performs the necessary calculations and uses simulations during design. 4. Dimensions the basic parameters and technological stages of the facility, defines the space requirements and layout of equipment and pipelines, the need for electricity and the principles of equipment management, etc. Forwards the necessary information to fellow designers. 5. Compiles an explanatory note according to the stage of design. 6. Prepares and finalises the external water supply and sewerage project (textual and graphic part) according to the design stage within the limits of their competence. Where necessary, is able to prepare and use building information modelling (BIM). 7. Cooperates with the parties involved in the project, participates in design and expert assessment meetings, etc. Analyses the information obtained and evaluates its impact on their part of the project. 8. Performs supervision during construction activities and provides consultation on project-related issues within the limits of their competence. Participates in the handover of the completed facility to the client, where necessary. 9. Prepares a demolition project, implementation documentation, operating and maintenance instructions, draws up product drawings, etc. within the limits of their competence or under the supervision and responsibility of a highly qualified HVAC engineer.	

B.2.6 Managing construction	EstQF Level 7
1. Manages construction operations within the limits of competence of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when preparing design documentation that exceeds the limits of their competence. 2. Examines design and procurement documentation and other relevant materials. Evaluates the volume of the tender based on the construction project and requests a quote for the necessary materials, equipment and subcontracting work. Determines potential administrative costs, profits and the level of risk and provides a tender. Completes and formulates the final tender. 3. Enters into the construction contract. Compiles a plan for construction work (incl. work safety measures and a work schedule) and a goal budget. Commissions the work project if no such project has been prepared. 4. Supplies the construction site with the necessary resources (mechanisms, materials, workforce, energy, etc.). Determines the tasks and extent of responsibility of each member of the site management team. 5. Arranges for the procurement of the necessary building materials, equipment, means of transport, construction mechanisms and contractors and enters into contracts. 6. Orders or creates product sketches, ensuring their compliance with construction norms and quality requirements. Procures and/or orders the necessary construction products, organises their reception and storage. 7. Organises and coordinates construction work in accordance with the goal budget of the project. Ensures compliance with occupational health and safety requirements, environmental safety regulations and the general upkeep of the construction site. Constantly ensures the proper documentation of construction work (incl. acts of work to be covered), the compliance of construction work with the contract and design and the fulfilment of construction norms and quality requirements. Conducts construction consultations, if necessary. 8. Organises quality control to assess compliance with construction norms and quality requirements and the performance of the necessary surveying work before the transfer of the construction site. 9. Compiles or orders the documentation necessary for the transfer of the construction site, incl. performance sketches, documentation for equipment and materials and instructions for maintenance and use. 10. Arranges for the transfer of the construction site.	
B.2.7 Construction management	**EstQF Level 7**
1. Manages construction operations within the limits of competence of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when preparing design documentation that exceeds the limits of their competence. 2. Carries out a needs assessment survey to clarify the source data of the project (intended purpose of use, spatial programme, temporal and volumetric purpose of facility, requirements of project, etc.). Compiles the technical part of the project implementation decision based on the needs assessment survey. 3. Examines the initial conditions (construction surveys, technological solution, spatial programme, functional and operational quality requirements, energy balance, etc.) and prepares the procurement or compiles procurement documentation. 4. Compiles a schedule for construction work based on their technological processes. 5. Prepares a financial plan for construction work based on the estimated cost of construction, general and personalised cost calculations and time and payment schedules and taking into account the need for self-financing and the conditions presented in the procurement documentation. 6. Formulates the principles of carrying out a construction project of a facility or technical system and plans the organisational scheme of the project. Plans the necessary permit activities, prepares a schedule for carrying out the project and the division of project contractors. Compiles a design programme. 7. Selects designers and prepares design contracts. 8. Determines the principles of organisation of construction work incl. labour methods and distribution. Compiles the organisational scheme of construction work. 9. Formulates the time- and cost-related goals of construction work and prepares tender documentation based on these goals. 10. Selects the necessary contractors and enters into contracts with them if corresponding agreements have been made. 11. Coordinates water supply and sewerage construction work as a representative of the customer: communicates with contractors, the design team and the customer, holds meetings and discussions, exchanges information	

