Sectoral Qualifications Framework for the Construction Industry (SQFC)

European Funds
Knowledge Education Development

IBE kwalifikacje dla każdego

European Union
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Introduction

An indispensable condition for modern, knowledge-based socio-economic development is the continuous improvement and adaptation of employees' skills for a dynamically changing labour market. In 2014, 80% of surveyed employers conducting recruitment activities reported problems in finding workers who met their expectations for the job positions offered (Kocór et al., 2015). School and academic education is not enough to keep up with the pace of change, making lifelong learning all the more important today. The principles of lifelong learning include: an appreciation of learning in various forms and places at every stage of life; the validation of learning outcomes regardless of the way, place and time of their achievement; effective investments in learning opportunities; and, making such activities generally available (*Perspektywa uczenia się przez całe życie*, 2013).

This is the context for implementing Poland's Integrated Qualifications System (IQS), governed by the Act of 22 December 2015 – the IQS Act (Journal of Laws of 2016, item 64).

One of the main tools of the IQS is the Polish Qualifications Framework (PQF). The PQF has eight levels of qualifications, like the European Qualifications Framework (EQF). Each PQF level is characterised by general statements about the learning outcomes required for a given qualification level. These general statements are called "descriptors". In determining a qualification's PQF level, it does not matter whether its required learning outcomes are attained within a structured education system or in another way.

PQF descriptors describe the full range of qualifications' required learning outcomes in the categories of knowledge, skills and social competence. The descriptors of successive PQF levels reflect the increasing requirements in these areas (Chłoń-Domińczak, Sławiński, Kraśniewski, Chmielecka, 2016). PQF level descriptors are initially described at two stages of detail. The first stage generic descriptors, or "universal descriptors", are the most general and apply to all types of qualifications. These are then further detailed (second stage generic descriptors) for the different types of qualifications that are typically awarded in general, vocational and higher education.

The Integrated Qualifications System enables the various qualifications in Poland to be gathered into one system and ordered. Because qualifications are awarded by different entities, institutions and organisations on the basis of various regulations and laws, until now it was difficult to compare them according to uniform criteria. The IQS Act is especially valuable, as it has made it possible to include qualifications operating in the free market in the qualifications system, describe them in the language of learning outcomes, and require that they comply with the principles of validation and quality assurance, which enables them to be guaranteed by the state (through compliance with the regulations on the inclusion and functioning of qualifications in the IQS). The functioning of the IQS should therefore intensify implementation of lifelong learning policies in Poland, thereby making it easier to develop competences in line with one's own interests or the needs of the labour market.

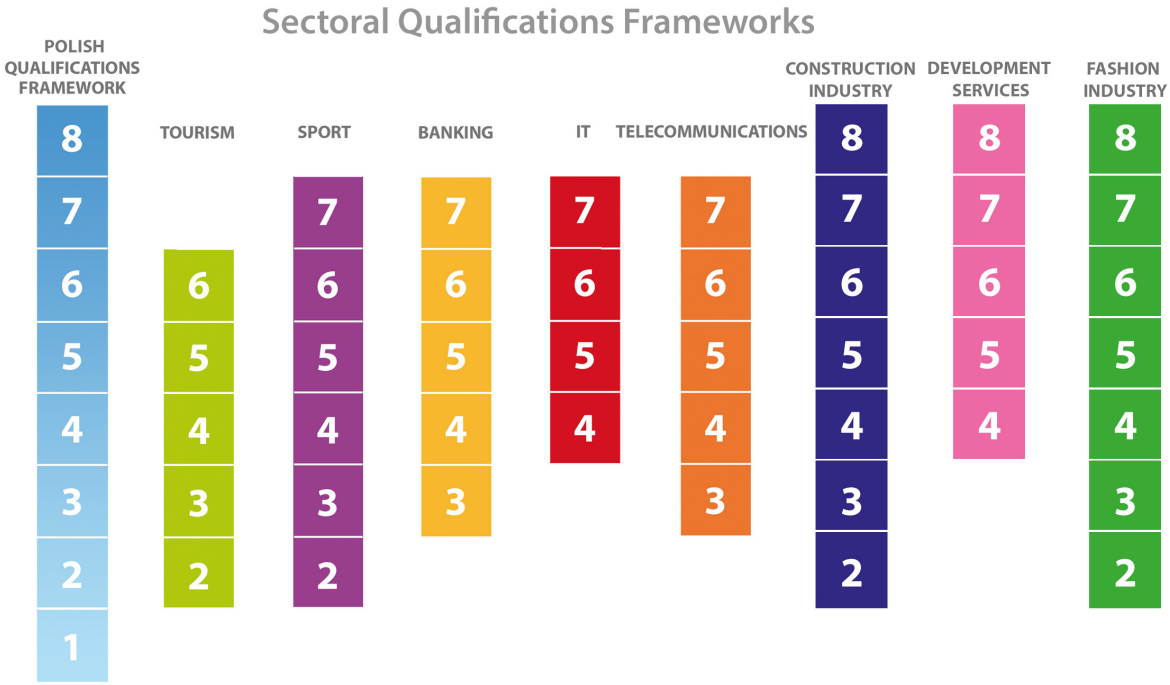
Art. 11 of the IQS Act enables the further elaboration of PQF descriptors through the development of sectoral qualifications frameworks (SQF). A sectoral qualifications framework is defined in the Act as a description of the levels of qualifications functioning in a particular sector or industry. SQFs are developed when the need arises in specific sectors.

The main principle adopted in establishing sectoral qualifications frameworks is that they are developed by the sector for the sector. This means that the broadest range of stakeholders are involved – companies from the sector, industry chambers and organisations, representatives of higher education and professional bodies, as well as regulatory authorities. Developing a framework starts with discussions on the competences and standards of a given sector, enabling industry representatives to exchange information. Industry stakeholders are therefore both the creators as well as the recipients of the solutions found in the resulting sectoral framework.

A team of sectoral experts develops a draft SQF, which is then consulted with their professional community. One of the most important elements of the work on an SQF is defining the key areas of the sector's activities, known as the sectoral determinants. This then helps in determining the descriptors of each level, which (as in the PQF) can be organised into clusters.

SQF levels must match specific PQF levels, but the level descriptors should be sector specific. While it is theoretically possible for a sectoral framework to cover all PQF levels, past work indicates that the number of described levels depends on the specific nature of the industry. As of March 2018, eight SQFs have been developed – for banking, IT, sport, tourism, telecommunications, construction, development services and the fashion industry.

Figure 1. Levels of the sectoral qualifications frameworks



Sectoral qualifications frameworks are incorporated into the IQS by means of a regulation issued by the minister responsible for education. The inclusion process is begun by the minister with jurisdiction over the sector, either at his/her initiative or at the request of an interested party. In mid-2017, the sectoral qualifications frameworks for sport and tourism were officially included in the IQS.

There are many benefits to developing a sectoral qualifications framework. First and foremost, the framework is the result of dialogue among industry representatives, allowing many universal solutions to be developed. The framework also facilitates work on describing and including qualifications in the IQS, as it translates the PQF into a language specific to the sector. With an SQF, it is easier to understand how to relate PQF descriptors to a particular sector. This in turn makes it easier to accurately assign a PQF level to a specific qualification functioning in the sector.

Work is currently underway at the Educational Research Institute (IBE) to develop additional sectoral frameworks. It is worth pointing out that the concept of developing multiple sectoral qualifications frameworks and integrating them into a national qualifications system is unique in Europe. Soon, SQFs could be a showcase for Polish industry in the European market.

This publication presents information on the project of developing the Sectoral Qualifications Framework for the Construction Industry (SQFC). It consists of four chapters presenting the general premises of the SQFC, a description of project implementation and methodology, the structure of the framework and recommendations on how it may be used. The annexes include summaries of the descriptors and the SQFC level descriptors.

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1. About the Sectoral Qualifications Framework for the Construction Industry

1.1. Premises and aims of SQFC

The construction sector occupies a special place in the Polish economy. According to numerous reports, the Polish construction market is the seventh largest in the European Union and one of the two fastest growing on the Old Continent. The Building Radar analytical platform suggests that by 2020, the size of the construction sector in Poland will grow by over 10%, achieving the highest growth in Europe together with Portugal. The importance of this sector is also evidenced by the fact that construction companies are currently producing about 7.7% of GDP directly, while their indirect effects are generating an additional 9.6%.

Currently, there is a growing demand for qualified workers in European markets. The large-scale migration of people with different competences makes the lack of consistent and transparent descriptions of qualifications and certificates attained by employees through formal and non-formal education ever more noticeable. One of the answers to this problem may be the Sectoral Qualifications Framework for the Construction Industry. Organising the qualifications typical for the construction sector will make it easier for employees to plan their career paths by attaining qualifications, while employers will be able to evaluate them reliably.

