

OCCUPATIONAL QUALIFICATION STANDARD

Diploma Energy Efficiency Specialist, 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 Energy Efficiency Specialist, EstQF Level 7	7

Possible partial professional qualifications and titles on occupational qualification certificate	
Title of partial professional qualification	Level of Estonian Qualifications Framework (EstQF)
Energy Use Modeller, EstQF Level 7	7
Energy Auditor, EstQF Level 7	7

Part A DESCRIPTION OF WORK

A.1 Description of work
<p>The main goals of an energy efficiency specialist's work are assessing the energy efficiency of buildings and giving advice for improvements in accordance with the principles of sustainable development, occupational ethics, modern engineering knowledge and best practice in consultation and construction.</p> <p>The following occupational qualification standards have been developed in the profession of Energy Efficiency Specialist:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Energy Auditor, Level 6 <input type="checkbox"/> Diploma Energy Efficiency Specialist, Level 7 <input type="checkbox"/> Chartered Energy Efficiency Specialist, Level 8 <p>This occupational qualification standard describes the professional competences of Diploma Energy Efficiency Specialist, Level 7.</p> <p>According to the Building Code, Diploma Energy Efficiency Specialist, Level 7 is a competent person who is prepared to work in an interdisciplinary team with specialists from related fields, if necessary involving and instructing other specialists and taking responsibility for the results of their team.</p> <p>They compile energy audits for companies and buildings within the limits of their competence independently and at their own responsibility, issue energy efficiency certificates for existing buildings, buildings being planned, buildings undergoing major renovations and new buildings and give advice in the field of the energy efficiency of buildings and companies.</p> <p>An individual with the qualification of Diploma Energy Efficiency Specialist, Level 7 is able to act independently and under their own responsibility (including compiling the aforementioned energy audits) within the following constraints:</p> <p>I COMPANIES which</p> <ul style="list-style-type: none"> a) have an annual energy consumption of less than 5000 MWh and b) have a local energy production capacity of max. 1 MW <p>II BUILDINGS which, according to the purpose¹ of use a building, are</p> <ul style="list-style-type: none"> a) residential buildings with the code 11 000 b) non-residential buildings with the code 12 000, excluding

- ☒ buildings or rooms with higher indoor climate requirements (air purity, temperature, noise and moisture) such as museums, hospitals and cleanrooms
- ☒ production facilities with specific requirements of their indoor climate
- ☒ water parks and swimming pools
- ☒ research and scientific laboratories
- ☒ buildings subject to a high fire risk

Diploma Energy Efficiency Specialist, Level 7 may only work on projects outside of the aforementioned limitations under the guidance and responsibility of an energy efficiency specialist with a higher qualification, taking part in the project as a member of a team or fulfilling clearly defined tasks.

The limitations mentioned above are not taken into account when modelling a building's energy use.

The occupation of Energy Efficiency Specialist, Level 7 includes two partial professional occupations:

- Energy Use Modeller, Level 7

According to the Building Code, Energy Use Modeller, Level 7 is a competent person who compiles independently and under their own responsibility, using calculations and simplified methods of proof, energy efficiency certificates for buildings that are being planned or that are undergoing major renovations.

- Energy Auditor, Level 7

According to the Building Code, Energy Auditor, Level 7 is a competent person who performs independently, under their own responsibility and within the limits of their competence energy audits for buildings and issues energy efficiency certificates for existing buildings and buildings that are being planned or that are undergoing major renovations using simplified methods of proof.

¹ - Regulation no. 51 of the Ministry of Economic Affairs and Communications of 2 June 2015, 'List of the Purposes of Use of Construction Works'

A.2 Tasks

A.2.1 Assessing existing buildings

1. Collecting and analysing source data
2. Drawing up an action plan
3. Getting specialists from related fields involved
4. Inspecting the site
5. Conducting measurements
6. Assessing the functionality of technical and electrical systems
7. Assessing the state of fencing structures
8. Assessing the state of the indoor climate
9. Assessing the impact of technological devices
10. Preparing an energy consumption analysis
11. Calculating the building's energy consumption
12. Identifying shortcomings and making suggestions for their improvement

A.2.2 Performing technical-economic analyses

1. Assessing the cost of measures implemented and savings
2. Assessing the feasibility of planned measures
3. Assessing the economic expediency of planned measures
4. Compiling a report