between the parties involved, processes additional work due to changes made to the project during construction work and monitors the compliance of the construction work with the design. 12. Carries out inspections. Organises and leads work acceptance procedures, ensures the existence of the necessary use and maintenance instructions and other documentation and their transfer to the customer or user. 13. Conducts warranty-period procedures for facilities or technical systems.	
B.2.8 Performing owner's supervision	**EstQF Level 7**
1. Performs owner's supervision within the limits of competence of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when preparing design documentation that exceeds the limits of their competence. 2. Compiles a programme of supervision procedures, bearing in mind relevant legislation. 3. Assesses the compliance of the design documentation forming the basis for construction with applicable legislation and the construction design on the basis of which a construction permit was issued. 4. Monitors the compliance of construction activities with the conditions and quality agreed upon by the construction company and the owner of the building. 5. Monitors the compliance of the facility, technical system or parts thereof under construction with the construction project and the compliance of work to be covered and as-built drawings with requirements, reality and the construction project. 6. Monitors compliance with environmental and occupational safety and maintenance requirements in the area involving water supply and sewerage construction. 7. Verifies the existence of construction documents drafted during construction activities and their proper and timely drafting, presentation and revision. Monitors the validity of the documentation of the construction products, materials and equipment permanently installed in the facility and, on the basis of the submitted documents, the validity and compliance with the construction project of the construction product, materials and equipment. 8. Evaluates the stage of completion of the facility or technical system, and participates in its testing and delivery during the acceptance of the building. 9. Notifies the relevant persons or agencies of any deficiencies identified in the course of owner's supervision. 10. Proposes additional quality control, measurements, tests and expert analyses of construction work, where necessary.	
B.2.9 Providing expert analysis of a building's water supply and sewerage construction project	**EstQF Level 7**
1. Conducts expert analysis of the construction of water supply and sewerage in the building according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when doing work that exceeds the limits of their competence. 2. Examines the project, determines applicable legislation, standards, rules and instruction materials. Verifies the compliance of the project with the primary task and the associated normative and instruction materials. Verifies the compliance of the people compiling the project with competence requirements. 3. Verifies the integrity of the project and its compliance with legislation, standards and instruction materials. 4. Performs the necessary control calculations and/or verifies the calculations and calculation schemes of the designer, assessing the validity of the technical solutions implemented. Assesses whether the stability, safety and economy of the technical solution or its parts presented in the project documentation serve the intended purpose. 5. Conducts expert analysis of the water supply and sewerage project of the building in accordance with legal requirements within the limits of their competence, participates in expert analysis meetings. Assesses the corrected design project, where necessary.	
B.2.10 Providing expert analysis of an external water supply and sewerage project	**EstQF Level 7**
1. Conducts expert analysis of an external water supply and sewerage project according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when doing work that exceeds the limits of their competence.	

2. Examines the project, determines applicable legislation, standards, rules and instruction materials. Verifies the compliance of the project with the primary task and the associated normative and instruction materials. Verifies the compliance of the people compiling the project with competence requirements. 3. Verifies the integrity of the project and its compliance with legislation, standards and instruction materials. 4. Performs the necessary control calculations and/or verifies the calculations and calculation schemes of the designer, assessing the validity of the technical solutions implemented. Assesses whether the stability, safety and economy of the system or its parts presented in the project documentation serve the intended purpose. 5. Conducts expert analysis of the external water supply and sewerage project in accordance with legal requirements within the limits of their competence, participates in expert analysis meetings. Assesses the corrected design project, where necessary.