Ultimately, SQFC will also be a tool used by the Sector Skills Council for Construction[1] to compare sectoral qualifications in national and international contexts.

1.2. Definition of the construction sector

One of the key tasks in developing the SQFC was to define the scope of the construction sector. The result of this work was the adoption of the following definition[2]:

[1] The functioning of the Sector Skills Council for Construction is based on contract no. POWR 02.12.00-00-0006/16-00, signed on behalf of the project's partnership by the "Budowlani" Trade Union with the Polish Agency for Enterprise Development on December 22, 2016. Its operations are financed under Priority Axis II of OP KED – *Effective public policies for the labour market, economy and education, Measure 2.12 Increasing knowledge about the needs for qualifications and occupations*. The Council provides a forum for the exchange of experiences between the areas of formal and non-formal education and informal learning, research units and entrepreneurs from the construction industry, with the participation of social dialogue institutions (trade unions and employers' organisations), professional industry associations and other stakeholders acting for the development of the construction sector by increasing knowledge about its qualifications and occupational needs.

[2] Implementation of the SQFC project was based on three currently applicable laws pertaining to construction: the Act of 7 July 1994 – the Construction Law (Journal of Laws of 2016, item 290 with later amendments), the Act of 11 August 2001 on special rules for the conversion, renovation and demolition of constructions damaged as the result of natural disasters (Journal of Laws of 2001, item 906, as amended), the Act of 16 April 2004 on construction products (Journal of Laws of 2016, item 1570) and other binding legal acts issued on the basis of these documents.

Definition of the construction sector

Construction is a type of service activity having a material character, the result of which is the building of constructed objects. Its results are permanent.

Construction activities are performed as part of a construction investment process that has the following phases:

1. Preparation of the construction investment, construction design, administrative and legal activities.
2. Construction-installation process, commissioning a construction.
3. Maintenance of the technical efficiency of a construction.
4. Deconstruction/demolition of a construction.

These phases have also become the sectoral determinants of the framework (described in more detail in Section 2.2).

The following premises were adopted during the definition phase:

- Construction activities are focused on the construction throughout its entire lifecycle.
- The construction sector is functionally closely related to many other sectors and types of activities, including, in particular, the building materials industry, real estate management sector, as well as the maintenance of heavy equipment, construction machinery and scaffolding.
- Due to the numerous links between construction and other sectors, many qualifications relevant to the construction investment process may have a cross-sectoral nature; these qualifications were not included in SQFC.
- The legal scope of the sector is determined by the Construction Law and related legal acts.

The basic features characterising construction were determined to be:

- immobility of the product (construction);
- the mobility of the work;
- the individual nature and complexity of the product;
- the variability of investment tasks;
- the seasonality of the climate and variability of conditions resulting in risks and changes;
- the aesthetic value of the product;
- the longevity and capital intensity of the product;

- the long production cycle resulting from the conditions and complexity of the product;

- the open construction market within the European Union.

The Sectoral Qualifications Framework for the Construction Industry refers to the activities listed in the Polish Classification of Activities (PCA) in section F – parts 41, 42, 43, section M – part 71.1 and section N – part 81.22.Z. At the same time, it was pointed out that referring to the PCA to determine whether a given qualification belongs to the construction sector should be treated as only one of many criteria.

As a result of the consultations, it was concluded that SQFC will not refer to qualifications in the areas of building materials production, real estate management or the operation of machines and equipment requiring special qualifications attained outside the construction sector.

2. Implementation of the SQFC project

2.1. Project phases and division of tasks

The work performed in the project consisted of four successive phases:

1) development of the substantive concept of the SQFC draft;

2) preparation of a preliminary SQFC draft;

3) consultation and verification of the initial framework draft with a broad array of industry representatives, ending with the adoption of a final draft of SQFC;

4) development of tools to support users of the SQFC – instructions, recommendations and additional materials.

Work on the project was performed by a team of the following representatives:

- Waldemar Mazan – Confederation of Construction and Real Estate [Konfederacja Budownictwa i Nieruchomości] (leader);
- Grażyna Różanek – Confederation of Construction and Real Estate [Konfederacja Budownictwa i Nieruchomości];
- Zbigniew Janowski – Budowlani Trade Union;
- Jakub Kus – Budowlani Trade Union;
- Marcin Pawłowski – Confederation of Construction and Real Estate [Konfederacja Budownictwa i Nieruchomości];
- Ireneusz Woźniak – The Institute for Sustainable Technologies – National Research Institute;
- Krzysztof Symela – The Institute for Sustainable Technologies – National Research Institute.

The SQFC draft was also developed by a 22-member team of experts who formed a representative group of the entire construction and investment process, as well as of various forms of vocational education. The expert team consisted of:

- representatives of four companies from the construction sector;
- representatives of three industry organisations;
- a representative of an employers' organisation;

- a representative of the Polish Craft Association;
- a representative of the construction sector trade union;
- a representative of the Central Office of Construction Supervision [Centralny Urząd Nadzoru Budowlanego];
- representatives of the Ministry of Infrastructure and Construction;
- representatives of institutions involved in formal education – one higher education institution and one vocational school;
- representatives of two institutions providing non-formal education;
- a representative of the Road and Bridge Research Institute.

In the first stage of the project, the substantive concept of the framework was elaborated, the fields (areas) of activity in the construction sector were determined for future work on the SQFC level descriptors, specific substantive premises were agreed, and issues of management and quality assurance in implementing the project's contract were established. A preliminary SQFC draft was developed by a team of experts based on an analysis of documents, existing data (desk research) and expert knowledge. It was then consulted with specialists and verified in a quantitative study (more on this in Section 2.5).

2.2. Sectoral determinants

At the beginning of the project, the scope and definition of the sector were established (presented in Section 1.2). To this end, a number of documents were analysed, including publications on existing sectoral qualifications frameworks and the project on the Sectoral Qualifications Framework for the European Construction Industry. Then, based on an analysis of the basic processes and functional areas making up the life cycle of a construction investment (starting from the investor's decision to start the investment to the demolition of the construction), **sectoral determinants** were distinguished. They define the areas of competence reflected in the individual SQFC entries.

The determinants of the construction sector are:

1. Programming, planning, designing and issuing decisions on undertaking a construction investment

This determinant refers to the preparatory phase of a construction investment. It includes tasks in the areas of determining feasibility and spatial planning, designing a specific construction, as well as issuing decisions on undertaking a construction investment. This determinant also refers to defining the conditions required to build on the site of the construction investment. The construction design process relates to the choice of production technologies, implementation of individual investment phases, costs and energy analyses,

as well as the conditions of use and operation. The characteristic work of this determinant (especially in the areas of design and issuing decisions) also includes preparing investments for the renovation, conversion and expansion of a construction, and requires knowledge of applicable technical and construction regulations.

2. Construction-installation work (jobs)

Construction-installation is a key phase of the construction investment process, relating to the proper building, renovation, improvement, conversion, superstructure, expansion and deconstruction/demolition of the construction. Construction-installation starts after obtaining a building permit (or application) and ends with the commissioning of the construction or job. The individual stages of the work and the conditions for their execution are regulated in detail in technical and construction regulations. This phase includes preparing the design documentation of the construction, organising the construction site, organising and implementing construction-installation jobs. Here we find the hierarchical organisation of the construction work with elements of management and external and internal supervision.

3. Maintaining or improving the technical efficiency of a construction

Activities in this phase of the construction investment process particularly relate to the renovation, conversion, expansion, as well as the maintenance or servicing of a construction. Such activities also require assessing the current technical condition of the construction. The management structure of these types of jobs is similar to new construction, although in most cases, it is less complex. This phase is characterised by work affecting the condition of existing constructions and installations to improve their efficiency for the purpose of maintaining or raising their value. The existing structure of the construction and its installations may be a limiting factor for the scope of the renovation, conversion and expansion work that can be accomplished.

4. Construction demolition and use of remaining building materials

Demolishing/deconstructing a construction is a specific type of construction-installation work. It requires an assessment of the technical condition of the construction. In addition to the typical tasks and organisation of construction-installation jobs, special requirements must be taken into account relating to the safety of the construction and its surroundings, including specific requirements pertaining to the safety of the employees involved in demolition work. This especially applies to the use of explosives in demolition. This part of construction-installation work also requires the mastery of qualifications relating to the recycling of building materials and non-building materials remaining after demolition, as well as appropriately cleaning the demolition site for future use. This area has additional formal and qualification requirements in terms of the workers involved pertaining to dangerous building materials and other hazardous substances.

