INTEGRATED QUALIFICATIONS SYSTEM

UPDATED SECTORAL QUALIFICATIONS FRAMEWORK FOR THE CONSTRUCTION INDUSTRY (SQFC)

European Funds for Social Development
Republic of Poland
Co-funded by the European Union
EDUCATIONAL RESEARCH INSTITUTE
National Research Institute

Publication prepared on the basis of:
Czajak, D., Żurawski, A., Panowicz, M., Danowska-Florczyk, E., Kochańska, M. (2017). *Sektorowa Rama Kwalifikacji w Budownictwie (SRK-Bud)* [Sectoral Qualifications Framework for the Construction Industry (SQFC)]. Instytut Badań Edukacyjnych.

Lentacz, M., Przywara, M. (2025). *Raport z prac nad aktualizacją Sektorowej Ramy Kwalifikacji w Budownictwie (SRK BD)* [Report on the work of updating the Sectoral Qualifications Framework for the Construction Industry (SQFC)]. Instytut Badań Edukacyjnych – Państwowy Instytut Badawczy.

Authors of the introductory chapters: Edyta Cieszkowska, Dawid Dymkowski, Monika Lentacz, Michał Królikowski, Mateusz Przywara, Urszula Wrońska

Authors of the updated SQFC: Magdalena Bochenek, Janusz Bochenek, Monika Brzezińska (EPRD Biuro Polityki Gospodarczej i Rozwoju Regionalnego Sp. z o.o.), Dariusz Buchaniec, Edyta Cieszkowska, Wojciech Dziedzic, Dawid Dymkowski, Krzysztof Falkowski, Beata Gawęcka-Ajchel, Aleksander Głowacki, Krystyna Kazimierowicz-Frankowska, Zofia Kozyra, Jakub Kus, Adam Misior, Adam Ostas, Magdalena Popielewska, Mateusz Przywara, Marek Surma, Arkadiusz Węglarz

Polish language editor: Anna Herzog-Grzybowska
Translation: Barbara Przybylska
Cover design and graphics: Michalina Walusiak
Layout: Wojciech Maciejczyk

ISBN: 978-83-68747-07-2

Publisher:
Educational Research Institute – National Research Institute
Górczewska 8, 01-180 Warsaw, Poland
tel. (+48 22) 241 71 00; www.ibe.edu.pl

Warsaw 2025

Citation:
Bochenek, J., Bochenek, M., Brzezińska, M., Buchaniec, D., Cieszkowska, E., Dziedzic, W., Dymkowski, D., Falkowski, K., Gawęcka-Ajchel, B., Głowacki, A., Kazimierowicz-Frankowska, K., Kozyra, Z., Królikowski, M., Kus, J., Lentacz, M., Misior, A., Ostas, A., Popielewska, M., Przywara, M., Surma, M., Węglarz, A., Wrońska, U. (2025). *Updated Sectoral Qualifications Framework for the Construction Industry (SQFC)* (B. Przybylska, Trans.). Instytut Badań Edukacyjnych – Państwowy Instytut Badawczy. (Original work published 2025)

This publication was produced as part of the systemic project "Supporting the further development of the Integrated Qualifications System in Poland (IQS 6)", co-financed by the European Union through the European Funds for Social Development 2021–2027 (FERS) programme.

Free copy

Table of Contents

1. Definition of the sector

Construction is a type of service activity of a material or utilitarian nature, the result of which is permanent and ensures safety (technical, implementation and use) throughout the life cycle of a structure. Construction activity is conducted as part of a construction project, which has the following stages:

- preparation of the construction project, design of the construction, obtaining the necessary administrative decisions and permits,
- construction and assembly process, handing over the construction for use,
- maintenance of the construction in a state of technical efficiency,
- disposal of the construction.

Construction activity is focused on the construction throughout its life cycle in accordance with the principles of sustainable development. It is inextricably linked to the use of construction machines, technical equipment and scaffolding. The construction sector is closely linked to many other sectors and types of activity, including, in particular, the construction products manufacturing sector, the real estate management sector and the waste management sector.

The legal boundaries of the sector are defined by the Construction Law and other related legal acts and regulations, including environmental regulations.

The basic characteristics of construction are:

- the immobility of the product (construction object),
- the mobility of work,
- the individual nature and complexity of the product,
- the variability of project tasks,
- the climatic seasonality and variability of implementation conditions resulting in risks and changes,
- the aesthetic significance of the product,
- the capital intensity of the product,
- striving to ensure the reliability, durability and safety of the construction throughout its life cycle,
- striving to comply with the principles of sustainable development, green governance, environmental protection and respect for the environment,
- the long production cycle resulting from the conditions and complexity of the product,
- the open construction market within the European Union,
- the prototypical nature of the construction.

The Sectoral Qualifications Framework for the Construction Industry is referenced to the following types of activities included in the Polish Classification of Activities (PKD):

- Section F, Division 41, 42, 43,
- Section N, Division 71.1,
- Section M, Division 68.1 (construction project implementation).

2. Practical application of the Sectoral Qualifications Framework for the Construction Industry

The Sectoral Qualifications Framework for the Construction Industry (SQFC) is a universal tool for managing the competences in the construction sector. Due to the fact that the structure of SQFC does not impose specific business solutions, it can be used in any number of ways by many different audiences.

Employers

With the help of SQFC, employers can take a broader look at the industry competences present in their business environment and thus manage their human resources more efficiently and compete more effectively in the labour market. The biggest advantages of using this tool include support in the processes of analysing competence gaps in the industry or company, planning the development of human resources and the salary grid of job positions, as well as gaining help with recruitment and the selection of personnel.

The table of competences allowed me to determine the criteria for recruiting staff based on the key competences in the industry, as well as to prepare job descriptions.

After identifying the main competence gaps in the industry, we launched an apprenticeship programme to prepare our students to successfully enter the labour market.

Schools and educational institutions

On the basis of SQFC, schools and educational institutions can adapt the curricula they offer to the current and real needs of the labour market. This means that the table of competences supports these institutions in expanding and modifying their teaching programmes and filling in the competence gaps of students, for example, those relating to practical or soft skills. Additionally, it can be a useful tool in career counselling for students or in monitoring the success of school leavers.

Higher education institutions

SQFC is a tool that supports higher education in aligning their study programmes with current trends in industry development. This enables students to be better prepared to enter the labour market and achieve career success. The competence table also makes it possible to monitor students' progress and evaluate the effectiveness of study programmes.

We used SQFC to analyse the skill level of students in construction and the effectiveness of our study programmes.

By better matching the needs of our customers, we have become more competitive in the training market.

Training companies

By using SQFC, training companies can effectively design specialised courses, enabling them to prepare a tailor-made offer for a specific sector and to meet the expectations of their clients. With the help of the sectoral qualifications framework, they can select individual competences and match them to the outcomes of a given training programme. They can also prepare exams to assess knowledge, skills and social competences. The gradation of the complexity of competences in SQFC also makes it easier for them to prepare training offers at various levels of proficiency.

IQS stakeholders

Among the broad audience of IQS users, the groups most likely to benefit from the developed SQFC are primarily industry organisations and those describing market or sectoral qualifications. Among others, industry organisations are tasked with establishing educational agreements that strengthen cooperation between schools and employers, as well as providing information on the demand for sectoral competences to educational institutions and labour market institutions. In turn, persons describing market or sectoral qualifications can use the prepared material to more easily define sets of learning outcomes.

Other entities

SQFC can be used for many other purposes depending on the current needs of the industry. In the construction sector, it can be used as a supplementary tool to prepare materials for assessing the knowledge of a company's employees on safety, since every employee is exposed to accidents in the workplace today. Verifying employees' basic construction competences can protect the company from negative consequences in the future.

Moreover, the construction sector is currently facing a shortage of skilled workers. The Sectoral Qualifications Framework for the Construction Industry can be used to retrain and launch the professional careers of people from related sectors.

As an occupational health and safety specialist, I often use the SQFC. Analysing the 'Occupational Health and Safety' determinant allowed me to quickly identify the competences I should be developing among construction employees in my training courses.

3. Instructions for using the Sectoral Qualifications Framework for the Construction Industry

1 Familiarise yourself with the sectoral determinants, as they indicate the main areas of the sector's activities.

2 Familiarise yourself with the competence series, as they further describe each sectoral determinant.

3 Familiarise yourself with the competences in a given series.

The competences in the SQF at particular levels correspond to second stage Polish Qualifications Framework levels for vocational education and training

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
SECTORAL DETERMINANT I.	knows and understands...								
	is able to...								
SECTORAL DETERMINANT II.	knows and under-								
	is able to...								
SECTORAL DETERMINANT III.	knows and under-								
	is able to...								
SECTORAL DETERMINANT IV.	is ready to....								

Competences are grouped into their appropriate categories by colour:

knowledge (knows and understands...),

skills (is able to...),

social competence (is ready to...).

Important!
A specific process can often be fully described only by combining competence series from the categories of **knowledge** and **skills**.

Remember!
Green competences are designated in bold and indicated as **(GC)** in front of the description.

4. Updated Sectoral Qualifications Framework for the Construction Industry indicating the green competences identified in the sector

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	**knows and understands...**	**Construction basics**	the basic concepts of construction	the types and components of construction work, including structural and installation components; the types of construction materials and products; the types of technologies used to perform construction work; the basics of construction drawings and documentation	the outline of the history of construction; the principles of making architectural, construction and structural drawings; the properties and scope of application of construction materials and products; the typical technologies used to perform construction work; the principles of organising typical construction work; the classification of the structural components of constructions; the principles of using the structural components of construction work; the basics of geology and geotechnical engineering; the basic loads on constructed objects; the life cycle of a constructed object; the principles of the circular economy	the processes in the life cycle of a construction; the methods of assessing the technical condition of a construction; the principles of constructing the foundation and bedding of typical constructions; the advanced technologies of performing construction work; the principles of organising complex construction work; the fundamentals of hydraulic and environmental engineering	the principles of analysing and dimensioning constructions; the mechanics of building constructions; the numerical methods used in engineering calculations; the limits of bearing capacity and serviceability of the structural components of a construction; **(GC) life cycle analysis (LCA) methodology, the principles of energy efficiency and the low carbon economy;** the principles of organising and planning the construction project; applied hydraulics	the principles of analysing and dimensioning complex constructions; the methods of analysing non-linear constructions; the principles of construction project risk management; the principles of conducting experimental research in areas relating to construction; applied mechanics	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	**knows and understands...**	**Legal regulations**			construction standards; the principles of the process of implementing a construction project; **(GC) environmental standards;** **(GC) good practices relating to sustainable development in construction;** the benchmarks and standards for public roads	building regulations and other legal acts relating to construction; the legal regulations relating to the maintenance of constructions, including linear and hydrotechnical constructions; labour, criminal and misdemeanour, civil, administrative and other laws relating to construction; the laws on the protection and care of historical monuments; **(GC) the regulations and laws on environmental protection;** **(GC) regulations and laws on water;** public procurement and related regulations; spatial planning regulations; the legal acts relating to conceptual work in the construction industry	the legislation governing the scope of construction in the country in which the construction project is planned; **(GC) the legal acts necessary for decision-making in the fields of architecture, spatial planning, urban planning and construction, taking into account the principles of sustainable development;** the principles of investigating the causes of a construction disaster	the principles of developing legal acts for the construction industry	the trends and research findings in construction innovation requiring regulatory changes for their implementation