A.2.3 Compiling energy audits of buildings

1. Preparing building energy audits within the limits of their professional competence
2. Assessing the technical systems of a site
3. Analysing the special energy consumption indicators of a site
4. Defining the priorities of energy efficiency methods
5. Compiling an assessment and submitting proposals for improvements
6. Formalising an energy audit

A.2.4 Compiling energy audits for companies

1. Preparing company energy audits within the limits of their professional competence

2. Collecting and analysing source data
3. Drawing up an action plan
4. Getting specialists from related fields involved
5. Inspecting the site
6. Conducting measurements
7. Assessing the current state of buildings
8. Assessing the energy consumption of industrial or commercial processes, installations and services
9. Preparing an energy consumption analysis of an entire company or a part thereof
10. Identifying shortcomings and making suggestions for their improvement

A.2.5 Advising on energy efficiency and taking part in related projects

1. Offering advice on energy efficiency within the limits of competence provided by the occupational qualification level
2. Compiling energy conservation plans
3. Compiling forecasts and development scenarios
4. Taking part in energy efficiency projects
5. Compiling expert evaluations

A.2.6 Compiling and issuing energy performance certificates for existing buildings

1. Compiling energy performance certificates
2. Issuing energy performance certificates

A.2.7 Modelling the energy use of a building and compiling a calculated energy performance certificate

1. Collecting and analysing source data
2. Calculating energy use
3. Modelling the energy use of a building
4. Certifying the minimum requirements of energy efficiency
5. Advising the design team and customer
6. Assessing the project solution
7. Compiling the energy efficiency part of a construction project
8. Formalising energy performance certificates to be issued

PARTIAL PROFESSIONAL QUALIFICATIONS:

Energy Use Modeller, Level 7 comprises task A.2.7 Modelling the energy use of a building and compiling a calculated energy performance certificate

Energy Auditor, Level 7 comprises tasks A.2.1 Assessing existing buildings, A.2.2 Performing technical-economic analyses, A.2.3 Compiling energy audits of buildings and A.2.6 Compiling and issuing energy performance certificates for existing buildings.

A.3 Work environment and specific nature of work

Work is mainly conducted in an office, but also on site. Where necessary, measurements and interviews must be conducted. If necessary, specialised uniforms and protective gear must be used on certain sites and general occupational safety requirements must be observed. Sites may be in different regions, due to which the work is flexible and with a varying pace.

A.4 Tools

Usual office technology (computers, communication devices, etc.) and software (word processing software, spreadsheets, Internet communication, etc.), specialised calculation programmes and measuring technology.

A.5 Personal qualities required for work: abilities and characteristics

The profession requires an innovative and environmentally friendly way of thinking that facilitates sustainable development, creativity, independence, willingness to make decisions, analytical skills, precision, a sense of responsibility and willingness to communicate and cooperate.

A.6 Professional preparation

Diploma Energy Efficiency Specialist, Level 7 has technical higher education and specialised work experience and has completed further training.

A.7 Most common occupational titles

Energy Auditor, Issuer of Energy Efficiency Certificates, Energy Use Modeller, Energy Expert, Energy Efficiency Project Lead, Energy Efficiency Consultant.

A.8 Regulations governing profession

- a) The Building Code and relevant implementing acts, including:
 Regulation no. 55 of the Ministry of Economic Affairs and Communications of 3 June 2015, 'Minimum Requirements for Energy Performance of a Building',
 Regulation no. 58 of the Ministry of Economic Affairs and Communications of 5 June 2015, 'Methodology for Calculating the Energy Performance of Buildings',
 Regulation no. 36 of the Ministry of Economic Affairs and Communications of 30 April 2015, 'Requirements for Energy Performance Certificates and the Issuing of Such Certificates',
 Regulation no. 28 of the Ministry of Economic Affairs and Communications of 8 April 2015, 'Requirements for the Energy Audits of Buildings'
- b) The Energy Sector Organisation Act and relevant implementing acts
- c) Construction project EVS 932
- d) EVS-EN 15251, EVS-EN 16798-3

Part B COMPETENCY REQUIREMENTS

B.1 Structure of occupation

When applying for the qualification of Diploma Energy Efficiency Specialist, Level 7, occupation-specific competences B.2.1-B.2.7 and recurring competence B.2.8 must be certified.