2.3. Contexts of the sectoral determinants of the construction industry

In order to accurately identify the key competences within the individual sectoral determinants of SQFC, four contexts were distinguished for each phase of the investment process. The adopted contexts facilitate the identification of the knowledge, skills and social competence required for construction industry qualifications and allow us to discern the different competence areas (designated by the contexts) in the specific phases of the construction investment process (determinants).

Context A. Stages of activities in the work process

This context distinguishes groups of key competences relating to the stages in the work process. In each of the phases of the construction investment process corresponding to a given sectoral determinant, separate stages of activities can be distinguished, such as planning, organising, implementing and quality control.

Context B. Economic situation, communication, security, professional development and mobility

Context B refers to the group of characteristic factors in the construction sector relating to the dynamics of the construction investment process. It describes competences relating to: the economic situation and the level of expenditures for construction investments; communicating and maintaining relationships in the construction investment process; responsibility for the safety of the work being performed, the construction being built and its surroundings; the development of one's own competences and those of co-workers; professional and geographical mobility in construction.

Context C. Technical means, building materials and technologies used in the construction investment process

Context C contains descriptions of competences relating to the use of tools, devices and equipment, building materials and the knowledge of particular techniques and technologies used in the construction investment process.

Context D. Development trends and innovative technologies in construction

The descriptors of context D refer to tracking development trends and influencing the development of innovative technologies in construction, such as, for example, in the areas of green construction or the production of energy-efficient constructions.

2.4. Developing SQFC level descriptors

As a result of the work on selecting the sectoral determinants and the contexts they affect, **key competences** in the construction sector were specified.

The analytical work was performed in three steps:

- Representative professions for the construction sector within a given context were chosen.
- Characteristic occupational tasks were analysed, selected and assigned to determinants and stages of activities in the work process.
- Key competences were distinguished for each area of the construction sector's determinants.

Key competences were then adopted as the basis for developing **detailed SQFC level descriptors**. Here, sets of knowledge, skills and social competence of separate professional tasks were analysed. SQFC level descriptors include the key competence groups required for working in the construction industry and relating to the most important qualifications awarded in the sector. It was determined that SQFC will cover seven levels of qualifications (levels 2 to 8 of the Polish Qualifications Framework). Level 1 descriptors were not included as they are not advanced enough to safely work under the conditions prevailing at a construction site.

In effect, a preliminary SQFC draft was developed, consisting of descriptors for levels 2–8 in terms of knowledge, skills and social competence, assigned to four sectoral determinants and four contexts.

Additionally, in order to facilitate the use of SQFC, **summaries of the level descriptors** (Annex 1) were prepared, which are short synopses of the detailed descriptors. They are illustrated with examples of existing or proposed qualifications.

2.5. Verifying the preliminary SQFC draft

The next phase of the work was verifying the preliminary draft of the framework. It was particularly important to obtain the opinions of both construction industry professionals working in specific positions, as well as of entrepreneurs and employers providing construction services in individual phases of the investment process reflected in the sectoral determinants.

The preliminary SQFC draft was verified by:

- consultations with representatives of the most important stakeholder groups in the form of seminars (three consultation seminars);

- discussions on the preliminary SQFC draft during the inaugural conference and meetings of the Sector Skills Council for Construction;
- quantitative research (141 questionnaires were obtained);
- qualitative research (three in-depth interviews).

In accordance with the adopted premises, the most important SQFC stakeholders who were included in the verification process included: internal and external experts in the consortium implementing the project; employers, entrepreneurs, representatives of employees and labour market councils; regulators, in particular representatives of the minister responsible for construction; representatives of vocational and higher education; and members of the Sector Skills Council for Construction. The results of the consultations were included in the final draft of the framework.

The final step of this work was comparing SQFC with the PQF, which showed that the individual SQFC descriptors agreed with those of the PQF. In addition, a number of additional recommendations and documents were developed.

3. How to read and apply SQFC

The "core" of SQFC are the level descriptors (of levels 2, 3, 4, 5, 6, 7, 8) described by sets of learning outcomes (knowledge, skills, social competence), arranged by the four adopted contexts (A, B, C, D), and referenced to the four sectoral determinants (I, II, III, IV). It should be noted that each distinguished SQFC level describes the scope and degree of complexity of the learning outcomes for qualifications aligned with a given level. A graphic visualisation of the SQFC structure is shown in Figure 2.

SQFC maintains the principle of progression and the accumulation of learning outcomes, which means that a transition to a higher level of qualifications increases the complexity of the work and responsibility for it, while the "learning outcomes" increase in three dimensions: knowledge, skills and social competence. This means that the higher levels of qualifications "incorporate" the lower levels.

Individual SQFC level descriptors have been coded to identify specific descriptor entries (e.g. K.I.A.L2 – descriptors for **K**nowledge, sectoral determinant **I**, context **A**, **L**evel **2**). The individual elements of the code represent the following categories:

K – knowledge

S – skills

C – social competence

L – level (designated by numbers 2–8)

I, **II**, **III**, **IV** – symbol for the sectoral determinant

A, **B**, **C**, **D** – symbol for the context of the sectoral determinant

SQFC entries can be read in different ways, enabling the relationships among the descriptors to be compared:

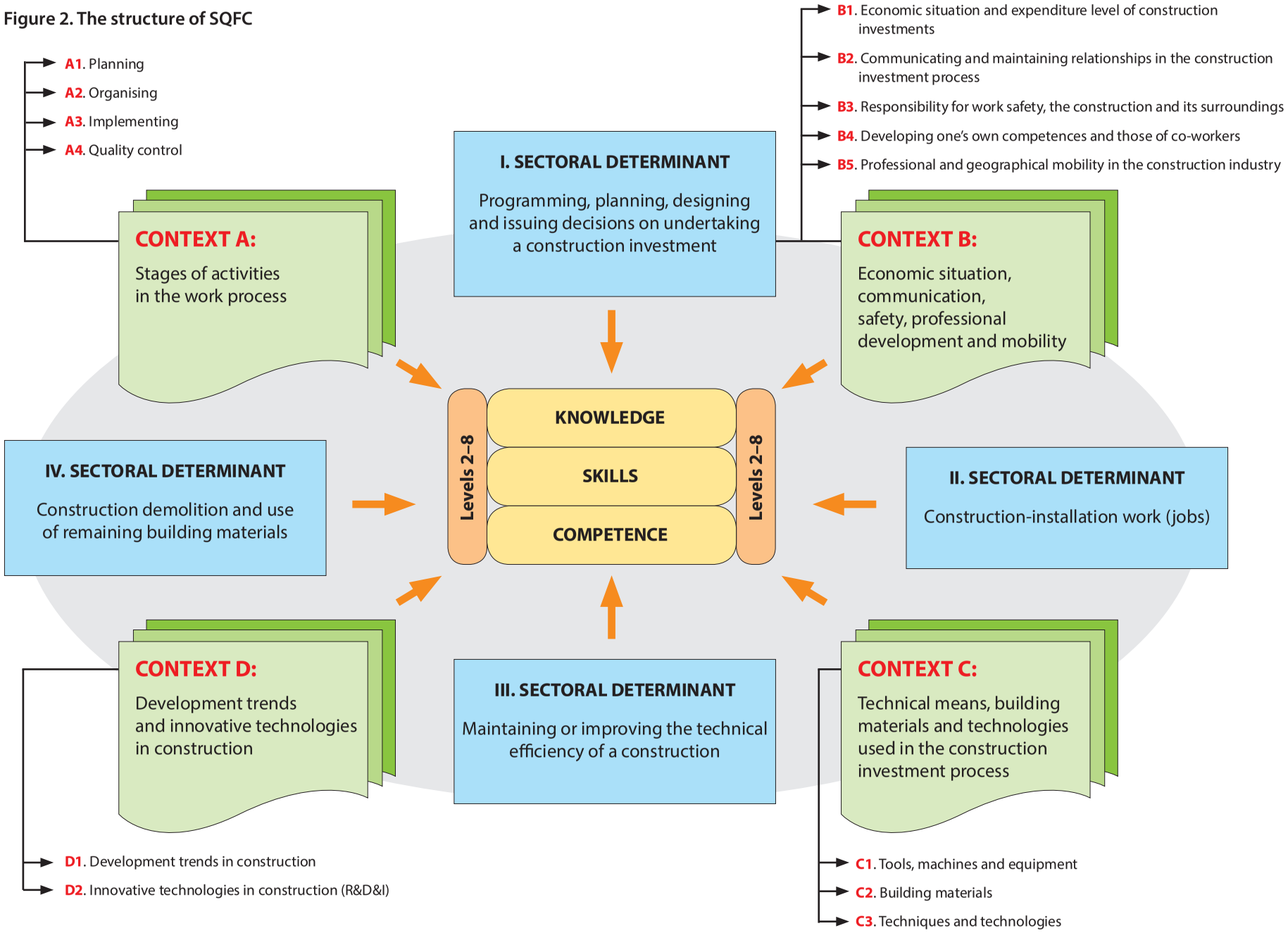
1) in terms of knowledge, skills and social competence;

2) in terms of the levels (2–8);

3) in terms of the sectoral determinants I/II/III/IV;

4) in terms of the contexts A/B/C/D.