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and understands...	**Construction qualifications**		the types and specialties of construction	the scope and specialisations of construction qualifications; the principles of awarding construction qualifications; the principles of holding examinations for construction qualifications; the organisational structure of the job positions at a construction site, including the responsibilities and required qualifications; the professional self-governed organisation of the construction industry	the regulations on awarding construction qualifications for managing construction work in a given specialisation; the principles of professional responsibility, including the disciplinary, civil and criminal liability of persons performing independent technical functions in construction	the regulations on awarding construction qualifications to perform design work in a given specialisation		
	knows and understands...	**Permits, approvals, environmental agreements in construction**			the rules of obtaining a building permit; the rules of submitting a construction for acceptance; the rules of obtaining permission to deconstruct a construction, including demolition; **(GC) the scope of the measurements and tests required to issue a decision on the environmental conditions for the implementation of a construction project**	the competences of the entities entitled to supervise and control the implementation of construction work; the rules of obtaining a permit for implementing a road project (ZRID); the rules of notifying architectural and construction administration authorities of the forms of use of a construction after its change, e.g., reconstruction or expansion; the rules of notifying administration bodies and offices of intentions, events and situations at a construction site;			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry		**Permits, approvals, environmental agreements in construction** (cont.)				the formal and legal requirements necessary for determining the location of a construction; **(GC) the principles of preparing reports based on environmental data and the requirements of public administration authorities**			
	is able to...	**Permits, approvals, environmental agreements in construction**			**(GC) measure environmental parameters**	**(GC) implement environmental agreements; (GC) analyse the conclusions of reports and implement the conditions and requirements contained in the decision on the environmental conditions for projects**	**(GC) develop solutions to minimise negative environmental impacts;** comply with the principles of professional ethics when negotiating with participants of the construction project		
	knows and understands...	**Tools for increasing energy efficiency and the low-carbon economy of constructions throughout their life cycle**				**(GC) the regulations on improving the energy performance of a construction**	**(GC) the methods of conducting energy audits of constructions and preparing energy performance certificates; (GC) the technologies for the decarbonisation of constructions;** the processes and activities of each stage of the life cycle of constructions	**(GC) the technologies, equipment and materials used in energy-efficient construction; (GC) the methods of calculating the carbon footprint of a construction over its entire lifecycle**	**(GC) the latest research findings on increasing energy efficiency in construction; (GC) innovative technologies, equipment and materials used in energy-efficient construction**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	is able to...	**Tools for increasing energy efficiency and the low-carbon economy of constructions throughout their life cycle**				**(GC) interpret the results of an energy audit and an energy performance certificate**	**(GC) perform an energy audit and prepare an energy performance certificate for constructions with simple structures and installations (e.g., residential buildings) or parts of constructions;** **(GC) use computer tools to conduct an energy audit and energy performance certification of a construction;** **(GC) use technologies to decarbonise constructions throughout their life cycle**	**(GC) perform an energy audit and prepare an energy performance certificate for a complex construction, district heating network, etc.;** **(GC) design the thermal modernisation of a construction in terms of its technology and organisation taking into account the results of an energy audit;** **(GC) take advantage of the project and operational support system for solutions to improve the energy efficiency of constructions;** **(GC) prepare an ESG report**	**(GC) develop a new method for conducting an energy audit and determining the energy performance of a building;** **(GC) develop a new method of calculating the carbon footprint of a building**
	knows and...	**Surveying**	the methods of marking the locations of a demarcated foundation of a construction	the principles of plot delimitation	the principles of preparing geodetic and cartographic surveys; the technical standards for conducting land surveys	the terms of reference for the different levels of surveying competence; the risks of the occurrence of surveying errors	advanced surveying techniques; the methods of transferring the actual shape of an object to a 3D scan		
	is able to...	**Surveying**	mark the demarcated locations of the foundation of a building in the field for surveying purposes	locate the demarcated site for the foundation of a building in the field; perform ancillary work in conducting surveying measurements	locate the boundary points of a building plot; interpret land surveying markings; perform surveying measurements	analyse the results of geodetic measurements	conduct surveying and cartographic studies; plan and supervise the implementation of geodetic and cartographic surveys; perform geodetic measurements using advanced tools	produce spatial maps in a 3D model	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and understands...	**Geotechnical investigations**		the methods of excavating and drilling for geological and geotechnical investigations of the ground on which the construction will be placed; the tools for excavating and drilling for geological and geotechnical investigations of the ground	the geological conditions of a planned construction project; the classification, categories, types and conditions of land	the types of ground conditions; the physical and mechanical properties of soils; the methods of conducting laboratory tests of soils and rocks	the geotechnical categories of soils for the foundation of a construction project		
	is able to...	**Geotechnical investigations**		perform excavations and drillings for geological and geotechnical investigations of soils and rocks	take samples for geological and geotechnical investigations	conduct geological and geotechnical investigations	perform geological and geotechnical investigations using advanced methods, including the use of non-invasive geophysical methods (electrical resistivity, geo-radar and seismic methods); analyse the results of geological and geotechnical investigations	analyse the results of advanced investigations with a view to selecting a method to set a construction on the ground	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and understands...	**Costing and billing construction work**		the types of cost estimates	the principles of preparing cost estimates; the principles of pre-measuring construction work; the principles of measuring physical progress in construction work; the basic principles of accounting for construction work; **(GC) the principles of determining the value of recovered demolition materials;** the sources of obtaining information on the unit prices of production factors and the unit prices of construction work; the sources of information on the costs of construction work and objects	the methods of estimating the costs of construction work, including design work, based on indicators; the principles of determining the cost of construction work, including costs relating to the safe performance of the work; the principles of calculating material costs of construction work; the economic parameters affecting cost estimations	the business climate and labour market in the construction industry; the types of processes and production methods at each stage of the life cycle of the construction	the methods of researching the business climate and labour market of the construction industry; the international business climate and labour market in the construction industry	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	is able to...	**Costing and billing construction work**			perform a construction work take-off; perform a construction work bill of quantities; document the work of people and equipment and the amount of materials and construction products used; develop the premises and input data for cost estimates	account for the work of people, equipment, materials and construction products used and verify them against the materials and financial schedule; perform cost estimates of construction work, taking into account the value of the economic parameters and the requirements of the contracting authority; **(GC) estimate demolition work allowing for the recovery of building materials;** **(GC) estimate the market value of recovered demolition materials;** prepare cost estimates using material cost catalogues and individual analysis	determine the efficiency and productivity of construction services taking into account technology; perform cost estimates for construction work, taking into account the economic situation and labour market in the construction industry; prepare cost estimates, taking into account costs relating to the safe performance of work; settle construction projects financed from various sources, including public funds; **(GC) optimise cost estimates for construction projects, including with regard to green building**	**(GC) estimate the life cycle cost (LCC) of a construction;** determine the unit input for equipment, materials and labour for work conducted with the use of new technologies	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and understands...	**Digitalisation, software and IT tools in the construction industry**			basic IT tools for costing and scheduling construction work; the basic functions of computer-aided design (CAD) software; the software for performing static calculations in construction; the possibilities of using drones in the construction industry; geographic information systems (GIS)	complex IT tools for costing and scheduling construction work; the possibilities of using 3D scanners in construction; **(GC) intelligent building solutions**	complex computer-aided design (CAD) software functions, including in 3D; the basics of building information modelling (BIM) methodology; 3D mapping tools and software; the software for advanced calculations in construction; the principles of selecting control software for construction machines; the principles of making a digital twin (DT) of a construction	**(GC) advanced IT tools in line with BIM methods;** **(GC) the principles of implementing the entire construction project using BIM methods;** the development trends of intelligent tools for programming, planning and designing in construction	**(GC) the latest IT tools used in the construction industry, including those relating to sustainable development**
	is able to...	**Digitalisation, software and IT tools in the construction industry**			prepare and read CAD drawings; take into account the results of geographic information systems analysis in the design of a construction project	examine the technical condition of a building using a drone; evaluate the results of the numerical analysis conducted with the use of software; prepare and input geodetic data to set up construction machines; use AI in basic construction activities; communicate using building information modelling (BIM)	design using CAD, including in 3D; perform building inventories with the use of 3D laser scanning; implement information technology to support the construction project	**(GC) design or manage the construction project using BIM with sustainability in mind;** use AI in complex, interdisciplinary activities in the construction industry; collaborate with developers in the development of new software and IT tools for the construction industry	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and understands...	**Professional development**	the sources of information about construction jobs; the content of job advertisements in the construction industry; the entities supporting career development	employment opportunities in construction, taking into account the current labour market situation; the basic preconditions for occupational and territorial mobility; the principles and techniques of presenting oneself in a job interview	labour market forecasts in the construction industry; the opportunities to improve one's professional competences	on-the-job training opportunities and needs in the construction industry; the training delivery methods in construction; career paths for management positions in construction; the opportunities to improve staff competences	the teaching methods in the construction industry	labour market analyses in the construction industry	
	is able to...	**Professional development**	search for suitable job offers in the construction industry; present one's competences to a potential employer; take advantage of assistance from a career counsellor	analyse suitable job offers in the construction industry in terms of one's competences; organise one's professional mobility activities; demonstrate one's competences	plan one's own professional development; provide instruction and training in one's professional tasks in the construction industry	improve and broaden one's professional competences; act as a mentor to a new recruit; transfer knowledge and experience to colleagues; improve and broaden one's own competences using various forms of professional development	**(GC) provide staff training in construction, including on innovative and green technologies;** assess the opportunities and development needs of employees in the construction company; conduct activities within the profession's self-government organisation	conduct research and teaching activities in the field of construction; select teaching methods for classes on construction; plan one's own research career in construction; implement human resource policies and prepare plans for the development of staff resources in a construction company; make use of analyses on professional and territorial mobility in the process of implementing a construction project; promote the need for lifelong learning in the construction industry; verify the professional competences of recruited employees	conduct independent research in the field of construction

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
I. Cross-sectional view of the construction industry	knows and...	**Information flow**		the professional language used at a construction site	the various methods and tools of communication when performing professional tasks in the construction industry	the principles of public consultation for planned construction projects	the cultural context of the international environment in which one works		
	is able to...	**Information flow**		communicate using the basic scope of the professional language used at the construction site	communicate effectively about the professional construction tasks being performed	communicate effectively with the architectural and construction administration; communicate effectively with persons and entities involved in the construction project; communicate effectively with those responsible for the construction of critical infrastructure; use advanced methods of communication, including those arising from BIM possibilities	communicate effectively in the international community; develop effective communication and collaboration between the construction industry and academia; design communication flow and manage it in a construction project; establish and maintain appropriate relationships in the construction community and with other sectors; develop a standard of information flow in the project team for a construction project		
	is able to...	**Promoting the construction industry**				**(GC) implement information and education campaigns to promote sustainability in construction;** assess one's role and place in planning and implementing the strategy of an innovative construction company	**(GC) plan and design campaigns to inform and promote the development of sustainable construction;** **(GC) promote the scientific achievements in the field of sustainable construction in national and international construction communities**	**(GC) create development trends in the construction industry that take sustainable development into account;** **(GC) plan the development of a construction company in accordance with a strategy of innovative, sustainable development and green transition**	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**knows and understands...**	**Construction programming**			**(GC) the social, economic and environmental objectives of construction projects, including linear and hydraulic engineering projects**	the legal acts relating to conceptual work; the environmental determinants of spatial development plans; the premises of the Trans-European Transport Network; the premises of the Trans-European Inland Waterway Network; the results of a general traffic survey; the types of constructions that are part of the critical infrastructure and their importance for the security of the country and its citizens	the principles of communicating with different actors and the local community in the spatial planning process	construction market trends and dynamics; feasibility study assumptions; functional and utility program assumptions; **(GC) the methods of economic and non-economic efficiency analysis, including environmental analysis;** the principles of estimating project costs based on the functional-utility program; the risks involved in the programming process	**(GC) innovative solutions in the field of construction at the programming stage, taking into account energy efficiency and sustainable construction principles**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**is able to...**	**Construction programming**			prepare source data for construction programming	obtain information from the relevant bodies regarding infrastructure arrangements; analyse the provisions of the local spatial development plan or apply for the issuing of development conditions; plan activities relating to the acquisition of the right to use property for construction purposes; perform sub-analyses of data for building programming; **(GC) take into account the principles of sustainable development in construction, in terms of the conditions of the environmental decision;** form project teams for a construction project; analyse the results of traffic surveys and tests	diagnose the client's needs and expectations in order to plan a construction project; analyse data for decision-making in the fields of architecture, spatial planning, urban planning and construction; **(GC) evaluate the effects of project programming in the construction industry, taking into account the principles of sustainable development** identify and reduce barriers to the development of the construction industry; take into account the conclusions of public consultations in the programming process	program a construction project on the basis of a feasibility study; perform construction consultancy services; produce forecasts for the development of the construction industry; prepare multi-annual forecasts for land and water transport	**(GC) conduct activities in research, development and innovation (R+D+I) taking sustainable construction principles into account;** **(GC) investigate the effectiveness of programmed innovative projects incorporating sustainable construction principles**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**knows and understands...**	**Construction planning**			the types and scope of geodetic and cartographic surveys and surveying activities; the legal basis for issuing decisions and arrangements necessary for implementing a construction project; the scope and types of information needed at the stage of construction planning; the components of a construction project; the historical results of environmental measurements for the area of the planned construction project, including hydrotechnical and linear facilities; the scope of necessary inventories in the area of the planned construction project and its impact; inventory methods for the construction project	the principles of developing sub-analyses for construction programming and planning; the methods for estimating the value of construction project implementation; the potential of construction entities on the local market; **(GC) the basic principles of the development plan, including environmental impact;** **(GC) the green certificates granted for constructions;** the characteristics of the construction company's resources; the scope of requirements for developing a network study; the scope of requirements for developing a corridor study; **(GC) the environmental conditions for a construction project;** **(GC) the environmental impact assessment report for the planned construction project, including animal migration issues;** **(GC) the technical solutions for minimising negative impacts of the construction on the environment;**	the market trends of price fluctuations in construction materials and services; company strategy; construction diagnostic methods, including non-destructive testing; the principles of analysing and assessing the economic and financial efficiency of a construction project; **(GC) the principles of analysing and assessing the environmental effectiveness of a construction project;** the principles of analysing and assessing the technical and technological efficiency of a construction project; the strategic documents and development policies of the countries in which the construction project is planned	risk management methods	**(GC) innovative solutions for minimising the environmental impact of a construction project**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**knows and understands...**	**Construction planning** (cont.)				the principles of participation in financing the design, implementation and maintenance of a construction project; the principles of financing the construction project from public funds; the basic principles and concepts used in the spatial planning process			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**is able to...**	**Construction planning**			compile source data for construction planning	estimate the preliminary value of a construction project; perform sub-analyses of data for construction planning; plan and organise work at the decision-making stage of the construction project; obtain the required information on the arrangements necessary for construction design; obtain the right to use property for construction purposes; perform an inventory of the construction project; perform an inventory of the area of the planned construction project and its impact; take into account the costs of possible compensations relating to the acquisition of land in planning the construction project; **(GC) obtain an environmental decision;** **(GC) coordinate activities in obtaining an environmental decision**	prepare the tender specification for the construction project, including the determination of the principles and forms of its acceptance; manage the communication process with stakeholders of the planned construction project; estimate the value of the construction project's implementation; apply strategic planning methods for the construction project; identify and analyse the risks in the construction project; assess the technical condition of a construction; analyse the results of an inventory, taking into account the specific characteristics of the planned construction project; determine the areas of impact of the planned construction project; **(GC) incorporate the environmental conditions into the design of the construction project;** develop a financial plan for the construction project with the participation of its involved parties, specifying their participation in its financing;	plan the construction project; prepare a functional-utility program, taking into account the analysis of the economic situation in the construction industry; provide advice in the field of construction project planning; prepare a feasibility study for a construction project, including an estimation of its profitability; **(GC) plan a construction project and its variants on the basis of a feasibility study, taking into account the principles of sustainable development;** manage risks during the various phases of construction project implementation; establish the objectives of the construction project based on the analysis of identified predicted market needs; organise the tender procedure for project implementation on behalf of the investor; develop the design premises for the construction project; integrate the activities of the participants in the construction project in order to achieve the urban vision, while respecting social priorities and economic plans;	**(GC) develop innovative approaches in planned green projects;** **(GC) develop models and test innovative solutions in the field of green building**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	is able to...	**Construction planning** (cont.)					prepare a public funding application for the construction project; take into account the legislation and technical solutions in force in different countries for a construction project	develop effective communication and cooperation with the investor and the contractor during the preparation of the construction project; develop a strategic plan for the construction project; apply the methods of analysing professional and territorial mobility in the construction industry; apply the methods of analysing the labour market in the construction industry; modify the obligatory technical solutions in different countries for a construction project; develop a functional-utility program for a construction project	
	knows and understands...	**Planning linear and hydrotechnical construction projects**			the principles of horizontal, vertical markings in linear projects; the types and parameters of protective infrastructure adapted to the linear project and its purpose; the determinants of heavy transport in road traffic; the technical conditions for linear projects; the basic issues in water management	the principles of building service and emergency roads in the process of designing linear projects; the conditions necessary to conduct maintenance work after the project has been approved for use	the specific characteristics of international and transit transport in the area of the planned linear project	the principles of the interaction between hydraulic structures and other structures	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**is able to...**	**Planning linear and hydrotechnical construction projects**		examine traffic volume by road category and type of vehicle	prepare a preliminary sketch of the location of the linear or hydrotechnical construction project; collect information on the building plots in which a linear or hydrotechnical construction project is planned	coordinate the acquisition of easement approvals for the land needed for linear and hydrotechnical construction projects; estimate the costs of land acquisition	prepare documentation for the legal proceedings of expropriation, including expert reports; prepare estimates for variants of hydrotechnical or linear construction complexes; take into account the needs of various stakeholders in the planning process for hydrotechnical or linear construction projects; take into account heavy transport considerations in the design process of linear construction projects, including bearing capacity category, geometry and height; agree on and take into account associated infrastructure (service and emergency roads) in the process of designing linear construction projects; take transit traffic infrastructure into account; work out the scope of responsibility of the entities in the cross-border area of linear and hydrotechnical construction projects; delimit the area to be flooded with the accompanying infrastructure taking into account data from inventory maps	manage a team preparing a linear or hydrotechnical construction project; prepare a corridor study for a road construction project; analyse the interaction of hydrotechnical constructions and their effects on other constructions	prepare international agreements for a planned linear or hydrotechnical construction project taking into account its purpose, objectives and scope; develop strategies for a linear or hydrotechnical construction project in an international area