When applying for the partial professional qualification of Energy Use Modeller, Level 7, competence B.2.7 must be certified.

When applying for the partial professional qualification Energy Auditor, Level 7, competences B.2.1-B.2.3 and B.2.6 must be certified.

B.2 Competences

MANDATORY COMPETENCES

B.2.1 Assessing existing buildings

EstQF Level 7

Performance indicators:

1. Prepares tables and forms with which to gather data. Obtains the necessary data and documentation and assesses their adequacy and sufficiency.
2. Compiles a detailed strategy and schedule, if necessary asking customers to specify the terms of reference. Agrees on an inspection date with the customer and works with them to arrange access to all of the parts and technological systems of the site to be audited (e.g. power switch and boiler room).
3. Assesses the need to involve specialists from related fields. If necessary, gets the specialists involved and gives them their tasks.
4. Performs or organises site inspections in accordance with the terms of reference and the objectives of the work.
5. Performs or organises measurements using prepared measuring tools or commissions measuring services.
6. Assesses the functioning of heating, domestic water, cooling and ventilation systems, automatics, electric installations, illumination devices and renewable energy systems in accordance with the principles of energy efficiency.
7. Assesses the state of fencing structures, including their thermal transmittance, air leakage and moisture regime in accordance with the principles of energy efficiency.
8. Assesses the state of the indoor climate based on the intended and actual use of the building.
9. Assesses the impact of technological devices on a building's energy efficiency and indoor climate.
10. Compares the data obtained to data from similar sites. Compiles an analysis in accordance with the order, formatting its graphic, textual and illustrative parts clearly and coherently and using correct terminological language.

<p>11. Calculates a building's annual energy consumption using various calculation methods (e.g. degree-days and dynamic simulations).</p> <p>12. Defines significant shortcomings and ways of improving technical situations, giving advice on boosting energy efficiency.</p>	
<p>Knowledge:</p> <p>1) measuring tools and resources;</p> <p>2) methods of measuring the efficiency of heating, water, cooling and ventilation systems, electrical installations and illumination devices;</p> <p>3) thermal transmittance, air leakages and moisture regimes;</p> <p>4) operating principles of technical systems;</p> <p>5) relevant legal acts, standards and methods.</p>	
<p>B.2.2 Performing technical-economic analyses</p>	<p>EstQF Level 7</p>
<p>Performance indicators:</p> <p>1. Assesses the cost and presumed savings of implementing potential efficiency methods both in physical units and monetarily.</p> <p>2. Analyses the viability of implementing potential efficiency methods in accordance with technical aspects, cost efficiency, market options, environmental conditions, innovation, risks and other aspects.</p> <p>3. Determines a base scenario for energy use and production. Analyses the technical-economic expediency of implementing efficiency methods while considering the bigger picture and making generalisations. Uses different methods of assessing cost-benefit, such as NPV and IRR. Performs an analysis of sensitivity towards different variables.</p> <p>4. Compiles a report in accordance with the order, formatting its graphic, textual and illustrative parts clearly and coherently and using correct terminological language.</p>	
<p>Knowledge:</p> <p>1) energy efficiency measures;</p> <p>2) energy consumption calculation methods, including dynamic simulations;</p> <p>3) assessment methods of cost-benefit based on discounting;</p> <p>4) relevant legal acts, standards and methods.</p>	
<p>B.2.3 Compiling energy audits of buildings</p>	<p>EstQF Level 7</p>
<p>Performance indicators:</p> <p>1. Submits a general description of all audited technological systems within the limits of their competence and provides an assessment of their situation.</p> <p>2. Analyses and assesses, within the limits of their competence, the energy consumption data of audited sites and compares them to energy consumption in previous years at the same site and with special energy consumption data from similar sites.</p> <p>3. Submits measures suitable for implementation on site as a prioritised list, based on technological-economical cost-benefit calculations.</p> <p>4. Submits a summarised assessment and proposals within the limits of their competence for amendments for an audited site in a way that is comprehensible to the site's owner and administrator.</p> <p>5. Compiles an audit report either within the limits of their competence or under the supervision of an energy efficiency specialist with a higher qualification, making sure it corresponds with the order and terms of reference and that its graphic, textual and illustrative parts are formatted clearly, legibly and comprehensively.</p>	
<p>Knowledge:</p> <p>1) legal acts related to auditing;</p> <p>2) methods, standards, etc. necessary for auditing;</p> <p>3) fuel, electricity and heating prices, including energy transmission fees, etc.;</p> <p>4) energy conservation methods;</p> <p>5) forms of audit reports.</p>	
<p>B.2.4 Compiling energy audits for companies</p>	<p>EstQF Level 7</p>
<p>Performance indicators:</p> <p>1. Compiles energy audits for companies within the limits of their competence as outlined in part A.1 of the occupational qualification standard. When compiling energy audits for companies outside the limits of their</p>	