Figure 2. The structure of SQFC



Source: Material developed by the SQFC contractor.

4. Uses of SQFC

SQFC can serve as an auxiliary tool:

- to adapt the offer of formal and non-formal education to the requirements of the construction sector;
- to support the processes of informal learning;
- to develop new and update existing vocational education and training programme offers;
- to develop new and update various types of qualifications functioning in the market;
- to adapt the processes of the validation and certification of qualifications to the specificity of the construction sector;
- in educational and vocational counselling focused on the construction industry;
- in human resources consulting; to develop and update descriptions of construction occupations for the labour market in accordance with the Classification of Occupations and Specializations;
- to facilitate the process of including qualifications from the construction sector in the IQS;
- to support employee recruitment, selection and evaluation processes; to prepare job descriptions;
- for career development; to evaluate the work being undertaken and the remuneration system.

The possibilities listed above do not exhaust all the potential uses that may appear once SQFC is included in the Integrated Qualifications System and is disseminated in the construction community.

4.1. Possible uses of SQFC by training institutions

SQFC can be useful to training institutions in such activities as:

- analysing development trends in construction and the market demand for new qualifications using SQFC level descriptors in terms of its contexts and sectoral determinants;

- comparing sets of learning outcomes with SQFC level descriptors to provide an indicative determination of the level of qualifications (not yet included in the IQS) and for which training is taking place;
- developing a training offer for a given qualification (or part of it) using the language of the learning outcomes and construction terminology of SQFC;
- providing training in the social competences in accordance with the descriptors of the relevant SQFC level;
- adapting training programmes to the specific needs of employers in the construction industry, using detailed SQFC level descriptors, taking into consideration the specific contexts and sectoral determinants;
- preparing recommendations for training participants on improving their professional qualifications by analysing the SQFC descriptors of similar levels, other sectoral determinants (phases of the construction investment process) at the same qualification level and in other contexts of the process.

By translating the descriptions of occupational tasks into the language of learning outcomes (recorded in the detailed SQFC level descriptors), SQFC enables a comparison to be made of the descriptors of the same level but in different contexts. After identifying the relevant key competences at the appropriate levels and in the relevant contexts in the SQFC, one can determine whether it is possible to prepare a training programme that will satisfy all clients. SQFC enables clients (companies) and training institutions to effectively communicate and clarify training requirements, because the level descriptors, written in the language of learning outcomes for skills, directly refer to professional tasks. SQFC can serve as a platform for reaching agreement between the needs and desires of clients and the training institutions preparing the training programme.

4.2. Possible uses of SQFC by validation institutions and awarding bodies

SQFC can be useful for institutions performing the validation and certification of construction industry qualifications to verify the level of mastery of these learning outcomes, which is most important from the point of view of the recipients of qualifications, i.e. employers and employees. The detailed SQFC level descriptors correspond to professional tasks, and thus those elements that are common to the education process and the implementation of the phases of the construction investment process. Of course, this does not mean simply applying the detailed SQFC level descriptors in the validation process, because they only concern the key sets of learning outcomes (characteristic for a specific level of determinant/phase and context), and not all the construction qualifications at a given framework level. However, using the method adopted in SQFC, it is possible to distinguish sets of learning outcomes based on the professional tasks within each described qualification in accordance with the principles of the Integrated Qualifications System.

SQFC can also support the process of planning validation and certification by rigorously applying the terminology used in the Construction Law and Construction Products Act. This principle is not always followed in the descriptions of qualifications, existing competence standards, or even in core curricula. Preparing the process of the validation of learning outcomes while being careful to use the appropriate terminology benefits both the persons about to undergo validation, as well as employers.

4.3. Possible uses of SQFC by institutions describing qualifications and/or providing education and training programmes

SQFC can also be a useful tool in the process of describing qualifications or developing training and education programmes. It can be helpful in such activities as:

- determining the PQF and SQF level of qualifications/training or education programmes;
- preparing a short description of a new qualification/training or education programme, using the definitions of sectoral determinants and contexts in SQFC, to distinguish the professional tasks that a person having this qualification will be able to perform;
- distinguishing sets of learning outcomes for a new qualification/defining the learning outcomes of a given training or education programme, taking into account the SQFC level descriptors.

4.4. Possible uses of SQFC by employers and employees

The framework can also be used both in conducting employment policies and planning the employment of qualified personnel in a construction company, as well as in helping employees plan their individual professional development.

The possible uses of elements of SQFC by construction industry employers and HR departments include:

- adapting the employment offer to the requirements of the workplace and describing job requirements;
- identifying the key competences needed in the workplace based on the detailed SQFC level descriptors;
- adapting the training offer addressed to employees to the current needs of the company in terms of competences and qualifications;
- obtaining information on the levels of qualifications (and their full characteristics) of the employees being sought;

- more precisely describing employment offers in relation to the specificity of the company by using the SQFC contexts;
- comparing the qualifications of employees to develop a rational system of remuneration in the company;
- having employers conduct a self-assessment of their qualifications in operating a construction business, determine the level of their competences on the SQFC and plan their own professional development;
- obtaining information on the possibility of developing a new qualification, needed from the point of view of the employer and not found in the labour market;
- determining the possibility of using the qualifications of employees in other phases of the investment process;
- supporting employee assessment processes, career development, the job valuation and remuneration system.

An employer (or the company's department responsible for employee recruitment and assessment) can use SQFC to support the hiring process. When preparing job offers for specific positions, an employer can "locate" the necessary or similar qualifications described in the language of learning outcomes in the relevant SQFC level descriptors. These descriptors are organised by sectoral determinants that correspond to particular phases of the construction investment process, which makes it easier to find the needed phase and level. In addition, an employer can find the appropriate descriptors in contexts corresponding to the specifics of different types of construction activities, which will help to accurately refer the prepared offer to a specific job position. Information on the sectoral determinants, SQFC level descriptors and contexts will facilitate the preparation of such a job offer, which will be precisely addressed and help at the initial stage of recruitment in eliminating candidates who do not have the appropriate qualifications or are not interested in working in a given position under the described conditions.

In turn, SQFC is a tool enabling employees actively planning their professional development to precisely determine where they are "located" in terms of the construction investment process and to give them an idea of the opportunities and directions of professional advancement in both vertical promotion and horizontal development.

SQFC level descriptors make this possible because they are based on sets of learning outcomes described in terms of knowledge, skills, social competence, and at the same time refer to specific professional tasks. These tasks are performed in various phases of the investment process (sectoral determinants) and in different contexts. After "locating" the level of his/her qualifications in SQFC and by analysing the detailed descriptors in specific contexts, an employee can:

- define his/her competences and assign a framework level to the qualifications attained through different educational paths;

- define his/her place in the company's employment hierarchy;
- identify his/her competence gaps (in terms of knowledge, skills and social competence);
- identify opportunities for the horizontal development of his/her qualifications – by developing them in other phases of the construction investment process or also in other contexts of the phases of the investment process;
- identify the requirements for the vertical development of his/her qualifications (obtaining qualifications at higher levels of the framework), leading to career advancement in the structure of the investment process and in the company;
- analyse education and training offers in formal and non-formal pathways, in accordance with identified needs;
- define areas for self-education;
- accurately understand the requirements formulated in job offers (if the SQFC criteria and level descriptors are used) and compare them to the qualifications he/she already has.

SQFC uses the language of learning outcomes, and the SQFC level descriptors are consistent with specific professional tasks corresponding to particular phases of the construction investment process, as well as the contexts in which this process is implemented. So reading and understanding the SQFC level descriptors should not be a problem for an employee with qualifications in the field of construction.

Annex 1

Summary of the level descriptors of the Sectoral Qualifications Framework for the Construction Industry

LEVEL 2

1. **In the area of knowledge, a person knows and understands:** the elementary facts, concepts and dependencies of construction-installation jobs and the basic conditions required of auxiliary occupational tasks in construction.

2. **In the area of skills, a person is able to:** perform simple auxiliary tasks according to instructions and under supervision in typical conditions and solve simple, routine problems within the scope of the performed work, receive and formulate simple statements relating to the performance of auxiliary jobs in preparation, inventory, construction-installation, maintenance and demolition work.

3. **In the area of social competence, a person is ready to:** act in accordance with regulations and instructions when performing occupational tasks, check one's own activities and take limited responsibility for them, work under direct supervision, work in a team to assist with construction jobs.