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**knows and understands...**	**Designing constructions**			the scope of responsibilities of public administrative authorities relating to construction; **(GC) the principles of ergonomics, health and safety, fire prevention and environmental protection in the construction industry**	the principles of preparing construction project documentation; the scope of the required permits from public administration authorities; the principles of preparing sub-analyses for construction design; the technical specifications of construction materials and products; building management systems (BMS), including for protection against fires; the scope and form of the construction design; the technical specifications for performing and accepting construction and assembly work; the principles of designing with the use of 3D design solutions (BIM); the typical methods of strengthening the ground	the principles of making changes and their implications for the project; **(GC) the measures and indicators for evaluating construction development strategies, including sustainable construction;** **(GC) the principles of the multi-criteria certification of construction work;** the operational risks and problems with underestimating the costs of implementing a construction project; the predictable functionality of the technical solutions in construction; advanced methods of strengthening the ground; the principles and techniques of integrated design; the principles of universal design	**(GC) the theoretical basis for the application of advanced and innovative technologies and construction products, including low-carbon ones;** **(GC) the methods and technologies for adapting buildings to climate change;** the principles of the development of assumptions for sector-specific designs, including with regard to: construction, sanitary and electrical installations, implementation technologies, acoustics, fire prevention; **(GC) the trends and developments in the science of construction products and the technologies of using such products, including those relating to the circular economy;** the impact of aerodynamics on buildings	**(GC) state-of-the-art material solutions and technologies in construction, including green building and the circular economy;** **(GC) international research achievements in the area of design, including green building**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**is able to...**	**Designing constructions**			read basic information from the design; perform design elements, including drawings commissioned by the chief designer; use tools and software to perform simple design work	**(GC) advise on the technical performance of construction products and new (green) technologies in construction;** select appropriate products and optimal technologies to implement construction work for the designed elements of the construction; perform sub-analyses and develop source information collections for construction design; obtain the required information to start and perform construction and assembly work; prepare energy certificates for constructions; interpret the provisions of a contract with a developer based on the legal regulations	cooperate with the client during the design of the construction; adapt suitable products, optimal technologies of construction work implementation to the designed elements of the construction; **(GC) to a limited extent, design the construction work using new technologies and the principles of sustainable development taking into account the LCA method;** design elements of the construction work; check the design of the construction in terms of compliance with formalities, i.e., with applicable regulations; use tools and software for independent design work, including the use of BIM; identify and analyse risks during the design phase of a construction project; implement agreements with other sectors in preparing project documentation; design the foundation of the construction to be built, including for hydrotechnical structures	develop the premises for sector-specific designs; manage the risks in the various stages of developing the construction project; manage projects using new technologies in the construction industry; **(GC) design a construction project using new technologies and sustainable development principles, taking into account the LCA method;** check the design of a construction project in terms of compliance with formalities, i.e., with applicable regulations and standards; design the technical protection of neighbouring buildings; design the equipment of the construction, including the selection of equipment with the required technical parameters, taking into account the method of their assembly, servicing and replacement; prepare technical specifications for the implementation and acceptance of work; perform design work for the implementation technology;	develop project management strategies taking into account the use of new (green) technologies in construction; **(GC) develop new technologies incorporating the principles of sustainable development in the design of construction projects;** develop new methods of designing constructions; **(GC) develop methods of adapting constructions to climate change**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	is able to...	**Designing constructions** (cont.)						model a construction and analyse its response to various types of interactions, including aerodynamic ones; conduct experimental studies in a wind tunnel; design load tests on the components and structures of a construction; **(GC) design constructions using methods and technologies for their adaptation to climate change**	
	knows and understands...	**Designing linear and hydrotechnical constructions**		road classification; the parameters of individual road categories; the technical infrastructure certificates of airports	the classification of offshore and inland hydrotechnical constructions with regard to their structural safety classes; the building requirements for a linear construction project, including capacity/traffic density; the entities working on specific segments of the technical infrastructure of airports; **(GC) the types and kinds of technical infrastructure, including the ones relating to traffic safety and environmental protection;** the types and principles of using control and measurement equipment in hydrotechnical constructions	the premises for the construction and design of a linear project; the principles of temporarily rerouting traffic in determining the stages of a linear construction project; the technical equipment of hydrotechnical constructions, including the devices used; hydrology issues in the design of hydrotechnical constructions; the basics of hydraulic and environmental engineering; the methods of waterproofing earthen structures	the geotechnical, hydrological and hydrodynamic issues in the design of hydrotechnical constructions; the specialised materials and technologies for building structures and components exposed to permanent or periodic loading with standing or flowing water; the conditions for underwater work on engineering structures	the trends of change in the technical infrastructure for linear constructions; the directions of change in the technical infrastructure for hydrotechnical constructions	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	is able to...	**Designing linear and hydrotechnical constructions**					determine the allowable surge flows through hydrotechnical constructions	prepare instructions for the operation of a hydrotechnical or linear construction under various operating conditions, including emergency response scenarios; determine the interactions of hydrotechnical constructions; design a hydrotechnical or linear construction taking into account the risk of failure and its consequences	
	knows and understands...	**Preparing to implement a construction project**			the subject of the contract and scope of the construction work to be performed; (GC) the principles of planning construction work with regard to sustainable development; the principles of performing the material take-off or bill of quantities for construction work; the methods of testing materials and construction products; the physical, chemical and mechanical properties as well as the principles of durability testing of construction materials and products	the procedures prior to starting construction work; the tender procedures to implement a construction project; the conditions included in the building permit, technical specifications for the implementation and acceptance of construction work and the construction design; the principles and methods of recruiting employees to implement the construction project; the organisational culture of the construction company	the specialised technologies for building a construction in an aquatic environment; the principles of the work organisation in an innovative construction company	the advanced methods of designing work processes in construction companies	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation for implementing a construction project	**is able to...**	**Preparing to implement a construction project**			prepare, operate, check, adjust and maintain the instruments and equipment for testing construction products; test the physical, chemical and mechanical properties of construction products and materials in accordance with the methodology; perform durability testing of construction products in accordance with the methodology; **(GC) apply in practice the principles of sustainable development in the process of preparing the implementation of a construction project**	communicate effectively with the designer and construction management; **(GC) select technologies, including innovative ones, for the process of implementing a construction project with the minimal use of non-renewable resources;** prepare a schedule of construction and assembly work; **(GC) prepare project documentation and technical specifications for the implementation and acceptance of construction work for the ordering party, including the investor's cost estimate and the work take-off taking into account the principles of sustainable development;** prepare bidding documents, including in tender procedures, for construction and assembly work; prepare source data for architectural and construction authorities	hand over and accept a construction site; prepare a schedule for staging the construction work; develop the technical conditions for implementing and accepting construction work, including the assessment of its quality; determine the formal and legal principles and forms of supervision of the quality and timeliness of construction project implementation; follow and analyse development trends in the construction industry; analyse and implement the company's strategies and standards in the preparation of a construction project; develop a budget for a construction project, including the determination of financing sources and conditions; **(GC) design the organisation of construction work, taking into account the use of renewable energy sources (RES) at the earliest possible stage of project implementation;** organise the tender procedure on behalf of the investor for the construction project contractor;	analyse the results of tests on construction materials and products using methods not covered by the standards; manage the preparation of project implementation; solve the logistics problems of large construction projects; advise investors on new development trends in the construction industry; conduct personnel policies during the construction project	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
II. Work on the programming, planning, design and preparation		**Preparing to implement a construction project** (cont.)					analyse the results of physical, chemical, mechanical and durability tests of construction products following the applicable standards; use analyses of the labour market in the construction industry in one's professional activity		
III. Construction and assembly work (tasks)	knows and understands...	**Documenting construction and assembly work**			the principles of documenting selected samples of construction products	the principles of maintaining and making entries in the construction logbook; the regulations on keeping records of the construction site with regard to the use of equipment, construction materials and products			
	is able to...	**Documenting construction and assembly work**		prepare lists of necessary tools	prepare lists of necessary materials and construction products based on the construction documents; document the sampling process for testing; archive documents on the quality of the building materials and products used in the construction	prepare the as-built documentation of the construction work; prepare the acceptance documentation of the construction work; prepare instructions for using the construction; prepare the energy performance certificate of the construction; prepare reports on the status of construction and assembly work in progress; maintain an assembly or pile driving logbook; maintain a construction logbook; prepare a profit and loss statement for the investment stage		