B.2.11 Auditing a building's water supply and sewerage	**EstQF Level 7**
1. Conducts the auditing of the construction of water supply and sewerage in the building according to the competence limits of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when doing work that exceeds the limits of their competence. 2. Performs initial visual inspection and collects the information needed for the auditing of the water supply and sewerage (construction project, measurements, surveys, photographs, etc.). 3. Compiles a programme for and estimates the cost of further research and audits based on the goal within the limits of their competence and carries out or organises the carrying out of the necessary research and tests. 4. Examines existing and procured documents and additional research reports, performs the necessary control calculations and additional measurements within the limits of their competence. 5. Compiles an audit report within the limits of their competence and in accordance with the goal of the audit and relevant legislation, wherein they assess whether the water supply and sewerage is in accordance with its documentation and technically sound; for verification of use (whether using the water supply and sewerage for its intended purpose and in the intended way is safe); and for documentation verification (whether documentation about the water supply and sewerage and of its safe use and upkeep exists and meets the requirements).	

B.2.12 Auditing external water supply and sewerage	**EstQF Level 7**
1. Conducts the auditing of external water supply and sewerage according to the competence limits of Certified Engineer, Level 7 in Water Supply and Sewerage listed in the description of occupational qualification standard A.1. Completes the tasks allocated to them, working as a member of a team under the guidance and responsibility of a colleague with a higher occupational qualification level when doing work that exceeds the limits of their competence. 2. Performs initial visual inspection of the facility and collects the information needed for the auditing of the structure or part(s) thereof (construction project, measurements, surveys, photographs, etc.). 3. Compiles a programme for and estimates the cost of further research and audits based on the goal within the limits of their competence and carries out or organises the carrying out of the necessary research and tests. 4. Examines existing and procured documents and additional research reports, performs the necessary control calculations and additional measurements within the limits of their competence. 5. Compiles an audit report within the limits of their competence and in accordance with the goal of the audit and relevant legislation, wherein they assess whether the facility is in accordance with its documentation and technically sound; for verification of use (whether using the facility for its intended purpose and in the intended way is safe); and for documentation verification (whether documentation about the facility and of its safe use and upkeep exists and meets the requirements).	

B.2.13 Project management	**EstQF Level 7**
1. Performs design management activities within the limits of competence of Certified Engineer in Water Supply and Sewerage, Level 7 listed in the description of occupational qualification standard A.1. 2. Collects and examines source data, determines applicable regulations, standards, rules and instruction materials. Estimates the amount and limits of work, prepares and clarifies the work schedule, where necessary, and prepares the design contract(s). 3. Assembles a design team, involving relevant contractors and specialists. 4. Organises and carries out design meetings, documents decisions and develops and establishes principles of information exchange. 5. Leads and monitors the design process and solutions and verifies the integrity of the design documentation and the compatibility of its parts. Controls data exchange and collaboration between the general construction and other	

specialties involved in the project. Documents changes and additional work that occur in the course of design. Verifies the compliance of solutions with the primary task and contract and the compatibility between individual parts of the design documentation. Formulates the design documentation, applies for approval from the relevant authorities and arranges the transfer of the project to the customer. 6. Organises designer supervision during the construction process.

Part C
GENERAL INFORMATION AND ANNEXES

C.1 Information concerning compilation and certification of occupational qualification standard and reference to classification of occupations	
1. ID of occupational qualification standard in register of occupational qualifications	22-14112023-4.8/12k
2. Occupational qualification standard compiled by:	Heiki Meos, EstKonsult OÜ Ants Raja, Ants Raja Ehituskorraldus FIE Andres Piirsalu, OÜ Entec Eesti Andres Piir, Projektbüroo KODA OÜ Peeter Parre, IB Aksiaal OÜ Aleksander Grünstam, Allux SG OÜ
3. Occupational qualification standard approved by:	Architecture, Geomatics, Construction and Real Estate
4. No. of decision of Sectoral Council	50
5. Date of decision of Sectoral Council	14.11.2023
6. Occupational qualification standard valid until	13.11.2025
7. Occupational qualification standard version no.	12
8. Reference to International Standard Classification of Occupations (ISCO 08)	2142 Civil Engineers
9. Reference to European Qualifications Framework (EQF)	7
C.2 Occupational title in foreign language	
English:	Diploma Engineer in Water Supply and Sewerage, EstQF Level 7
C.3 Annexes	
Lisa 1 Engineers' professional ethics and code of conduct	
Lisa 2 Scale of self-assessment in digital competence	
Lisa 3 Language skills level descriptions	