Examples of potential qualifications at SQFC level 2: ASSISTING WITH CONSTRUCTION JOBS, CLEANING UP A CONSTRUCTION SITE.

LEVEL 3

1. **In the area of knowledge, a person knows and understands:** the facts, principles, phenomena, processes and general concepts relating to occupational tasks in construction, the principles of safety when performing contracted/assigned construction-installation jobs, basic legal regulations in the field of construction and the elementary conditions of business activities and entrepreneurship in the construction sector.

2. **In the area of skills, a person is able to:** perform tasks and solve not very complex problems, choose the basic methods, tools and products used to perform one's own occupational tasks in construction-installation jobs, perform occupational tasks in accordance with general instructions under partially variable conditions, solve typical problems that may arise during the performance of contracted/assigned tasks, communicate with superiors and co-workers when performing contracted/assigned occupational tasks.

3. **In the area of social competence, a person is ready to:** act in accordance with occupational health and safety (OHS), fire protection and environmental protection regulations, adapt one's behaviour to changing circumstances at the construction site, assume responsibility for the consequences of one's own actions and decisions made in the workplace, reliably perform contracted/assigned occupational tasks at one's work station, cooperate in a team performing construction-installation jobs, perform tasks autonomously but under supervision and enabling the quality of the final results to be determined.

Example of a qualification at SQFC level 3: BRICKLAYER-PLASTERER (711204).

Example of a qualification at SQFC level 3: ASSEMBLING CONSTRUCTION JOINERY.

LEVEL 4

1. **In the area of knowledge, a person knows and understands:** the Construction Law, the general theoretical foundations of the methods and solutions used in performing occupational tasks in construction, the principles of organising work safety in construction, the principles of managing a small team, the basic code of ethics in construction, as well as the principles of conducting business activities and entrepreneurship in the construction sector.

2. **In the area of skills, a person is able to:** perform moderately complex occupational tasks in preparing an investment as well as construction-installation jobs, often under variable, predictable conditions, by selecting the appropriate methods, technologies, tools, products and information, organise one's own work and the work of a subordinate team to perform contracted/assigned tasks in the construction investment process, communicate at the construction site with supervisors and colleagues in a manner ensuring the effectiveness of a small, supervised team.

3. **In the area of social competence, a person is ready to:** comply with the technological requirements and principles of work organisation in construction, make autonomous decisions regarding the performance of the contracted/assigned work and construction-installation jobs in accordance with the law and technical knowledge, act in accordance with the code of ethics when performing occupational tasks, observe the principles of loyalty towards one's employer and co-workers in the work environment, take responsibility for performing one's own tasks and assume partial responsibility for the work of a subordinate team performing construction-installation jobs, autonomously perform occupational tasks in accordance with the schedule established by the persons performing autonomous functions in construction.

Example of a qualification at SQFC level 4: CONSTRUCTION TECHNICIAN (311204).

Example of a potential qualification at SQFC level 4: PERFORMING LABORATORY TESTS IN CONSTRUCTION.

LEVEL 5

1. **In the area of knowledge, a person knows and understands:** the Construction Law together with executive regulations, the Construction Products Act, the principles of preparing construction documentation and obtaining the necessary documents for construction-installation jobs requiring permits from relevant public administration institutions, the limited scope of entitlements allowing one to manage construction-installation jobs in the area of one's specialty, the principles of developing an occupational health and safety protection plan (BIOZ), the meaning of taking professional responsibility, the documentation to prepare the commissioning of construction-installation jobs.

2. **In the area of skills, a person is able to:** coordinate not very complex construction jobs in accordance with prevailing regulations, manage subordinate personnel performing construction-installation jobs, select the methods, technologies, procedures and building materials for the jobs being performed, maintain the documentation of the construction-installation jobs, organise and conduct the training process in a construction company.

3. **In the area of social competence, a person is ready to:** comply with prevailing legal regulations and norms, as well as the principles relating to the occupational activities being performed in construction, guarantee the proper quality of the activities and ensure that they are performed safely, make autonomous decisions regarding the work and construction-installation jobs underway and subordinate personnel, critically assess one's own occupational activities and the results of the work of subordinate personnel, promote ethical conduct and work safety in construction, share one's skills, knowledge and professional experience with construction workers, develop one's own competences as well as those of subordinate personnel.

Example of a potential qualification at SQFC level 5: CONSTRUCTION TECHNICIAN WITH A LIMITED SCOPE OF ENTITLEMENTS.

Example of a potential qualification at SQFC level 5: PROVIDING VOCATIONAL TRAINING IN THE CONSTRUCTION INDUSTRY.

LEVEL 6

1. **In the area of knowledge, a person knows and understands:** the legal, technical and construction regulations on the construction investment process, the principles and methods of managing a construction company, an advanced level of facts, theories and methods relating to the construction investment process and the complex dependencies between them, the diverse, complex conditions occurring in construction work.

2. **In the area of skills, a person is able to:** innovatively perform the tasks of a specific phase of the construction investment process and solve complex and non-routine problems under variable and not fully predictable conditions of the investment process, design the flow of information in the organisation/company, communicate with the professional community and justify one's position, organise and supervise the work of personnel implementing a specific phase of the construction investment process.

3. **In the area of social competence, a person is ready to:** foster ethical principles in the occupational activities performed in construction, make decisions in difficult situations relating to the investment process and take responsibility for them, participate in promoting a culture of quality in the field of the occupational activities performed in construction, take full responsibility for one's occupational activities and for managing the organisation/company, plan one's own professional development in construction, promote the development of subordinate staff.

Example of a qualification at SQFC level 6: DIPLOMA OF COMPLETING FIRST CYCLE STUDIES IN THE FIELD OF CONSTRUCTION.

Examples of potential qualifications at SQFC level 6: MANAGING CONSTRUCTION, SUPERVISING CONSTRUCTION JOBS, MANAGING A MOBILE TESTING AND INSPECTION LABORATORY.

LEVEL 7

1. **In the area of knowledge, a person knows and understands:** legal regulations, including technical and construction regulations, their interpretation and application practices in the construction investment process, the principles of quality management and work safety in construction, the economic and financial aspects of the construction sector, the principles governing the construction market, the principles of making a comprehensive appraisal and cost calculations of the construction investment process, the broad macroeconomic conditions affecting the construction investment process, the professional relations with related sectors, including real estate management and building materials, needed to implement or provide services to large construction projects.

2. **In the area of skills, a person is able to:** conduct a comprehensive analysis of the construction market, autonomously solve complex problems relating to the implementation of construction projects, coordinate the work of large teams, as well as large, complex organisations/companies and other legal entities operating in the construction industry, use the legal regulations included in acts, regulations and norms to perform tasks, assess the technical condition and degree of wear of buildings, comprehensively and substantively justify one's decisions about the investment process, further develop the principles of professional ethics in the construction industry, share one's knowledge and experiences in an organised, methodical manner.

3. **In the area of social competence, a person is ready to:** require others to comply with prevailing principles and regulations in the occupational activities performed in construction, be creative in implementing construction investment projects, autonomously undertake activities relating to the operation of large and complex organisations/companies in construction, make decisions in high risk situations in the investment process, promote the culture of quality and efficiency in the area of the occupational activities performed in construction, establish proper relations in the professional community, take formal responsibility for all tasks relating to the comprehensive implementation of a construction investment or for its phase, shape the workplace environment and organisational culture in construction, actively share one's knowledge and innovative solutions regarding the construction investment process.

Examples of qualifications at SQFC level 7: DIPLOMA OF COMPLETING SECOND CYCLE STUDIES IN THE FIELD OF CONSTRUCTION; DIPLOMA OF COMPLETING THE LONG CYCLE MASTER'S DEGREE STUDIES IN THE FIELD OF CONSTRUCTION.

Example of a potential qualification at SQFC level 7: MANAGING A CONSTRUCTION PROJECT.

LEVEL 8

1. **In the area of knowledge, a person knows and understands:** the significant achievements of basic and applied sciences influencing the development of innovative solutions used in the construction investment process, modern theories and research on the phenomena and processes enabling the use of new products, methods and technologies in construction, the scientific and professional achievements in the research on the causes of construction disasters and their effects, the latest organisational, process and product solutions used in the world in construction investment activities, scientific and research methods and the principles of developing legal acts in the area of construction.

2. **In the area of skills, a person is able to:** creatively apply scientific and research methods, co-create development strategies for the construction industry, as well as models and simulations of future construction investment projects, initiate justified changes in legal and organisational solutions, as well as generate and supervise the implementation of building development programmes, co-create innovations and advanced solutions to improve the quality and the effectiveness of the construction investment process using the results of research and development work, develop new methods, tools and technologies for the occupational tasks performed in construction, create programmes and systemic solutions in the process of educating personnel for the construction industry.