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	knows and understands...	**Mobilising resources and site development**		the principles of transporting, stockpiling and storing materials, construction products and prefabricated components	the principles and methods of warehousing, stockpiling and storing construction products taking into account the manufacturer's guidelines; the principles and methods of securing and protecting the construction site; the principles of organising the work of a workshop located at a construction site for producing semi-finished construction products				
	is able to...	**Mobilising resources and site development**		organise one's own workstation	plan the need for tools and materials	**(GC) plan the construction site, including back-end facilities, in accordance with the principles of sustainability;** organise mobile plants for the production of concrete, bitumen, semi-finished building materials, etc.			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	**knows and understands...**	**Managing and organising construction and assembly work**	the basics of verbal communication at a construction site; the signs and signals used at a construction site; the principles of transport at a construction site	the principles of communication (verbal and visual) at a construction site; the scope of professional tasks at one's workstation	the organisational structure of the company; the principles of organising the work of a brigade; the principles of organising the work of a field laboratory for construction materials and products	the company's quality management system; the software supporting the construction work management process; the principles of organising human, material and equipment resources within the scope of the given work stage; the main provisions of the contract with subcontractors, including the scope of services to be provided; the main provisions of the contract with suppliers, including the technical specifications of the materials and construction products supplied	**(GC) the principles of planning the construction process taking into account the principles of sustainable development;** the principles of managing the teams implementing the construction project; the provisions of the agreement with the investor; the principles of commissioning a given stage of the project and the resulting terms of guarantee	the principles of managing the teams implementing construction projects; advanced methods of analysing the efficiency of the construction process	**(GC) state-of-the-art methods for managing construction work, particularly with regard to increasing the eco-efficiency of the construction process**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	is able to...	**Managing and organising construction and assembly work**	receive communications to the extent necessary to perform one's professional tasks	apply the principles of communication (verbal and visual) with the team and supervisors at a construction site	**(GC) manage the work of a team or a brigade and organise the construction and assembly work with due regard to the principles of work ergonomics and environmental protection;** plan the scope of work of a brigade; control work performance and report any changes and delays; manage the stress relating to the responsibility for the safety of one's own work; organise the assigned scope of work of a workshop producing semi-finished construction products at a construction site	organise the work of a field laboratory testing construction products; modify the work schedule to suit the current situation at a construction site; **(GC) manage subordinate brigades and subcontractors, taking into account ergonomic and environmental principles;** manage the stress relating to the responsibility for the safety of the work of teams in the construction industry; coordinate the construction and assembly work in progress, including cooperation with subcontractors; plan human and material resources and their costs necessary for implementing construction and assembly work; develop teamwork skills and motivate teams effectively; plan the acceptance of construction and assembly work on behalf of the contractor; select the optimal method for implementing construction and assembly work;	**(GC) plan the detailed course of a construction project taking into account the principles of sustainable development, the current situation at the construction site and external conditions;** coordinate the stages of a construction project in accordance with the work schedule, including supply logistics; manage the teams responsible for the various stages of a construction project; coordinate the work of the entities responsible for the various stages of a construction project; anticipate and respond to the negative consequences of the actions of subordinate construction workers; coordinate the implementation of various types of construction work for a linear or hydrotechnical project; **(GC) organise the implementation of new construction technologies taking into account the principles of sustainable development;** identify potential risks during the implementation of construction work;	use state-of-the-art knowledge and proven practices/solutions to efficiently implement construction and assembly work; coordinate the construction process in accordance with the work schedule and taking into account its profitability; develop management teamwork skills and motivate teams effectively; coordinate cooperation within the construction process in an international environment; implement systems for managing and documenting the construction process; make significant modifications to the construction process in the event of unforeseeable factors having a significant impact on the conditions of the implemented project; **(GC) develop systems for managing and documenting the course of the construction process, including monitoring its impact on the environment;**	**(GC) develop new methods of managing construction work, particularly in terms of increasing the eco-efficiency of the construction process**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	**is able to...**	**Managing and organising construction and assembly work** (cont.)				prepare and hand over to the contractor the documentation necessary to commence construction and assembly work; organise the production of semi-finished construction products at a construction site; plan the logistics for the various stages of the construction process, including the transport of large-sized components; respond effectively to incidents that threaten the adopted plan and schedule for the implementation of construction and assembly work	respond effectively to incidents that threaten the accepted implementation plan and schedule of a construction project	**(GC) implement new construction solutions and technologies taking into account the principles of sustainable development**	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	**knows and understands...**	**Construction and assembly work**	the basic characteristics of construction materials and the products used in professional activities; the principles of handling simple construction tools; **(GC) the types of construction waste;** the chart for organising traffic at a construction site	the basic properties and uses of construction materials and products; simple measuring tools; the principles of taking measurements; the methods and technologies of simple construction and assembly work; **(GC) the principles of sorting waste generated in construction work**	the properties and use of construction materials and products; the properties and use of simple construction equipment; the principles of taking samples for testing; the regulations and principles of preparing a site for construction; the principles of producing construction networks and installations; **(GC) the principles of sorting construction waste;** the principles of accepting construction and assembly work; the principles of preparing, operating, verifying, calibrating and maintaining laboratory instruments and equipment used to test construction products and materials; the regulations and principles of using means of transport in construction and assembly work	the principles of supervising construction; the standards for construction products; the methods and technologies of complex construction and assembly work; Construction Law, the Construction Products Act and other regulations necessary to perform construction and assembly work (tasks); the principles of the checks and measurements necessary during and after the completion of construction work	**(GC) the principles of the use of innovative, environmentally friendly and renewable building materials and products;** innovative methods and technologies for construction and assembly work; quality assurance systems for construction and assembly work; construction project management systems and the risks associated with them; the principles of required testing during and after construction; the principles and methods of monitoring construction and assembly work using information technologies; the principles of arbitration in the event of disputes concerning the implementation of a linear or hydrotechnical construction project	management systems for implementing complex construction projects; **(GC) the theories, models and research methods relating to the implementation of the construction process, including sustainable and energy-efficient construction;** the research methods and techniques of controlling and assessing the quality of construction and assembly work; the principles and methods of assessing the causes and consequences of construction failures and disasters	up-to-date international scientific achievements in organising construction and assembly work as well as in modern construction technologies; **(GC) the latest research findings in the use of innovative, environmentally friendly and renewable construction materials and products;** the latest scientific research methods in construction and assembly work and new construction technologies

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	is able to...	**Construction and assembly work**	perform ancillary construction work under supervision, including the use of simple hand and power tools; coordinate traffic and transport at a construction site following an adopted organisational chart; **(GC) segregate the waste generated during construction and assembly work;** clean and tidy up a construction site in accordance with received instructions	provide feedback to those supervising the implementation of construction and assembly work; **(GC) organise one's own work during construction and assembly work, taking into account the principles of ergonomics and environmental protection;** assess the quality of the construction products used in construction and assembly work within the scope of performed tasks; perform construction and assembly work in accordance with the adopted technology; foresee the hazards relating to work at a construction site; use the indicated possibilities of transporting construction products and prefabricated components at a construction site; perform finishing work, including installation work not requiring additional authorisations; take measurements and operate simple measuring tools used at a construction site; select assembly materials for autonomously performed work;	use documentation in the implementation of construction and assembly work; assess the quality of completed complex construction work; assess the quality of completed assembly work; check the compliance of the parameters of construction materials and products with the design and technical documentation; take measurements and check the compliance of construction and assembly work with technical and construction regulations and the principles of technical knowledge; perform installation work requiring additional qualifications; receive feedback from persons performing construction work; perform installation work requiring additional training; prepare, operate, check, adjust and maintain the instruments and equipment for testing construction products; **(GC) indicate the location of waste storage, including hazardous waste;**	eliminate potential threats to the construction associated with the implementation of the investment process; select construction materials and products in accordance with design requirements; verify the quality documentation of supplied construction materials, products and equipment; select the quantity and type of materials and construction products required for the work to be performed in accordance with the construction design; supervise logistic processes at the construction site; select modern tools, methods and technologies for construction and assembly work; effectively use innovative tools, work techniques and advanced technologies, including intelligent monitoring systems, in construction and assembly tasks; ensure compliance of applied construction solutions with applicable technical and building regulations, taking into account safety, functionality and durability;	implement and supervise construction work in accordance with the law, implementation documentation and contract requirements; control the budget for the implementation of the construction work; improve the logistics processes at the construction site; communicate with colleagues during the implementation of innovative construction technologies; develop a detailed schedule for the implementation of the construction process, taking into account weather conditions; prepare construction production for the implemented project; develop a risk matrix for the individual stages of the construction process; **(GC) apply the methods and technologies, including energy-saving and low-emission ones, specified in the multi-criteria optimisation plan during the construction process;** monitor the construction work and its impact area	implement and supervise highly complex construction and assembly work in accordance with the implementation documentation and schedule of the investment process; **(GC) use technology and resources to implement an innovative construction project in accordance with the principles of sustainable development;** control the implementation of the construction project in accordance with the budget; manage investment risks in the implementation of a construction project; analyse and implement the obtained results and conclusions from opinions, expert reports, scientific and research studies; perform the administrative closure of a construction project	develop innovative solutions for construction and assembly work; prepare opinions, expert reports, scientific and research studies on contentious issues concerning the implemented project; arbitrate between the contractor and investor in the construction process; prepare expert reports, scientific and research studies for solving complex, non-routine technical and technological problems in the construction process

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	is able to...	**Construction and assembly work** (cont.)		visually assess the quality of completed simple construction work; read technical drawings; direct traffic on public roads during the implementation of construction and assembly work	take samples for testing in accordance with project requirements and standards	ensure that the architectural and construction solutions comply with the technical and construction regulations; apply the regulations on the suspension of construction and assembly work in the event of danger; participate in the acceptance of construction and assembly work and ensure the rectification of any irregularities; communicate with colleagues during the construction process; perform specialised installation work requiring a licence			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
III. Construction and assembly work (tasks)	knows and understands...	**Formwork**	basic types of formwork	the types of formwork and their use in different types of built structures	formwork assembly and disassembly in built structures; the technical requirements for formwork in construction; the influence of formwork quality on casting results	modern formwork systems	advanced methods for analysing the strength of formwork and the influence of external conditions on its performance; the principles of formwork system design for typical built structures; **(GC) the principles of sustainable formwork use, including reuse, with minimal waste;** the principles of optimising processes in the use of formwork in order to make the work more efficient	the theoretical basis of operating with formwork, including their numerical analysis and computer modelling; the principles of formwork system design for complex built structures; **(GC) the latest trends in formwork technology for sustainable and energy-efficient construction, such as prefabricated formwork and innovative materials, including composites**	the latest scientific research on formwork and the development of new technologies in this field
	is able to...	**Formwork**		perform the assembly and disassembly of system and conventional formwork; select suitable formwork materials in relation to project requirements	perform the assembly and disassembly of formwork in complex construction projects	verify the strength of formwork and adapt it to specific construction conditions	manage the process of designing, assembling and disassembling formwork in major construction projects; **(GC) assess and monitor the efficiency of formwork systems in the context of sustainability;** design and use formwork systems, including staggered and self-climbing formwork; optimise formwork processes to increase construction efficiency	produce advanced designs for formwork systems for complex engineering structures; implement new technological formwork solutions, including composite materials; implement innovative formwork technologies, including formwork integrated with BIM	conduct research on innovative formwork technology