competence, they work as a member of a team or under the supervision and responsibility of a colleague with a higher qualification for whom they fulfil the given tasks.

2. Prepares tables and forms with which to gather data. Obtains the necessary data and documentation and assesses their adequacy and sufficiency.
3. Compiles a detailed strategy and schedule, if necessary asking customers to specify the terms of reference. Agrees on an inspection date with the customer and works with them to arrange access to all of the parts and technological systems of the site to be audited (e.g. power switch and boiler room).
4. Assesses the need to involve specialists from related fields. If necessary, gets the specialists involved and gives them their tasks.
5. Agrees on an audit date with the customer and works with them to arrange access to all of the data and components to be audited. Performs a company inspection.
6. Performs the necessary measurements or commissions measuring services.
7. Assesses the current state of buildings.
8. Assesses the energy consumption of industrial or commercial processes, installations and services.
9. Compiles, within the limits of their competence, an analysis of the entire energy balance of a company or analyses every energy type separately.
10. Defines significant shortcomings and ways of improving energy efficiency and makes proposals, within the limits of their competence, on how to boost energy efficiency, either partially or within a company as a whole.

Knowledge:

- 1) legal acts related to auditing;
- 2) methods, standards, etc. necessary for auditing;
- 3) energy conservation methods;
- 4) forms of audit reports.

B.2.5 Advising on energy efficiency and taking part in related projects

EstQF Level 7

Performance indicators:

1. Advises clients within the limits of their competence as outlined in part A.1 of the occupational qualification standard.
2. Resolves problems related to energy efficiency creatively and innovatively and plans and offers solutions for conservative and sustainable energy use.
3. Predicts future energy consumption and offers different development scenarios, assessing their cost efficiency and expediency.
4. Takes part in different projects (such as those for development plans and planning) as a specialist in the energy efficiency field
5. Compiles, within the limits of their competence, expert assessments and opinions in the field of energy efficiency.

Knowledge:

- 1) possible uses of renewable energy and their impact on energy efficiency
- 2) legal acts concerning energy efficiency;
- 3) relevant standards and methods;
- 4) the impact of renewable energy measures on the environment.

B.2.6 Compiling and issuing energy performance certificates for existing buildings

EstQF Level 6

Performance indicators:

1. Compiles energy performance certificates based on the energy expenditure measured.
2. Fills in energy performance certificate forms and their annexes correctly and in accordance with requirements.

Knowledge:

- 1) legal acts, methods, standards, etc. relevant to the issuing of energy performance certificates.

B.2.7 Modelling the energy use of a building and compiling a calculated energy performance certificate

EstQF Level 7

Performance indicators:

1. Checks whether there are sufficient data to model energy consumption and compile an energy performance certificate.
2. Calculates the energy use of a building using appropriate software and methods.
3. Models the energy consumption of buildings using appropriate software and methods.

4. Certifies the compliance of buildings undergoing planning or major renovations with the energy efficiency requirements of legal acts.
5. Advises, within the limits of their competence, a building's planning team and owner on parameters affecting energy efficiency.
6. Provides an assessment, within the limits of their competence, of project solutions, taking into account the requirements of legal acts and energy efficiency.
7. Compiles, within the limits of their competence, the energy efficiency part of a construction project in accordance with the requirements of legal acts and standards.
8. Fills in energy performance certificate forms and their annexes correctly and in accordance with requirements. Enters information concerning energy performance certificates in the state register.

Knowledge:

- 1) legal acts concerning the energy efficiency of buildings;
- 2) methods of calculating dynamic heat transfer;
- 3) user knowledge of the software used to calculate dynamic heat transfer;
- 4) legal acts, methods, standards, etc. relevant to the issuing of energy performance certificates and their fields of application;
- 5) energy performance certificate forms for different building types;
- 6) relevant standards and legal acts concerning planning.