3. **In the area of social competence, a person is ready to:** influence the spatial, social and economic structures of construction projects in an ethical and environmentally-friendly manner, take responsibility for shaping an image of the domestic construction sector that is sustainable and consistent with legal regulations and development strategies, establish proper relations with the international construction community and shape a culture promoting quality in the construction investment process, creatively develop qualifications and professional competences in the construction sector.

Example of a qualification at SQFC level 8: DIPLOMA OF A DOCTORATE IN TECHNICAL SCIENCES IN CONSTRUCTION.

Examples of potential qualifications at SQFC level 8: MANAGING DESIGN WORK OR RESEARCH & DEVELOPMENT IN CONSTRUCTION, DESIGNING CONSTRUCTION PROJECTS, MANAGING CONTRACT IMPLEMENTATION.

Annex 2

Level descriptors of the Sectoral Qualifications Framework for the Construction Industry

A. Stages of activities in the work process

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
		KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:
KNOWLEDGE	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	K.I.A.L2 – the methods of marking the position of a building's foundation in the field during geodetic work	K.I.A.L3 – the methods and tools for excavating and drilling to study the geological and geotechnical features of the land on which constructions will be sited	K.I.A.L4 – the types and scope of geodetic-cartographic work and geodetic activities that must be performed during the design phase – the subject of the contract and scope of the construction-installation jobs – the principles of planning and documenting construction-installation jobs – the need for persons to take professional and civil responsibility for their autonomously performed technical tasks at a construction site – the basic principles of social psychology and the principles of communication and teamwork – the principles of making and documenting the bill of quantities of construction-installation jobs – the legal bases, methods and IT tools for estimating costs	K.I.A.L5 – the principles of producing construction design documentation and obtaining the documents needed to perform construction-installation work requiring permits from relevant public construction authorities – the principles of preparing construction documents, in particular: building permits, construction logs, installation logs, commissioning protocols, approvals, inspections – the conditions of the building permit, technical specifications of performing and commissioning jobs and the construction project – the recommendations and requirements of public authorities and institutions regarding the jobs performed and the constructions at a construction site – the principles of issuing the documents needed to perform a limited scope of autonomous technical tasks in construction	K.I.A.L6 – the principles and regulations of determining the energy performance of a building or its part – the scope and form of a construction design, the technical specifications of performing construction-installation jobs and the methods of their cost estimation – the scope and forms of analysing and testing the efficiency of an investment project – the scope and forms of preparing construction projects – the principles of introducing design changes – the principles of issuing documents confirming the possession of a limited scope of entitlements in construction design	K.I.A.L7 – the principles of discussing and negotiating the work at a construction site and eventual changes with the investor – the principles of working with and notifying public authorities and institutions about the plans, events and situations at a construction site – the principles of issuing documents confirming the possession of unlimited entitlements in construction design – the principles of geodetic and cartographic work in construction	K.I.A.L8 – the principles of planning, spatial planning and environmental protection – the theory and practice of spatial planning in construction – the theory and practice of the methods of testing the efficiency of an investment process, including the innovativeness of programmed and planned construction projects – the principles of sustainable development in preparing construction work – innovative IT programs and tools to manage the construction investment process
	II. Construction-installation work (jobs)	K.II.A.L2 – the threats to human health and life as well as to property and the environment in construction – the threats from hazardous substances and materials – the use of personal protective measures in construction	K.II.A.L3 – the rules and regulations on OHS, fire protection, ergonomics and environmental protection, as well as the basics of emergency medical care – building regulations and norms on performing construction-installation jobs – the requirements for the transportation, stockpiling and storage of building materials, machinery and equipment – the types, scope and technologies of construction-installation jobs	K.II.A.L4 – the principles of organising construction-installation jobs, particularly: earthwork, foundation work, concreting, reinforcement, masonry, carpentry, finishing, installations – the technical conditions of performing and commissioning construction-installation jobs, including the principles and methods of quality control – the principles and methods of conducting a quantity survey of completed construction-installation jobs and maintaining a log of the results – the principles and methods of warehousing, stockpiling and storing building materials, machinery and equipment – the principles of using scaffolding and equipment for working at heights	K.II.A.L5 – the basic provisions of the Labour Code, Civil Code, Criminal Code, Code of Civil Procedure, Code of Offenses – the organisation and principles of construction supervision, the principles and methods of securing and protecting the construction site, the principles of inspecting work safety – the competences entitling a person to manage a limited scope of a construction project and construction-installation jobs – the regulations on building materials and construction norms in the field of one's professional specialty – the principles of maintaining and entering information in a construction log – the principles and regulations of commissioning a construction	K.II.A.L6 – administrative law on supervising and inspecting the construction process and the law on offenses – the principles of issuing documents confirming a limited or unlimited entitlement to design – the competences providing unlimited entitlement to manage construction and construction jobs and supervise construction	K.II.A.L7 – the competence of public construction authorities authorised to supervise the management and inspection of construction-installation jobs – the principles, norms and certificates for the use of building materials and equipment in construction, as well as the methods of their documentation – the principles of the required tests, checks and measurements to be performed during construction and after its completion	K.II.A.L8 – the methods and techniques of testing to inspect and assess the quality of construction-installation jobs
	III. Maintaining or improving the technical efficiency of a construction	K.III.A.L2 – the principles of using and types of work clothing and personal protective equipment required when performing auxiliary work to maintain the proper technical condition of construction	K.III.A.L3 – the rules and regulations on OHS, fire protection, ergonomics, environmental protection relating to the maintenance/upkeep and repair of internal construction installations, the elements of a construction and the adjacent area – the types of technical documentation for internal construction equipment and installations during the surety and warranty period – the principles and technologies of maintaining and repairing internal construction installations and equipment – the principles and technologies of performing internal and external repairs and maintenance/upkeep of a construction	K.III.A.L4 – the principles and regulations on the use of a construction, organising construction-installation jobs and maintenance work, as well as periodical inspections, technical inspections, the repairs and maintenance work of a construction – the types of basic technical and operational documentation for periodic inspections, reviews, the repairs and maintenance work of a construction and its adjacent area – the principles of the use, repair and maintenance/upkeep of the street furniture of constructions, playgrounds, access roads, manoeuvre roads, parking lots, outdoor lighting and other constructions and equipment located in the area adjacent to the construction – the principles of preparing orders for repairs and maintenance work on equipment and for building materials as well as accounting for their use – the basic principles of organising, implementing and accounting for construction-installation jobs in a construction project and its adjacent area that do not require permitting	K.III.A.L5 – the rules and regulations on OHS, fire protection, ergonomics and environmental protection relating to the supervision and inspection of constructions in use – the principles of maintaining a construction log – types of documents required for transferring a construction	K.III.A.L6 – administrative law and the law of offenses on supervising the use of constructions – construction regulations on supervising, monitoring and periodically assessing constructions – administrative law, construction regulations and norms on commissioning constructions for use – the regulations on the energy performance of constructions – the principles and regulations on as-built documentation and other documents of a construction	K.III.A.L7 – building regulations on commissioning a construction for use – types of documentation required by the competent authorities to report a construction as ready for use – the principles of performing tests, checks and measurements as well as notifying public construction authorities of changes made in the types of use of a construction after its conversion/expansion	K.III.A.L8 – the principles and methods of testing and assessing the causes and consequences of construction failures and disasters – the physical and technical phenomena that can result in a construction disaster