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	knows and understands...	**Documenting facility maintenance**		the types of technical documentation of the equipment and installations inside a construction, including during the warranty and guarantee period	the types of basic technical documentation relating to the use and operation of a construction; the principles of keeping records of repair and maintenance work; the principles of keeping a building logbook	the scope of documents required for handing over a construction; the types of construction documentation required by the the competent authorities for notification of use; the regulations on as-built and other work documentation	the full extent of the technical documentation relating to the use and operation of a construction and its surroundings; the scope of the documentation for a construction required by the authorities competent for commissioning its use	the principles of preparing expert reports relating to the safety of a construction	
	is able to...	**Documenting facility maintenance**		prepare a technical inspection report	document the performance of maintenance work to ensure the technical performance of a construction with technical infrastructure as well as its surroundings	prepare the schedule for supervising and controlling a construction with technical infrastructure as well as its surroundings; prepare the instructions for the operation and use of a construction with technical infrastructure as well as its surroundings, including for crisis management; prepare and maintain operating records of the construction, including its logbook	prepare as-built documentation for the construction and assembly work performed in an existing construction; **(GC) prepare documentation on a construction and its surroundings within the context of environmental protection;** prepare documentation for constructions providing collective protection	prepare the technical documentation required for designing a construction's expansion outward or upward	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**knows and understands...**	**Organising repair and maintenance work**			the principles of organising moderately complex construction and assembly work; the principles of using the construction, including the landscaping and equipment on the ground adjacent to the construction; the principles of organising maintenance, repair and overhaul work and the performance of periodic inspections and technical controls, taking into account the construction's category of importance	the principles of organising complex construction and assembly work; the principles and regulations controlling the use of constructions for their intended purpose and for maintaining them in a proper state of repair; **(GC) the regulations on property management, including low-carbon management**	the methods of selecting complex technologies for the outward or upward expansion of a construction; the principles of maintaining the technical infrastructure of a construction and its external surroundings; the principles and scope of the control of constructions by building authorities during their period of use; the principles of performing tests, inspections and measurements following changes in the functional use of a construction	**(GC) the integrated, sustainable approach to building management systems**	**(GC) the latest solutions for the energy-efficient and environmentally friendly operation of constructions**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**is able to...**	**Organising repair and maintenance work**		apply the principles of communication with the manager and users of a renovated construction in the course of performing simple professional tasks; **(GC) organise one's workstation, select the tools and equipment necessary to perform renovation work on the construction and to repair its installations, taking into account ergonomic and environmental protection principles**	**(GC) organise moderately complex work under typical conditions to maintain or improve the technical performance of a construction, taking into account ergonomic and environmental protection principles;** **(GC) plan the improvement of the energy and environmental performance of a building's components, machines and equipment at and around the site;** plan and organise periodic maintenance and operational measurements of the construction and its technical infrastructure, including its external surroundings; direct the work of a small team or brigade in the maintenance or technical improvement of a construction	**(GC) organise complex work to maintain or improve the technical performance of a construction, taking into account ergonomic and environmental protection principles;** **(GC) plan the complex improvement of efficiency, including energy and environmental protection efficiency, of the operation of building components, machines and equipment in the construction and its surroundings;** select cost-optimised technology for construction and assembly work; direct the work of a team in the maintenance or technical improvement of a construction; organise the transport of materials, products, and equipment necessary for renovating a construction; plan the inspection of the technical condition of a construction, the efficiency of its installations and building equipment; plan the maintenance work for constructions, installations and building equipment;	select complex technologies to expand a construction outward or upward; organise and supervise construction work for renovations and reconstructions; prepare temporary road traffic organisation schemes for renovation and/or servicing work; **(GC) plan complex improvements to the efficiency of the construction relating to environmental protection;** determine the conditions for using a construction during the guarantee and post-guarantee period; plan and organise emergency inspections and operational measurements of the construction and its technical infrastructure, including its external surroundings; use the support of external persons from other sectors to solve problems relating to the operation of constructions; identify potential risks in maintaining or improving the technical performance of a construction	**(GC) select construction and assembly technology using multi-criteria methods taking into account sustainability principles;** organise interdisciplinary groups to increase the efficiency of building management; **(GC) plan the replacement of building equipment in order to comply with current technical requirements and standards, including those relating to environmental protection**	**(GC) develop new innovative technologies, including those reducing the environmental impact of buildings**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**is able to...**	**Organising repair and maintenance work** (cont.)				plan the improvement of the technical condition of a construction, the efficiency of its installations and building equipment; plan the supervision of the maintenance or upkeep of a construction; negotiate with the facility manager and other stakeholders with regard to the operation of the construction and its surroundings; determine the principles of effective communication and negotiation techniques when interacting with the owner and manager of a facility in relation to the construction and assembly work in progress; establish the principles of cooperation with the owner or manager of a facility in planning modernisation and maintenance work			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**knows and understands...**	**Maintaining and operating constructions**	the instructions and procedures for safely performing simple work; the instructions for working in the vicinity of construction installations; the types and rules of using work clothes and personal protective equipment	the principles of selecting and calculating the quantity of building materials and products needed to repair construction installations and components; the typical methods of maintaining and repairing construction components; the typical methods of maintaining and repairing the technical components and infrastructure of a construction; **(GC) the principles of segregating the waste generated by repairing and maintaining a construction**	the regulations for using and operating a construction; the principles of operating the technical systems in a construction	the standards for the durability of construction materials, installations and structures; the principles of safeguarding a construction after failures, disasters and other random events	the technologies for performing complex work to maintain and operate a construction; the principles and methods of explaining the causes and circumstances of construction failures and disasters; the principles of monitoring a hydrotechnical construction and its impact area	**(GC) the methods of verifying the energy use and environmental impact of constructions;** **(GC) the trends in research on sustainable construction**	**(GC) the results of research and implementation in the field of construction revitalisation**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**is able to...**	**Maintaining and operating constructions**	perform ancillary work under supervision to maintain and repair a construction and its infrastructure, using simple hand and power tools	select and calculate quantities of materials and building products required for day-to-day upkeep, repair and maintenance of a construction in accordance with the established technology; perform repairs and maintenance of installations and construction components in accordance with the adopted technology	inspect the technical condition of systems, including construction installations and equipment; perform maintenance on the technical systems of a construction; monitor and control the technical condition of a construction using simple methods; select materials, products and equipment necessary to maintain the technical condition of a construction; **(GC) determine the location for storing waste, including hazardous waste;** maintain the effectiveness of emergency notification systems	manage the maintenance of the technical condition of a construction; monitor and control the technical condition of constructions using complex methods; select the optimal technologies for maintaining the technical condition of a construction; perform periodic inspections of constructions, including the infrastructure; perform quality assessments of the performed construction and assembly work and technical infrastructure during the warranty and guarantee period; secure constructions after failures and disasters, fires and other random events; use the digital twin for the management, operation and maintenance of a construction	control and correct the implementation of work in maintaining or improving the technical performance of a construction in accordance with technical and building regulations and the principles of technical knowledge; identify the structural defects of a construction; assess losses after failures and disasters, fires and other random events; assess the construction in terms of the requirements of persons with special needs	conduct the final acceptance of constructions after the guarantee and warranty period; perform professional appraisals of the safety of constructions and their surroundings as well as of the people using them; **(GC) modify constructions using the methods and technologies for adapting to climate change**	**(GC) conduct scientific and research work on new solutions and technologies for sustainable construction in the area of construction maintenance and operation;** conduct research into the causes and consequences of construction failures and disasters, taking into account the physical phenomena and technological processes involved

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	is able to...	**Maintaining and operating linear and hydrotechnical constructions**				coordinate the maintenance of the technical condition of the linear and hydrotechnical infrastructure	analyse the results of monitoring a hydrotechnical construction and its impact area; react accordingly to the results of the monitoring of a hydrotechnical construction and its impact area; select and adapt methods to seal earthen hydrotechnical structures		
	knows and understands...	**Renovation work**	the instructions and procedures for the safe performance of simple renovation work; instructions for working in the vicinity of building installations; the types and rules of using work clothes and personal protective equipment when performing renovation work	the principles of selecting and calculating the quantity of building materials and products needed to renovate construction installations and components; the typical methods for the maintenance, repair and overhaul of construction components; the typical methods for renovating construction installations and equipment	**(GC) the technologies for performing renovation work, including energy efficiency improvements of constructions**; building renovation regulations; the renovation methods for persons with special needs	the historically applied technologies of performing construction and assembly work in order to undertake renovations; the architectural and building regulations for adapting constructions for persons with special needs	the technologies for performing complex work to improve the technical performance of constructions, including work involving structural changes; the technologies for replacing installations in constructions; **(GC) the principles and possibilities of applying environmentally friendly construction techniques, technologies and products;** **(GC) waste-free construction technologies**	**(GC) the methods for revitalising degraded areas, including the construction and its surroundings;** **(GC) the methods of verifying the energy and environmental impact of renovated buildings**	**(GC) innovative technologies for the renovation of buildings, including ways to improve their energy efficiency;** innovative technologies to improve the technical performance of constructions

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
IV. Work to maintain or improve the technical performance of a construction	**is able to...**	**Renovation work**	perform ancillary work under supervision to renovate constructions and their infrastructure, using simple hand and power tools	select and calculate the quantities of building materials and products needed to renovate a construction in accordance with the adopted technology; perform simple renovations of construction installations in accordance with the accepted technology	perform renovation, reconstruction, and the upward expansion of a construction in accordance with the adopted technology; select materials, products and equipment for renovation work	coordinate work for the upward or outward expansion of constructions; coordinate the transport of materials, products and equipment necessary to renovate a construction	control the work and correct the technologies during the reconstruction and upward expansion of constructions in accordance with the technical and building regulations and the principles of technical knowledge; select the technologies for the complex renovation and reconstruction or upward expansion of a construction, leading to its changes; order work leading to the elimination of defects in a construction and the quality of the work performed; **(GC) implement energy-saving and low-emission technologies when renovating a construction;** adapt the construction work to the requirements of persons with special needs	**(GC) design complex building renovations using innovative, low-carbon and circular economy-oriented construction technologies**	
V. Work associated with deconstructing or demolishing...	**knows and understands...**	**Documenting the deconstruction and demolition process**				the principles of preparing tender documentation for deconstructing and demolishing a construction; the principles of keeping records on deconstructing and demolishing a construction; the principles of the financial settlements of deconstruction and demolition work in progress	the scope and form of a deconstruction and demolition project	the principles of keeping the records of a building disaster	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
V. Work associated with deconstructing or demolishing a construction in the context of the circular economy	is able to...	**Documenting the deconstruction and demolition process**			make an inventory of a construction	keep records of deconstruction and demolition work and prepare as-built documentation; keep material and financial records of the deconstruction and demolition work occurring at a construction site	**(GC) prepare tender conditions for implementing the deconstruction and demolition work of a construction in accordance with sustainable development principles**	define the principles of preparing the documentation necessary for the deconstruction and demolition of a construction	
	knows and understands...	**Organising the deconstruction and demolition process**		the basic principles of work ergonomics; **(GC) the principles of deconstruction equipment and installations as well as the components of the deconstructed construction, taking into account the principles of sustainable development in construction;** the principles of marking and cordoning off deconstruction and demolition work areas and their surroundings	the principles of organising deconstruction and demolition work; the means and methods of communication within the deconstruction and demolition team; **(GC) the principles of organising storage sites for construction waste generated by deconstruction and demolition work**	the procedures for obtaining approvals and permits for deconstructing and demolishing constructions, depending on the type and location of the work to be performed; the entities involved in the deconstruction and demolition work being performed; **(GC) the impact of deconstruction and demolition work on the surroundings, including the infrastructure and the environment;** the principles of identifying artistic, historic and natural values present in the area where deconstruction and demolition work is being performed; the principles of organising communication during deconstruction and demolition work; the potential of deconstruction and demolition contractors in the local market	the principles of protecting intellectual property and copyright law relating to constructions; **(GC) the impact of decisions issued to suspend work, restrict use, deconstruct or demolish a construction on the surroundings and the environment**	the various complex deconstruction and demolition technologies for constructions; the trends in the methods of organising construction work, including deconstruction and demolition work	the latest organisational and engineering methods and technologies in the field of deconstruction and demolition work