RECURRING COMPETENCES

B.2.8 Recurring competences of Diploma Energy Efficiency Specialist, Level 7	EstQF Level 7
<p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Understands the nature and importance of the social and economic role played by energy efficiency specialists, takes into account social factors and follows the requirements of professional ethics in their work (see Annex 1 – Energy Auditor’s and Energy Efficiency Specialist’s Professional Ethics and Code of Conduct). 2. Is informed about and takes into account innovations, knowledge and best practice in their sector and specialty and the requirements of legal acts. 3. Comprehends and implements the principles of resource and energy efficiency and those of sustainable development in construction environments, using appropriate scientific, technical or technological solutions to perform their tasks. 4. Comprehends and implements methods used in baseline studies and related fields in order to fulfil the terms of reference. Possesses and extends their theoretical approach, enabling them to adopt new technologies and systems. 5. Is familiar with the specific nature of other parts of the construction project and their effect on energy efficiency. 6. Analyses their experience and skills and assesses their need for self-improvement. Participates in further training and takes advantage of opportunities to further themselves professionally. 7. Promotes through their activities wider acknowledgment and appreciation of energy efficiency. 8. Takes part in teamwork or leads their own team(s). Respects their colleagues and is familiar with work culture. Acts in accordance with agreements, behaves consistently and takes responsibility for their own decisions and actions and, where necessary, the decisions and actions of their team. Creates networks required for cooperation. 9. Plans their own work and, where necessary, the work of their team and acts in a goal-oriented manner with the objective of offering a high-quality service. Defines priorities and divides up resources (such as time and people) accordingly. 10. Uses appropriate communication techniques when communicating with business partners, team members and customers. Determines and analyses the interests and needs of the individual parties involved and finds sensible and balanced solutions to any underlying issues that may arise. Mediates specialised technical information to all parties clearly and comprehensively. Is able to handle contradictory and non-standard situations. 11. Is guided in their work by occupational, device, installation and other safety guidelines. 12. Utilises in their work all of the energy efficiency engineering knowledge they have, including the nature of construction physics, thermal dynamic and heat transfer processes, the basics of construction physics, the basic solutions and calculation principles of fencing structures, the nature of indoor climates and the principles of guaranteeing them, the operating principles of building technological systems (heating, ventilation, water, sewerage and cooling systems), the operating principles of the electricity and automatics systems of buildings, the principles of local and renewable energy production, the basics of calculating the energy efficiency of a building and its economic assessment and basic knowledge of the renovating of structures. 	

13. Uses in their work appropriate and modern information and communications technologies (hereafter referred to as ICT) and opportunities and software solutions specific to their occupation.
14. Uses a computer for information processing, communication, safety, content creation and problem-solving at the Independent user level (see Annex 2 – Scale of self-assessment in digital competence).
15. Uses correct Estonian at the B2 level in their work and when compiling documents and at least one foreign language at the B1 level. (See Annex 3 – Language skills level descriptions)

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	22-22062018-1.2/5k
2. Occupational qualification standard compiled by:	Teet Tark, Hevac OÜ Peter Haab, Sweco Projekt AS Tiit Pukk, Nivoo Projekt Tõnu Jõesaar, Termopilt Tartu OÜ Paul Einaste, AS Esvika Elekter Alo Mikola, Tallinna Tehnikaülikool Margus Tali, Majandus- ja Kommunikatsiooniministeerium Mikk Maivel, Riigi Kinnisvara AS
3. Occupational qualification standard approved by:	Architecture, Geomatics, Construction and Real Estate
4. No. of decision of Sectoral Council	14
5. Date of decision of Sectoral Council	22.06.2018
6. Occupational qualification standard valid until	19.06.2023
7. Occupational qualification standard version no.	5
8. Reference to International Standard Classification of Occupations (ISCO 08)	2151 Electrical Engineers
9. Reference to European Qualifications Framework (EQF)	7
C.2 Occupational title in foreign language	
English:	Diploma Energy Efficiency Specialist, EstQF Level 7
English:	Specialist in energy performance of buildings, level 7
C.3 Annexes	
Lisa 1 Energy Auditor's and Energy Efficiency Specialist's Professional Ethics and Code of Conduct	
Lisa 2 Scale of self-assessment in digital competence	
Lisa 3 Language skills level descriptions	