A

Stages of activities in the work process
KNOWLEDGE

A. Stages of activities in the work process (continued)

KNOWLEDGE	IV. Construction demolition and use of remaining building materials	**K.IV.A.L2** – the threats to human health and life as well as to property and the environment during construction demolition – the threats from hazardous substances and materials present during construction demolition, including the presence of asbestos – the use of personal protective equipment during construction demolition	**K.IV.A.L3** – the regulations on OHS, fire protection, environmental protection and the principles of ergonomics in preparing and protecting the site, the construction to be demolished and structures in the immediate vicinity during construction demolition and when putting the demolition site in order – the principles of deconstructing equipment and installations, as well as the components of a construction being demolished – the principles of handling hazardous substances and agents, as well as building materials, including those containing asbestos	**K.IV.A.L4** – the principles of taking measurements and preparing geodetic and cartographic reports – the principles of organising construction-installation jobs in construction demolition, securing, managing and marking the demolition site and its adjacent area – the principles of securing the structural elements of constructions designated for demolition and those adjacent to the constructions to be demolished – the principles of construction demolition and the elements of a deconstructed construction – the principles and techniques of direct recycling to obtain building materials and non-construction materials for re-use and raw materials from construction demolition	**K.IV.A.L5** – the principles of preparing documentation for construction demolition, in particular: demolition approvals, demolition logs, deconstruction logs, commissioning protocols, permits, reports	**K.IV.A.L6** – the scope and form of the demolition project, technical specifications of the construction-installation jobs to be performed during construction demolition – the principles of maintaining records of a construction disaster	**K.IV.A.L7** – the principles of construction demolition with the use of explosives	**K.IV.A.L8** – the methods of examining the justification for issuing a decision on suspending or limiting the use or demolition of a construction
SKILLS	SECTORAL DETERMINANTS	**LEVEL 2**	**LEVEL 3**	**LEVEL 4**	**LEVEL 5**	**LEVEL 6**	**LEVEL 7**	**LEVEL 8**
		IS ABLE TO:	**IS ABLE TO:**	**IS ABLE TO:**	**IS ABLE TO:**	**IS ABLE TO:**	**IS ABLE TO:**	**IS ABLE TO:**
	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	**S.I.A.L2** – mark the results of positioning a building's foundation in the field during geodetic work	**S.I.A.L3** – perform excavations and drillings to study the geological and geotechnical features of the land on which constructions will be sited	**S.I.A.L4** – prepare relatively simple parts of a construction project – produce working drawings of simple architectural, building, construction and installation details – prepare a bill of quantity of construction-installation jobs, cost estimates of simple constructions and a list of materials and equipment for their implementation	**S.I.A.L5** – prepare cost estimates using construction estimator catalogues and prepare work schedules for construction-installation jobs – arrange work schedules and work norms for construction-installation jobs – prepare tenders for construction-installation jobs and submit offers and tender documents	**S.I.A.L6** – perform calculations of static construction elements, make drawings and design the structural elements of constructions – select the proper building materials for the designed elements and optimal technologies to perform construction-installation jobs – plan the necessary activities to obtain a notarial act of the right to the land on which a construction project will be built – ensure the timely receipt of required information on construction conditions and the agreements and permits required to design a construction, and then to start and implement the construction-installation jobs – prepare the Terms of Reference for the design and implementation of a construction project – specify the principles and forms of commissioning a construction project, making the construction site available to the contractor, commissioning the work performed and assessing its quality	**S.I.A.L7** – plan a construction investment and its variant options based on a comprehensive feasibility study, determine investment goals based on the identification and analysis of existing and forecasted market needs – determine the conditions of performing a technical and economic analysis and appraisal of the developed construction investment options and indicate the best one for implementation – organise, on behalf of the investor, tenders for the design and contractor of a construction project – determine the sources and terms of financing and develop a budget for a construction investment – design a construction investment and develop its project documentation – define the conditions and forms of assessing the quality of the completed construction-installation jobs and include this in the tender conditions and contract for the implementation of a construction project	**S.I.A.L8** – conduct initial and in-depth feasibility studies for a construction project, including analyses and assessments of the costs and benefits of variant options – programme a construction project based on a preliminary and in-depth feasibility study and determine the overall framework for the conditions of the undertaking and forms of its implementation – define the formal and legal principles and forms of supervising the quality and timeliness of implementing the construction project – identify the threats and opportunities of a construction project, analyse the risk of failing to achieve the expected parameters and describe the risk management assumptions for individual project phases of the design work and construction-installation jobs

A

Stages of activities in the work process
KNOWLEDGE – SKILLS

A. Stages of activities in the work proces (continued)

SKILLS

	S.II.A.L2	S.II.A.L3	S.II.A.L4	S.II.A.L5	S.II.A.L6	S.II.A.L7	S.II.A.L8
II. Construction-installation work (jobs)	– comply with the rules and regulations on OHS when performing auxiliary construction-installation jobs – perform auxiliary construction work under supervision using simple hand and power tools – clean and put the construction site in order in accordance with the instructions received	– organise one's own construction-installation work, taking into account the rules and regulations on OHS, fire protection, ergonomics and environmental protection – analyse draft drawings and use construction documentation and guidelines for performing construction-installation jobs – perform jobs in construction, installation, assembly and finishing work – choose building materials for the performed work – operate the equipment used during construction-installation work – assess the quality of one's construction-installation work	– manage the work of the team/crew and organise construction-installation jobs taking into account the rules and regulations on OHS, fire protection, ergonomics and environmental protection – settle the expenses for labour, equipment, the material and financial schedule during construction-installation work – perform a quantity survey of the performed construction-installation jobs – verify the quality of building materials and the performed construction-installation jobs – perform measurements and inspect the compliance of the performed construction-installation jobs with technical and construction regulations and the principles of technical knowledge	– coordinate, on behalf of the investor, construction-installation jobs, including tasks to prevent threats to safety and health, fire protection and environmental protection during construction-installation jobs, suspend work when a threat is found – manage and organise the work of subordinate staff, including the preparation of time schedules, recording work time, planning employees' vacations – develop and maintain as-built documentation of the construction and other documents on operating the construction, including the documentation required to issue a certificate on the energy efficiency of a building – analyse draft drawings and on their basis, determine the type and scope of construction-installation jobs, needed building materials as well as tools, equipment and machines – on the basis of received documentation, determine the cost and quantity of building materials and the number of workers needed to perform the construction-installation jobs – prepare reports, maintain records of completed jobs and prepare as-built and commissioning documentation for construction-installation jobs – report construction-installation jobs for commissioning, participate in commissioning activities and ensure the removal of any irregularities	– prepare as-built documentation for the construction and instructions for the servicing and use of the construction, and its related installations and equipment – implement, on behalf of the contractor, construction-installation jobs in accordance with legal regulations, the contract and the requirements specified in the work plan and specifications of the technical conditions of performing and commissioning the jobs – ensure, on behalf of the contractor, the quality control of the construction project by measuring project results at specified control points, compare and assess compliance of the measured results with the established requirements and perform the technical and quality commissioning of the jobs – prepare reports and communicate the progress and costs of a construction project to relevant superior authorities, warn about the threat of delays in the project schedule or exceeded budgeted costs, agree on and take necessary corrective actions	– use the latest knowledge and proven practices for the effective implementation of construction-installation work – secure personnel by using specific recruitment procedures and integrate members of the project management team and the team of project contractors by developing the skills of teamwork and effective motivation – prepare and turn over the construction site to the contractors performing the construction-installation jobs, together with other pertinent documentation on the implementation of the investment as well as the permit to build the construction and associated infrastructure – supervise the course of a construction project and review the progress and results of the project, including its phases and stages as well as the results of the risk analysis of failing to achieve the project's parameters – recommend and supervise the performance of required geodetic and cartographic activities needed for the commissioning of construction-installation jobs – make autonomous decisions on activities relating to personnel policies in the construction investment process	– integrate the activities of the participants of the construction investment process in order to implement the urban vision, while maintaining social priorities and economic plans – create new knowledge and the technologies needed to introduce innovations in construction-installation work – introduce innovations in construction-installation work to improve the technical and functional value, user safety and viability of the construction investment – apply and develop theories, models and research methods leading to more sustainable, energy-efficient and passive construction – on behalf of the investor and with the participation of the contractor, assess the progress of the construction project's implementation and accept the quality of the construction-installation jobs, in accordance with the schedule and documentation of the construction investment project – perform the administrative tasks to complete a construction project, formally confirming that all of the requirements for the product, its quality, and the quality of its management have been fulfilled – implement new concepts of shaping and developing a culture of quality and safety in construction