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
V. Work associated with deconstructing or demolishing a construction in the context of the circular economy	**is able to...**	**Organising the deconstruction and demolition process**		**(GC) organise one's work associated with deconstructing a building and recycling the building materials and products obtained from deconstruction and demolition work, taking into account ergonomic and environmental protection principles;** **(GC) organise one's workstation, select the tools and equipment necessary for the deconstruction and demolition of a construction in accordance with ergonomic and environmental protection principles**	**(GC) manage the work of a small team and organise the work of deconstructing and demolishing a construction, taking into account ergonomic and environmental protection principles;** organise temporary storage facilities for construction waste generated by the deconstruction and demolition of a construction; **(GC) organise the work of recovering construction materials and products for reuse in accordance with the circular economy**	plan and supervise the work of a team deconstructing and demolishing a construction in accordance with the established technology; organise the internal communication of a team deconstructing and demolishing a construction; **(GC) supervise and organise the recycling of rubble and other building materials into construction aggregate during deconstruction and demolition work;** conduct the procedure for suspending deconstruction and demolition work on a construction in the event a danger may occur; conduct the procedure for suspending deconstruction and demolition work on a construction when elements of artistic, historical and natural value may be destroyed; submit a request for the acceptance of performed construction and assembly work relating to the deconstruction or demolition of a construction; participate in the activities of accepting the work performed to deconstruct or demolish a construction;	take over a site from an investor in order to deconstruct or demolish a construction; plan and supervise the deconstruction or demolition work of a construction using various methods, in accordance with one's vested powers; estimate potential risks that may occur during deconstruction or demolition work on a construction	**(GC) determine the principles for handing over a site to the contractor for the deconstruction and demolition of a construction, taking into account the principles of recycling;** plan and supervise the use of explosives in demolishing a construction; determine the principles for accepting the demolition project of a construction; determine the principles of accepting the demolition site of a construction; implement and modify a deconstruction and demolition plan for a construction	**(GC) develop innovative methods and solutions to improve efficiency, safety and environmental protection in the demolition and process**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
V. Work associated with deconstructing or demolishing a construction in the context of the circular economy	is able to…	**Organising the deconstruction and demolition process** (cont.)				organise the removal of any irregularities found in the process of having deconstruction or demolition work accepted			
	knows and understands…	**Deconstruction and demolition work**	the use of simple deconstruction tools	the instructions on how to proceed in deconstructing and demolishing constructions, including with the use of explosives; **(GC) the sequence of deconstructing construction components in accordance with technical and project documentation**	the technologies of construction and assembly work in the process of deconstructing a construction; the principles of securing the structural components and immediate surroundings of a construction to be deconstructed; the principles of deconstructing and demolishing constructions, taking into account existing hook-ups and connections in accordance with the technical and design documentation	the regulations on deconstructing and demolishing constructions; demolition methods and technologies; the basic technologies of land reclamation after deconstructing and demolishing a construction	the technologies used in complex deconstruction and demolition work; the regulations and standards on using explosives in deconstruction and demolition work; the risks involved in performing deconstruction and demolition work on a construction; **(GC) the causes of construction disasters, accidents and adverse environmental impacts of the work being performed**	the behaviour of a structure being demolished; the principles and methods of modelling structures; **(GC) the principles and technologies of the complex deconstruction of constructions, taking into account the circular economy**	**(GC) the results of innovative research and implementation used in demolition and the circular economy in the construction industry**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
V. Work associated with deconstructing or demolishing a construction in the context of the circular economy	is able to...	**Deconstruction and demolition work**	perform simple deconstruction work using simple hand and power tools and manual means of transport tidy up and level the site of a deconstructed and demolished construction	perform ancillary work in the demolition of constructions using explosives; use signs and communications relating to the deconstruction and demolition of constructions; deconstruct installations, equipment and the structural components of a construction; apply the principles of communication during the deconstruction and demolition of a construction	assess the condition of the components, equipment and installations of the construction to be deconstructed and demolished; secure the deconstruction and demolition site as well as adjacent structures and the construction being deconstructed; use the design documentation in performing the work of deconstructing constructions	select demolition methods for a construction in accordance with the project; direct and supervise the deconstruction and demolition of a construction	develop ways of protecting neighbouring constructions to reduce or eliminate vibration, dust, excessive noise, etc.; assess the risks during the deconstruction and demolition of a construction; direct and supervise the safeguards to neighbouring constructions to reduce or eliminate vibrations, dust, excessive noise, etc.; direct and supervise deconstruction and demolition work on a construction using innovative solutions, including ICT	design the process of demolishing a construction; design the process of deconstructing a construction; **(GC) modify the methods of deconstructing and demolishing a construction in accordance with the principles of sustainable development;** determine the causes of construction failures and disasters, including using experimental and simulation methods and techniques	research and develop new or improve existing technologies and methods for the demolition of constructions; **(GC) develop variant models for the deconstruction and demolition of buildings in accordance with the principles of sustainable development;** research, develop and create methods to explain the causes of construction disasters
	knows and understands...	**Acquiring post-demolition and secondary raw materials**	**(GC) the types of building materials and products obtained from deconstruction work;** **(GC) the instructions for sorting building materials and products from deconstruction work**	**(GC) the rules for removing hazardous waste, including waste containing asbestos;** **(GC) the characteristics, parameters and potential uses of building materials and products obtained from deconstruction work**	**(GC) the principles of sorting construction waste;** **(GC) the rules of storing construction waste, including hazardous waste;** **(GC) the principles and techniques of on-site recycling;** **(GC) the basic principles of construction waste management;** **(GC) the quality requirements for construction materials and products obtained from deconstruction work**	**(GC) the methods necessary for testing construction materials and products obtained from deconstruction work**	**(GC) the principles of the re-use of construction components;** **(GC) construction waste processing technologies;** **(GC) the principles of sustainable development in construction;** **(GC) the methods and ways of monitoring impacts on constructions, the surrounding area and the environment;** **(GC) the good practices of reclamation technologies for sites after the deconstruction of constructions**	**(GC) the principles and methods of performing deconstruction work with explosives, taking into account the circular economy**	**(GC) research and development methods and techniques for innovative technologies using secondary raw materials in construction**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
V. Work associated with deconstructing or demolishing a construction in the context of the circular economy	is able to...	**Acquiring post-demolition and secondary raw materials**	**(GC) sort construction materials and products resulting from deconstruction work in accordance with instructions**	**(GC) remove hazardous waste, including waste containing asbestos, from the deconstruction site;** **(GC) segregate and transport demolition materials suitable for reuse or recycling**	**(GC) identify and assess the building materials obtained during deconstruction work for further use;** **(GC) secure equipment, components and building materials from the deconstructed construction in accordance with the requirements of the regulations governing the circular economy;** **(GC) determine the site for storing waste, including hazardous waste**	**(GC) apply basic reclamation technologies to a site after deconstruction work;** **(GC) test construction waste designated to be used for construction aggregate as part of deconstruction and demolition work;** **(GC) supervise the recycling of construction materials and products resulting from deconstruction work**	**(GC) assess construction components for reuse;** **(GC) select and adapt methods and technologies for the deconstruction of constructions in accordance with the principles of sustainable development;** **(GC) manage the acquisition of construction materials and products resulting from deconstruction work and the segregation of construction waste;** **(GC) determine the principles of the recovery or disposal of construction materials and products resulting from deconstruction work;** **(GC) determine the scope of the reclamation work at a site after deconstruction**	**(GC) modify the methods of deconstructing constructions in accordance with the principles of sustainable development;** **(GC) assess the process of deconstructing a construction and the recycling of secondary raw materials obtained during this process;** design the deconstruction process of a construction; design the demolition process of a construction; determine the causes of construction failures and disasters, including with the use of experimental and simulation methods and techniques	**(GC) research, develop and create new, environmentally friendly solutions for the use of construction materials and products resulting from demolition work**
VI. Construction machines, technical equipment and scaffolding	knows and understands...	**Organising work with construction machines and equipment**	the purpose and correct use of simple construction tools	the types of machines and equipment and their basic parameters; the purpose and correct use of construction tools; the principles of selecting the tools and equipment needed to build and repair construction installations and structures	the impact of the type of machines and equipment used on project costs as well as on the existing and planned infrastructure at a site; the purpose and correct use of construction equipment; the required authorisations of operators to use construction machines and equipment	the purpose and correct use of construction machines, including machines under the special supervision of designated technical control units; the characteristic work of machines and equipment, taking into account their reciprocal impact and their impact on the immediate surroundings	the principles of the effective selection of machines and equipment for the technology used to perform construction work	the principles of adapting and modernising machines with respect to site-specific conditions	**(GC) the construction and use of modern machines and equipment to reduce energy consumption and labour intensity of the construction process and to increase work safety**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	is able to...	**Organising work with construction machines and equipment**	follow work instructions at one's workstation in the vicinity of machines and equipment at a construction site operate, use, maintain and store the tools, power tools and equipment required to perform professional tasks	organise one's workstation in the vicinity of machines and equipment at a construction site	organise the use of construction machines and equipment at one's workstation; organise the movement and handling of construction machines and equipment at a construction site	organise the interaction of various types of construction machines and equipment while performing construction work	select machines and equipment for the technology used to perform construction work in terms of their efficiency; select machines and equipment at a construction site in terms of their cost; select machines and equipment at a construction site in terms of their effect on existing and planned infrastructure; select machines and equipment at a construction site in terms of the type and bearing capacity of the ground	adapt the latest available construction machines and equipment to perform construction work	research and implement innovative solutions in construction machines and equipment as well as in their use in ongoing construction work
	knows and understands...	**Field conditions and the operating environment of machines and equipment**	the types of infrastructure and the way they are marked	the principles of using machines and equipment in relation to infrastructure and site conditions	the way technical infrastructure is marked on maps; the impact and restrictions on the safe operation of machines and equipment in the vicinity of technical infrastructure; the managers and operators responsible for the technical infrastructure at and around a construction site	the principles of cooperation with entities and operators who manage the technical infrastructure at and around a construction site; the individual use of construction machines and equipment, including working on scaffolding			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	is able to...	**Field conditions and the operating environment of machines and equipment**	assess the basic field conditions at a worksite	assess the field conditions at a worksite	assess the condition of the ground and its capacity in terms of the use of machines and equipment at a worksite; assess the impact of operating construction machines and equipment on the immediate surroundings	analyse the ground and surroundings in terms of the use of machines and equipment at and around a construction site			
	knows and understands...	**Operating tools, machines and equipment**	the instructions for using simple construction tools, depending on their application	the principles of handling construction tools depending on their application; the principles of the day-to-day operation of construction machines and equipment with attachments	the principles of operating construction equipment depending on its application; the principles of operating the demolition attachments of construction machines; **(GC) the principles of disposing of used construction machine and equipment parts;** the regulations on performing and documenting construction and assembly work in relation to the use of machines	the principles of operating construction machines, including machines under the special supervision of designated technical control units, depending on the application; the principles of modifying machines and equipment for work with demolition attachments; the principles of modifying machines and equipment for hydrotechnical work; the principles of modifying machines and equipment for underground work	the principles of operating specialised construction machines and equipment, including autonomous machines and equipment for demolition work; the principles of operating specialised construction machines and equipment, including autonomous machines and equipment, for hydrotechnical work; the principles of operating specialised construction machines and equipment, including autonomous machines and equipment, for underground work; the principles of storing and preserving the specialised attachments of construction machines and equipment as well as specialised machines	principles of programming construction machines	

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	is able to...	**Operating tools, machines and equipment**	perform work in accordance with instructions using simple construction tools	perform work using construction tools; perform the day-to-day operation of construction machines and equipment; operate, use, maintain and store tools, power tools and equipment necessary to perform professional tasks	perform work using construction equipment in accordance with its intended use; perform work using construction machines with specialised attachments; **(GC) secure the used parts of machines and equipment for disposal;** maintain specialised machine attachments, including for demolition; correctly assemble construction machines and equipment to scaffolding	perform work using construction machines in accordance with their intended use, including machines under the special supervision of designated technical control units; modify construction machines and equipment, depending on the attachments used	perform work using specialised construction machines and equipment, including autonomous ones; report on the need to modify specialised construction machines, including autonomous ones		
	knows and understands...	**Using machines and equipment in construction work**	the principles of communicating with the operator of construction machines and equipment	the technologies of simple construction work using construction machines and equipment	the technologies of construction work using construction machines and equipment; the characteristic interactions of different types and kinds of machines and equipment with different types of construction materials	the principles of the interaction between different types and kinds of machines and equipment; the impact of operating machines and equipment on the overall technological process at the construction site; the cause-and-effect sequence of using machines and equipment in the construction process; the principles of the work of autonomous and automatic machines; the regulations on operating equipment and machines in the vicinity of energy, water and gas networks	the effects of machines and equipment on the structures being built, taking into account the technology of the construction work being performed; the methods of rectifying the consequences of the improper use of construction equipment and machines	the ways of modifying the structures being built with regard to the efficiency of the work of construction machines and equipment;	the latest technology on how to use innovative machines and equipment, taking into account the latest materials

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	is able to...	**Using machines and equipment in construction work**	cooperate with the operator of construction machines and equipment	support the operator of a construction machine by assigning tasks to other workers and supervising the basic scope of their performance	organise work with technical equipment and construction machines; organise and coordinate the tasks of a team working with construction machines	organise and coordinate the interaction of different types and kinds of machines and equipment depending on the work to be performed	organise and coordinate construction using advanced construction machines and equipment, including autonomous and automatic ones; adapt the technologies used depending on the results of the work of construction machines	introduce innovative organisational solutions in using construction equipment; develop the use of construction machines and equipment to remove the consequences of errors made during construction work; study the effects of machines and equipment on construction materials for new applications	develop innovative organisational solutions for the use of construction equipment
	knows and ...	**Documenting the operation of construction machines and equipment**		the principles of conducting periodic inspections; the principles of recording mileage, periodic operations and daily maintenance	the principles of settling the accounts and recording the work of machines and equipment	the principles of settling the costs and efficiency of the work of machines and equipment	the principles of settling the contract costs and efficiency, taking into account the costs of the work of machines and equipment in the entire process	the principles of settling the costs and efficiency of a construction project, taking into account the costs of the work of machines and equipment in the entire process	innovative solutions for the interaction of machines and equipment in the project in terms of their impact on the costs of the work performed
	is able to...	**Documenting the operation of construction machines and equipment**		keep records of periodic inspections; keep records of mileage, periodic operations and daily maintenance	keep records of the operation of machines and equipment; account for the costs and efficiency of a section of the work of machines and equipment	account for contract costs and efficiency, including the cost of the work of machines and equipment in the entire construction process	optimise the interaction of machines and equipment in a project in terms of their impact on the costs of the work performed	apply innovative solutions to optimise the interaction of machines and equipment in a project in terms of their impact on the costs of the work performed	
	knows and understands...	**Planning and designing scaffolding**		the types and kinds of scaffolding used in construction; the types of tools and ancillary equipment used in assembling scaffolding	the operating parameters of construction machines and equipment affecting the construction of scaffolding	the possibilities of using different types of scaffolding; the strength characteristics of the materials necessary for modelling when designing scaffolding; the specific conditions and requirements of the scaffolding foundation area contained in the Safety and Health Protection Plan (BIOZ)			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	is able to...	**Planning and designing scaffolding**			assess the site conditions for the foundation of scaffolding, including an evaluation of typical potential hazards; take into account the impact of construction machines and equipment operating in the immediate vicinity of scaffolding	develop a construction model of typical scaffolding for a project; prepare information for the scaffolding Safety and Health Protection Plan (BIOZ); prepare instructions to safely erect scaffolding	develop a structural model of non-routine scaffolding for a project; match the structure, components and type of scaffolding to the environmental conditions; make the necessary modifications to the scaffolding construction model, including connecting construction machines and equipment to it; take into account ergonomic work principles in designing scaffolding structures		
	knows and understands...	**Ancillary scaffolding work**	scaffolding components	the technical documents or technical instructions for assembling various types of scaffolding; the Safety and Health Protection Plan (BIOZ) provisions relating to scaffolding; the principles of assembling, preparing and securing scaffolding components for transport to the construction site	the principles of maintaining scaffolding components; the criteria for assessing the technical condition of scaffolding components				
	is able to...	**Ancillary scaffolding work**	clean scaffolding components; segregate scaffolding components for on-site storage or transport	visually assess the technical condition of scaffolding components; assemble, prepare and secure scaffolding components for transport to a construction site	provide instructions for transporting scaffolding components to a construction site; maintain and perform minor repairs to scaffolding components in accordance with the manufacturer's instructions and assessment criteria	prepare instructions for transporting scaffolding components to a construction site			

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VI. Construction machines, technical equipment and scaffolding	knows and ...	**Assembling, disassembling and modifying scaffolding**		the principles of assembling and disassembling different types of scaffolding	the principles of modifying different types of scaffolding	the conditions and factors affecting the justification for modifying the scaffolding design	the principles for the technical acceptance of scaffolding structures		
	is able to...	**Assembling, disassembling and modifying scaffolding**		select and prepare the tools and equipment necessary to erect scaffolding; assemble and disassemble scaffolding in accordance with the technical documentation; correctly assemble additional attachments intended for the scaffolding	prepare scaffolding for the technical inspection; diagnose the need to modify scaffolding; modify scaffolding; prepare the scaffolding for the installation of construction machines and equipment	verify the design of the scaffolding in accordance with the technical documentation; verify the modification of scaffolding in accordance with the technical documentation	perform the technical acceptance of scaffolding		
	knows and understands...	**Using scaffolding**		the instructions on using scaffolding and its components	the principles of supervising the construction of scaffolding; the impact of construction machines and equipment on scaffolding	the design documentation for the scaffolding construction stage	the principles of periodic and emergency inspections of scaffolding		
	is able to...	**Using scaffolding**		assess the condition of one's workstation located on the scaffolding; distinguish between types and kinds of scaffolding	perform daily inspections of scaffolding and its components in accordance with the technical documentation	assess the need to modify the scaffolding	perform periodic and ad hoc inspections of scaffolding in accordance with the technical documentation		

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VII. Occupational health and safety (OHS)	**knows and understands...**	**Basic rules and regulations of occupational health and safety in construction**	the risks to human health and life on the job during construction work; the assessment of occupational risks at the workstation; the rules for using personal and collective protective equipment at a worksite; the instructions for safe movement at a construction site; the instructions for safe work, including around existing installations; emergency and non-emergency telephone numbers	**(GC) the rules for the safe use of construction materials and products;** the rules that must be complied with before an employee is allowed to work at a construction site; **(GC) the dangers of hazardous substances and materials, including those containing asbestos;** the health and safety instructions and fire regulations relating to tasks performed at a construction site; the principles of providing premedical first aid; the principles of securing a site and building structures in the immediate vicinity of ongoing construction work; the potential dangers resulting from negligence and the improper implementation of construction work; the principles of preparing the workplace in accordance with OHS requirements; the scope of one's competence in terms of safety at one's workstation; the procedures to be followed at a construction site in the event of an accident at work	the principles of organising the work of a team, including for deconstruction and demolition work; occupational health and safety regulations for construction work; occupational health and safety regulations for laboratory work, including the testing of soil and the building products to be inspected; the principles of obtaining approvals and permits to perform construction work; the principles of obtaining approvals and permits for construction work in progress; occupational health and safety rules and regulations for developing a construction site; occupational health and safety standards and requirements to be met by subcontractors; the causes of accidents at work in the construction industry; the types of compulsory occupational health and safety training	**(GC) occupational health and safety regulations for the disposal of hazardous substances and materials, including those containing asbestos;** occupational health and safety regulations and rules for the use of explosives; occupational safety management systems in a construction company; the regulations for suspending construction, assembly, deconstruction or demolition work when a hazard is identified; the hazards associated with organising construction and assembly work; the principles of preparing instructions on how to work safely at a workstation; the procedures in the event of a construction disaster; the competence and powers of authorities supervising occupational health and safety in the course of the construction project; the dangerous and harmful factors at a construction site relating to radiation, vibrations and noise, temperature, dust and pollution, musculoskeletal loads	the principles of implementing safety policies in a construction company; the methods of assessing occupational risks at construction workstations; the determinants of working in the construction industry for people with disabilities; the procedures to be followed in the event of the threat of a construction disaster	the research methods on the safe organisation of construction projects in the construction industry; the scientific research on the safe organisation of the construction project	the latest research on the safe organisation of construction projects; **(GC) the latest research on the safe use of materials, products and technologies in construction**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VII. Occupational health and safety (OHS)	is able to...	**Basic rules and regulations of occupational health and safety in construction**	apply the instructions for safe work at a designated workstation; **(GC) apply the instructions for safe work in the presence of harmful substances and materials during construction and assembly work;** use personal and collective protection equipment in construction work; report irregularities relating to safety and accidents occurring at work	take into account occupational health and safety as well as fire prevention rules and regulations when organising and performing one's work; **(GC) prevent safety hazards at a workstation, including those relating to the presence of hazardous substances and materials, e.g., those containing asbestos;** provide premedical first aid; immediately remove any irregularities identified in relation to safety at a workstation; identify the occupational risks occurring at a workstation	organise the work of a small team, including for deconstructing and demolishing a construction; apply occupational health and safety rules and regulations when performing laboratory work, including testing the soil and building products to be inspected; take into account occupational health and safety and fire prevention rules and regulations when organising the work of a team; **(GC) design a workstation in accordance with the principles of ergonomics, occupational health and safety, fire prevention and environmental protection regulations;** conduct job training on occupational safety; **(GC) prevent safety hazards in a team's work, including those relating to the presence of hazardous substances and materials, e.g., the presence of asbestos;** immediately remove any identified irregularities relating to the safety of a team's work	organise the work of teams, including for deconstructing and demolishing a construction; suspend work when a possibility of danger to life and health is identified; prevent construction work safety hazards; **(GC) manage construction work taking into account the rules and regulations of occupational health and safety, environmental protection and fire prevention;** coordinate the work of all entities involved in construction in the area of occupational health and safety and fire prevention; prepare instructions on how to work safely at a workstation; designate evacuation routes at a construction site; design a construction workstation for persons with special needs	introduce occupational safety management systems in a construction company; coordinate the work performed by all entities involved in the construction project relating to occupational health and safety and fire prevention; **(GC) manage construction work, taking into account the rules and regulations on occupational health and safety, environmental protection and fire prevention;** **(GC) supervise the performance of tasks which prevent threats to safety, and ensure the protection of the environment, human health and life during the construction project;** perform an occupational risk assessment in accordance with the procedure; identify and assess factors that are hazardous and harmful to workers at a construction site; analyse the causes of accidents at work in the construction industry	develop safety policies for a construction company; analyse the causes of a construction disaster	develop innovative solutions in occupational health and safety as well as fire prevention for the construction industry

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VII. Occupational health and safety (OHS)	knows and understands...	**Occupational health and safety relating to construction machines, equipment and tools**	the principles of safe movement in the areas where machines and equipment are working; the principles of marking and securing the areas where construction machines and equipment are being used	occupational health and safety rules on operating simple construction machines and equipment; occupational health and safety rules on working with the operators of construction machines and equipment; occupational health and safety rules on the impact of working with construction machines on the surroundings, including transmission lines; Safety and Health Protection Plan (BIOZ) provisions on operating construction machines and equipment	the regulations for the safe performance of work with regard to the use of construction tools, equipment and machines, taking into account the working environment	the rules and requirements for securing approval to use construction machines and equipment; occupational health and safety rules on programming the work of and operating complex or autonomous construction machines			
	is able to...	**Occupational health and safety relating to construction machines, equipment and tools**	perform construction work using simple tools in accordance with occupational health and safety rules; move safely around operating machines and equipment, including with regard to the specific nature of demolition work	perform construction work using simple machines and equipment in accordance with occupational health and safety rules; mark and secure the areas where construction machines and equipment are operating; move machines and equipment around a site in accordance with occupational health and safety rules	plan and organise the work of using and moving machines and equipment at a construction site in accordance with occupational health and safety rules	allow construction machines and equipment to be used in accordance with health and safety rules; perform construction work using complex or autonomous construction machines in accordance with occupational health and safety rules; plan and organise the safety of a worksite where construction machines and equipment are to be used	implement new technologies for machines and equipment in accordance with occupational health and safety rules		

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VII. Occupational health and safety (OHS)	knows and understands...	**Safety and Health Protection Plan (BIOZ)**	the provisions of a Safety and Health Protection Plan for the work to be performed	the provisions of a Safety and Health Protection Plan	the procedures for submitting amendments to a Safety and Health Protection Plan	the provisions for preparing a Safety and Health Protection Plan; the principles of including information on the Safety and Health Protection Plan in a construction project; the principles of developing Safety and Health Protection Plans			
	is able to...	**Safety and Health Protection Plan (BIOZ)**	comply with the provisions of a Safety and Health Protection Plan	respond to any deviations from the provisions of a Safety and Health Protection Plan	submit changes to a Safety and Health Protection Plan	develop a Safety and Health Protection Plan taking into account the specificity of the construction work and the optimal use of methods and technologies; analyse and make use of the information contained in an expert's report on the technical condition of a construction; minimise the impact of the work performed on the users of renovated or revitalised constructions covered by the Safety and Health Protection Plan; determine the impact zone of construction work on the surroundings	prepare information on the Safety and Health Protection Plan in the construction project; clarify and detail the information in the project for developing the Safety and Health Protection Plan		

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VIII. Social competence	**is ready to...**	**Cooperation and communication**	establish and maintain the necessary contacts to perform workstation tasks at a construction site; report unusual situations occurring at a construction site to co-workers and the supervisor; cooperate as part of a construction work team; follow the orders and instructions of superiors	maintain effective communication with co-workers and supervisors in the performance of professional construction tasks; maintain effective communication and proper relations with users of a construction site; cooperate in a group within the scope of the professional construction tasks assigned; take on various roles in a construction team	act as part of a team in performing professional construction tasks; maintain effective communication and proper relations with subordinates in the performance of professional construction tasks; maintain effective communication and proper relations between teams at a construction site; maintain effective communication and proper relations with the professional self-governed organisation in the construction industry; plan and effectively manage the work time of a team in the construction industry	maintain effective communication and proper relations with supervisory inspectors and other participants of the construction process; maintain effective communication and proper relations with the construction manager; maintain effective communication and proper relations with utility providers; maintain effective communication and proper relations with subcontractors	maintain effective communication and proper relations with construction supervisors	establish proper relations and maintain effective communication with clients of the construction industry; establish proper relations and maintain effective communication with the owners of land adjacent to a construction site; integrate members of the construction project management team; promote innovative (intelligent) tools and products in the construction industry	manage the change policy for innovation in construction; establish and maintain international cooperation in developing new solutions for the construction industry; establish and maintain cross-sectoral cooperation in developing new solutions for the construction industry; establish and maintain international cooperation in the area of construction projects; establish and maintain cross-sectoral cooperation in the area of construction projects; establish and maintain close relations with the scientific community and other participants in the construction process; share knowledge and experiences with academic staff in the construction industry; **(GC) effectively negotiate, mediate, advise and consult on the introduction of innovations in sustainable construction**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VIII. Social competence	is ready to...	**Work standards and culture**	diligently follow the instructions of one's immediate superior when performing ancillary work in the construction industry; comply with the safety rules, regulations and instructions in force in the construction industry, including when working in hazardous situations and in the presence of harmful and dangerous factors; avoid the risks associated with the presence of harmful and dangerous factors in non-routine situations in the construction industry	perform professional tasks in the construction industry with diligence; adapt one's behaviour to changing working conditions when performing professional tasks in the construction industry; be territorially mobile when performing professional tasks in the construction industry; comply with occupational health and safety regulations while performing professional tasks in the construction industry; **(GC) rationally and economically use the materials and construction products one is entrusted with in accordance with the principles of a circular economy;** **(GC) apply the standards and regulations on segregating materials and construction products resulting from construction work;** limit the inconvenience of the work being performed for the users of a construction; concentrate and manage stress relating to the construction work performed	safely perform professional tasks in the construction industry; take care of and control the quality of the team's work in the construction industry; take into account the effects of one's own and the team's actions on the functional comfort of the users of a construction; comply with the standards, rules and regulations in force when leading a small team in construction and enforce them; apply safety regulations relating to the construction and its surrounding area; apply regulations and standards for safe work in the demolition of constructions with the use of explosives; take action to reduce the stress connected with the occurrence of unpredictable phenomena at a construction workstation; propose solutions to improve work in the construction industry	ensure appropriate working conditions for a managed team; take into account aspects of quality and sustainability in the various stages of the construction process; recognise and communicate the relationship between the quality of workmanship and the cost of a construction project; comply with the principles of the rational management of the means of transport in the construction industry; **(GC) apply the rules and regulations on ergonomics and environmental protection;** comply with and enforce the standards, rules and regulations in force in managing a large team in the construction industry; comply with the principles of safety and ergonomics in the construction industry; comply with procedures in the event of the risk of a construction disaster; reduce the inconveniences of implementing a construction project for the users of the facility and in the surrounding area	promote models of good conduct in the working environment of the construction industry; comply with standards, rules and legal regulations in force in design work in the construction industry; **(GC) promote pro-environmental protection attitudes in construction activities;** promote and implement out-of-the-box and creative actions in the working environment of construction activities; **(GC) propose solutions improving energy efficiency in the course of the construction process and in the use of the construction**	undertake innovative activities in the construction industry, taking risks into account; comply with and enforce standards, rules and legal regulations in force in managing a construction project; **(GC) promote energy efficient solutions in the construction industry;** respect intellectual property rights in the construction industry; promote professional ethics in the construction industry; **(GC) act at the national and international level to introduce pro-quality and pro-environmental protection regulations concerning solutions in the construction industry;** promote the social functions of the construction industry and its role in socio-economic development; provide effective professional development programmes for construction workers; take professional risks that require emotional resilience when implementing construction projects; promote the idea of the revitalisation of various areas aimed at raising the standards of property use	develop and implement models of good conduct, organisational culture and a culture of safety in the construction industry; shape and develop ethical principles in the construction industry; promote high standards of ethics in the national and international construction research community; integrate societal needs into construction research; **(GC) shape a research and professional community oriented towards the implementation of innovations, construction technologies, building materials and equipment in the field of low carbon construction**

SECTORAL DETERMINANT		COMPETENCE SERIES	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
VIII. Social competence	is ready to...	**Responsibility**	assess one's own actions in the workplace performed individually and as part of a team in the construction industry; foresee the consequences of and take responsibility for one's own actions in the construction workplace; respond to the presence of bystanders at and around the construction site; **(GC) take care of the environment when performing one's activities at the construction site;** participate in compulsory periodic training in occupational health and safety	assess the performance of professional tasks conducted individually and as part of a team in the construction industry; foresee the consequences and assume responsibility for professional tasks performed in the construction industry; act autonomously at the construction site; **(GC) take care of the good condition of the construction tools, equipment and machines being used;** respond in the event of irregularities occurring in the performance of professional tasks in the construction industry	assess the performance of professional tasks conducted by a managed team in the construction industry; take responsibility for the consequences of one's own actions and those of one's team as well as the decisions made in the construction work environment; observe professional ethics in performing construction tasks; **(GC) manage resources rationally while performing professional tasks in accordance with the principles of sustainable development;** comply with the design requirements when performing professional tasks in the construction industry; take responsibility for maintaining the good technical condition of constructions; make decisions autonomously and take responsibility for them when managing a small team in the construction industry; manage the stress associated with the responsibility for one's own work and that of one's team in the construction industry	**(GC) take responsible actions in the construction industry in accordance with the principles of sustainable development;** undertake responsible cooperation with project supervisors; take responsibility for the consequences of one's own actions within the framework of the construction supervision conducted; take responsibility for health and safety at the construction site; take responsibility for the operation of heavy equipment during work in the construction industry; take responsibility for the flexible and innovative management of the work of subordinate staff in the construction industry; make decisions autonomously and take responsibility for them in managing a large team in the construction industry; observe professional ethics in the construction process	assess the implementation of the entire construction project; critically assess the supervisory activities in the construction project and take responsibility for their consequences; responsibly and rationally manage the budget allocated to a construction project; **(GC) responsibly, rationally and sustainably manage resources at the level of implementing the entire construction project;** make independent decisions and take responsibility for them in managing a construction project; introduce and promote professional ethics in the construction industry; propose solutions to increase the level of safety of construction work or to improve the construction process, taking into account their costs	**(GC) take into account the environmental impact of a construction project;** **(GC) undertake responsible project programming and planning, taking into account external conditions, including economic, social and environmental conditions;** take responsibility for the course and results of implemented construction innovations; take responsibility for shaping a positive image of the national construction industry; **(GC) take responsibility in construction activities for the development and shaping of space and the minimisation of environmental impact;** act responsibly in developing plans to rationalise the use of existing resources in the construction industry; responsibly influence the long-term development of construction projects and their spatial and functional integration into existing structures (economic, social, spatial)	take responsibility for the development of innovations in the construction industry; take responsibility for the validity and reliability of construction research; be responsible in taking into account the public interest in construction research

5. Glossary of terms used in the updated Sectoral Qualifications Framework for the Construction Industry

Term	Definition	Reference
Automatic construction machines	Devices based on technology that uses advanced control systems and algorithms, which, with indirect operator involvement, perform specific tasks or processes based on pre-programmed instructions or using simple sensors. Although they are not as flexible as autonomous machines, automatic machines can perform repetitive tasks such as the production of reinforcements for structures, mixing concrete, preparing mortar, plastering, vibrating or trowelling as well as work involving riveting and cutting, drilling or transporting materials. All this is done more precisely and efficiently than with traditional manual machine control.	Expert elaboration
Autonomous construction machines	Devices based on technology using advanced control systems and algorithms which, on the basis of a program (plan, design or map in a binary system with inputted tasks and coordinates) indicated and transmitted to the device, are fully capable of making decisions independently without the direct involvement of an operator. They operate on the basis of entered and collected data during operation, supported by artificial intelligence algorithms. They are able to analyse their surroundings, adapt their actions to changing conditions and perform tasks independently of the operator supervising their work. Examples include construction robots that independently build structures or transport materials at a construction site.	Expert elaboration

Circular economy	The circular economy (PL: *GOZ*) is an economic model whose goal is to minimise waste and maximise the efficiency of resource use through reuse, recycling and regeneration. Unlike the traditional linear model (production, consumption, disposal), the circular economy model focuses on closing the life cycle of products, materials and raw materials in a way that is both economically viable and environmentally friendly. The circular economy promotes an approach in which products are designed for longevity, ease of repair and recyclability. The key principles of CE include: ▪ reducing waste through more efficient use of resources, ▪ reusing products and components that are still functional, ▪ recycling materials so that they can be reused in the production of new products.	Gontarek, J. (2024). *Zielone kompetencje. Ekspertyza poświęcona zielonym kompetencjom pod kątem aktualizacji istniejących sektorowych ram kwalifikacji oraz opracowanie nowych* [Green competences. Expert report on green competences for the purpose of updating existing sectoral qualifications frameworks and developing new ones]. Instytut Badań Edukacyjnych.
Construction	A building, structure or small architectural object, together with installations ensuring that the object can be used for its intended purpose, erected using construction products.	Announcement of the Marshal of the Sejm of the Republic of Poland of 21 March 2024 on the publication of the consolidated text of the Construction Law Act (Journal of Laws of 2024, item 725)

Construction deconstruction	Type of construction work involving the dismantling and removal of a specific existing construction or part thereof from a given space.	Announcement of the Marshal of the Sejm of the Republic of Poland of 21 March 2024 on the publication of the consolidated text of the Construction Law Act (Journal of Laws of 2024, item 725).
Construction demolition	The process of the deliberate and controlled removal of a building structure using appropriate mechanical or manual methods or explosives for the purpose of its complete or partial demolition. Demolition may be performed for technical, urban planning or safety reasons and requires compliance with specific procedures and, in some cases, obtaining relevant permits. Demolition refers to the complete destruction of a structure and its construction. The waste generated as a result of demolition has no useful value and cannot be used to construct a new building. The rubble is removed from the construction site and disposed of in accordance with regulations. Demolition is definitely faster than deconstruction – the structure is removed using heavy equipment, while in deconstruction, a significant part of the work is done manually.	Expert elaboration
Construction machines	A general category covering all mechanical equipment used in construction to perform a variety of tasks, such as digging, transport, material processing or assembling structures, which require training and experience for their proper operation. These include compactors, table saws, tampers, sprinklers and dust removal devices, equipment for transporting and transferring materials at construction sites, excavators, bulldozers and road rollers.	Expert elaboration

Construction machine attachments	A set of devices, accessories or tools that can be mounted on construction machines to extend their functionality and enable them to perform specific construction tasks. This equipment is designed to work with machines such as excavators, loaders, dumpers, cranes, hoists or bulldozers, enabling them to perform a variety of tasks, such as digging to a greater extent, loading and moving material, drilling, shaping surfaces during earthworks to a greater extent (e.g., sloping, profiling), compaction or materials transport. Construction machine attachments may include, among others, interchangeable buckets for excavators, including mixers for preparing and transporting mortar and materials, hydraulic hammers and pile drivers; drilling rigs, including drilling rigs with mortar injection function, pallet forks, suction grabs for prefabricated components or for handling concrete, glass and other elements; sweepers, grabs for handling and sorting materials, as well as specialised tools adapted to specific construction tasks. Using attachments allows construction machines to increase their efficiency in construction work and reduce labour costs, while the construction work itself become easier to perform and simpler in terms of precision tasks. Attachments also increase the versatility of machines and expand their range of applications at construction sites, reducing the costs of the work.	Expert elaboration
Construction machines – simple	Mechanical devices of simple design that support construction work but do not require advanced operation or specialised qualifications, e.g., concrete mixers, hand tools and power tools, simple winches.	Expert elaboration

Construction machines under the special supervision of designated technical control units	Machines which, due to their intended use and potential hazards, are subject to special technical supervision, e.g., by the Technical Inspection Authority, Transport Technical Inspection, Railway Transport Authority or National Labour Inspectorate. Appropriate qualifications are required for their operation and repair. Examples of such machines include cranes, vehicle-mounted cranes, basket lifts, special-purpose vehicles, road-rail vehicles and tower cranes.	Expert elaboration
Construction tasks	Building, as well as work involving the reconstruction, assembly, renovation or deconstruction of a construction.	Announcement of the Marshal of the Sejm of the Republic of Poland of 21 March 2024 on the publication of the consolidated text of the Construction Law Act (Journal of Laws of 2024, item 725).
Construction tools – simple tools	Simple hand tools commonly used in everyday life and construction work that do not require an additional power source, such as, for example hammers, crowbars, screwdrivers, trowels, wheelbarrows, shovels, rakes, pickaxes, hand saws, spirit levels and others.	Expert elaboration
Construction tools – powered	General-purpose and construction-specific devices equipped with a mechanical drive (electric, combustion, pneumatic or hydraulic), which increases their efficiency, e.g., drills, grinders, hammer drills, power generators, mixers, drilling rigs, etc.	Expert elaboration

Green competences	The scope of knowledge, skills and attitudes necessary to implement a green and just transition of the economy in accordance with the concept of sustainable development, which aims to reduce greenhouse gas emissions, mitigate anthropogenic climate change and adapt to its effects.	Gontarek, J. (2024). *Zielone kompetencje. Ekspertyza poświęcona zielonym kompetencjom pod kątem aktualizacji istniejących sektorowych ram kwalifikacji oraz opracowanie nowych* [Green competences. Expert report on green competences for the purpose of updating existing sectoral qualifications frameworks and developing new ones]. Instytut Badań Edukacyjnych.
Hydrotechnical constructions	Structures, together with related technical equipment and installations, used for water management and the shaping and use of water resources, including: earth and concrete dams, weirs, spillway structures with spillways and drains, levee culverts and monk valves, navigation locks, flood levees, power stations and hydroelectric power plants, inland surface water intakes, sewage outlets, water reservoir basins with slopes and embankments, pumping stations, canals, tunnels, hydrotechnical pipelines, siphons, levers, aqueducts, regulatory structures on rivers and streams, thresholds, cofferdams, groynes, above-ground reservoirs for collecting liquid and semi-liquid substances, ports, basins, wintering grounds, piers, jetties, wharves, boulevards, slipways and breakwaters on inland waters, fish passes.	Regulation of the Minister of the Environment of 20 April 2007 on the technical conditions to be met by hydrotechnical structures and their location (Journal of Laws of 2007, no. 86, item 579).

Linear object	A construction whose characteristic parameter is its length, in particular a road with exits, railway line, water supply system, sewerage system, gas pipeline, heat pipeline, pipeline, electrical power line and traction line, overhead cable line and underground cable line located directly in the ground, flood embankment and cable ducts; however, cables installed in cable ducts, cables installed in technological ducts and telecommunications cables attached to an existing overhead cable line do not constitute a building structure or part thereof or a building device.	Announcement of the Marshal of the Sejm of the Republic of Poland of 21 March 2024 on the publication of the consolidated text of the Construction Law Act (Journal of Laws of 2024, item 725)
Reclamation	Giving or restoring degraded or devastated land its utility or natural value by properly shaping the terrain, improving its physical and chemical properties, regulating water relations, restoring soils, strengthening slopes and rebuilding or constructing necessary roads.	Act of 3 February 1995 on the protection of agricultural and forest land (Journal of Laws of 1995, no. 16, item 78, article 4, point 18).

Scaffolding	Temporary structures used for work at heights that are assembled and approved for use by persons with the required qualifications. Scaffolding is divided into: ▪ work scaffolding – temporary structures used for work at heights, designed to support persons, materials and equipment ▪ protection scaffolding – temporary structures used to protect people and objects from falling from a height; ▪ system scaffolding – temporary structures, in which the dimensions of the structural mesh are clearly defined by the dimensions of the scaffolding components used to support people, materials and equipment.	Announcement of the Marshal of the Sejm of the Republic of Poland of 21 March 2024 on the publication of the consolidated text of the Construction Law Act (Journal of Laws of 2024, item 725). Regulation of the Minister of Infrastructure of 6 February 2003 on occupational health and safety during construction work (Journal of Laws of 2003, no. 47, item 401, § 1, point 1).