	S.III.A.L2	S.III.A.L3	S.III.A.L4	S.III.A.L5	S.III.A.L6	S.III.A.L7	S.III.A.L8
III. Maintaining or improving the technical efficiency of a construction	– comply with the rules and regulations on OHS when performing auxiliary work to maintain and repair constructions – perform auxiliary work under supervision to maintain and repair constructions using simple hand and power tools	– organise one's own work to maintain or improve the technical efficiency of a construction, taking into account the rules and regulations on OHS, fire protection, ergonomics and environmental protection – maintain and repair constructions in use – document the work performed to maintain the technical efficiency of systems, including the installations and equipment of a construction and its maintenance/upkeep	– manage the work of a small team/crew and organise moderately complex work under routine conditions to maintain or improve the technical efficiency of a construction, taking into account the rules and regulations on OHS, fire protection, ergonomics and environmental protection – monitor the technical efficiency of systems, including the installations and equipment of a construction and its maintenance/upkeep – monitor compliance of the jobs performed to maintain or improve the technical efficiency of a construction with technical and construction regulations and the principles of technical knowledge	– manage the work of a small team in variable, predictable conditions and organise the work of maintaining or improving the technical efficiency of a construction, taking into account the rules and regulations on health and safety, fire protection, ergonomics and environmental protection – plan construction jobs and work to check the technical condition of a construction and improve the efficiency of its installations and equipment, as well as maintenance work – plan the supervision of the ongoing maintenance/upkeep of constructions – prepare a schedule of supervising and monitoring compliance with the servicing and operating instructions of a construction and its related installations and equipment	– prepare subcontracted as-built documentation for construction-installation jobs performed in an existing construction and instructions for the servicing and operation of a construction and its related installations and equipment – prepare the operational documentation of a construction consisting of the current multi-sectoral technical documentation, including the energy performance certificate, situational plan, repository in the registry of land and mortgages, the construction log, necessary operating instructions and multi-year operating programme of the facility – prepare energy performance certificates and periodic reviews of systems, including the installations and equipment of a construction, operational measurements of the construction during the warranty period, and to improve the operations of constructions – prepare and conduct obligatory periodic inspections of a construction and report the results to public construction authorities	– specify the terms of use of a construction during the warranty and post-warranty periods – plan periodic inspections and operational measurements of the construction during the warranty period – assess the quality of the performed construction-installation jobs and document the results of the assessment during the period of surety and warranty on behalf of the user and with the participation of the contractor – perform the final commissioning of construction investments after the end of the period of surety and guarantee – secure constructions and estimate losses after catastrophes, natural disasters, fires and malfunctions – perform geodesy and cartographic studies and activities for the conversion/expansion of a construction during its use – supplement and update the knowledge required to effectively perform jobs to maintain or improve the technical efficiency of a construction – make autonomous decisions on policies relating to qualifications, competences and human resources in the area of maintaining or improving the technical efficiency of a construction	– integrate construction projects with existing economic, social and spatial structures

A

Stages of activities in the work process
SKILLS

A. Stages of activities in the work process (continued)

SKILLS	IV. Construction demolition and use of remaining building materials	**S.IV.A.L2** – comply with the rules and regulations on OHS when performing the auxiliary work of construction demolition – perform straightforward demolition work using simple hand and power tools as well as human-powered transport – clean up and level the construction demolition site	**S.IV.A.L3** – organise one's own work in construction demolition and the recycling of the obtained building materials, taking into account the rules of OHS, fire protection, ergonomics, environmental protection – deconstruct installations, equipment and the structural elements of a construction – perform auxiliary work in construction demolition with the use of explosives – sort and transport building materials suitable for re-use or recycling from the demolition site – remove hazardous waste, including asbestos, from the demolition site	**S.IV.A.L4** – manage the work of a small team and organise the work of construction demolition and the use of other building materials, taking into account the rules of OHS, fire protection, ergonomics, environmental protection – assess the condition of the elements, equipment and installations of a construction to be demolished – estimate the cost of demolition work – secure the demolition site and structures adjacent to this area and the construction being demolished	**S.IV.A.L5** – plan and manage the work of construction demolition and the use of the remaining building materials – coordinate tasks to prevent security threats and ensure health protection during construction demolition work – maintain the documentation of the work performed and prepare the as-built documentation of the construction demolition work – report the construction-installation jobs of construction demolition and the use of the remaining building materials as ready for commissioning – participate in the commissioning of construction demolition and ensure the removal of eventual defects – suspend work relating to construction demolition when a threat is found – settle the accounts of the labour, equipment and the material and financial schedule in construction demolition as well as the deconstruction of installations and equipment of the construction	**S.IV.A.L6** – prepare the terms of the tender for the plan and the construction demolition, develop the principles and forms of recycling the obtained building materials – supervise construction demolition and the recycling of the obtained building materials in accordance with the plan, construction knowledge and the adopted work schedule – document the performed demolition work and the results of recycling the obtained building materials, maintain a construction demolition log on behalf of the contractor	**S.IV.A.L7** – define the principles and forms of preparing and transferring the construction site to the selected contractor for the construction demolition work, complying with the principles and forms of recycling the obtained building materials – define the principles and forms of commissioning a construction plan and a construction demolition, as well as the principles, forms and results of recycling the obtained building materials – define the forms and principles of establishing the sets of as-built documentation needed for the proper performance of construction demolition and for recycling the obtained building materials – establish and maintain a log of the construction demolition on behalf of the contractor – recommend and supervise the geodesic and cartographic activities required to remove the demolished construction from the registry	**S.IV.A.L8** – create new knowledge and technologies needed to increase the efficiency of construction demolition work and the recycling of the obtained building materials – use innovative methods and solutions to increase the efficiency and safety of the construction demolition process and the recycling of the obtained building materials – develop variant models of construction demolition, as well as the principles and forms of recycling the obtained building materials – assess, on behalf of the investor, the quality of the construction demolition and the recycling of the obtained building materials based on the contractor's logbook entries, according to the rules specified by the client and set forth in legal regulations and the contract – determine the causes of construction malfunctions and disasters using scientific and research methods and techniques, including experimental and simulation techniques
SOCIAL COMPETENCE	SECTORAL DETERMINANTS	**LEVEL 2**	**LEVEL 3**	**LEVEL 4**	**LEVEL 5**	**LEVEL 6**	**LEVEL 7**	**LEVEL 8**
		IS READY TO:	**IS READY TO:**	**IS READY TO:**	**IS READY TO:**	**IS READY TO:**	**IS READY TO:**	**IS READY TO:**
	I. The work of programming, planning and issuing decisions on undertaking a construction investment	**C.I.A.L2** – diligently carry out the instructions of one's direct superior when assisting with geodetic work in the field	**C.I.A.L3** – diligently perform assigned tasks in geodetic and geotechnical work in the field	**C.I.A.L4** – perform geodetic and cartographic work in compliance with the technological requirements of construction-installation jobs – make decisions as part of a team on implementing a construction investment project – observe the code of ethics in construction programming, planning and design	**C.I.A.L5** – implement the code of ethics in construction programming, planning and design – take into account quality, the economic and social context, safety, environmental protection and other results of construction programming, planning and design – take responsibility for the results of preparing the data and information needed for construction planning and design	**C.I.A.L6** – promote the code of ethics in construction programming, planning and design – critically assess one's own work and that of the team to improve construction programming, planning and design – make decisions and take responsibility for a limited scope of construction programming, planning and design activities	**C.I.A.L7** – define and develop ethical conduct in construction programming, planning and design – responsibly programme and plan urban development projects for the effective implementation of spatial policy – integrate the private sector and representatives of public authorities (national, regional and local) in urban development activities – make decisions and take responsibility for an unlimited scope of construction programming, planning and design activities	**C.I.A.L8** – influence the spatial, social and economic structures of large scale urban development projects in an ethical and comprehensive manner – apply innovative organisational mechanisms, instruments and procedures to achieve agreement between broadly understood private and public aims in large-scale urban development projects – take responsibility for improving teamwork and communication in the construction programming, planning and design of large-scale urban development projects
	II. Construction-installation work (jobs)	**C.II.A.L2** – act in compliance with prevailing safety rules, regulations and instructions at a construction site – assess one's activities carried out individually and as part of a team at a construction site and take responsibility for their results	**C.II.A.L3** – adapt one's behaviour to changing circumstances at a construction site – accept professional and civil responsibility for the consequences of one's actions and the decisions made in the work environment at a construction site – observe the professional code of ethics in the occupational tasks performed at a construction site	**C.II.A.L4** – make autonomous decisions on the conformity of the jobs performed with construction regulations and technical knowledge – communicate as required to ensure the effective transmission of information and instructions at a construction site – promote proper behaviour and conduct in the work environment at a construction site – comply with the principles of loyalty towards the employer and co-workers in the work environment at a construction site	**C.II.A.L5** – comply with prevailing norms, principles and legal regulations guaranteeing the proper quality of operations and safety in construction-installation work – make the correct decisions on matters relating to a limited scope of construction work management – critically assess one's construction supervision activities and the work results of the teams and professional organisations in which one participates – take responsibility for the results of one's construction supervision actions and decisions – participate in promoting a culture of quality and safety in construction-installation jobs	**C.II.A.L6** – enforce compliance with the norms, principles and legal regulations guaranteeing the proper quality and safety of employees when managing construction-installation work, – make autonomous decisions on the supervision and inspection of construction work and construction-installation jobs – critically assess supervisory activities and take responsibility for the results of one's actions and decisions when supervising construction-installation work – shape and promote a culture of quality and safety in construction-installation work	**C.II.A.L7** – enforce compliance by others with the norms, principles and legal regulations guaranteeing the quality, efficiency and safety of the operations in construction-installation work – develop and implement models of appropriate behaviour, an organisational culture and culture of safety in construction-installation work	**C.II.A.L8** – shape the mechanisms integrating the activities of the participants of the construction investment process (urban vision, social priorities, economic plans) – create and implement innovative principles in building a culture of quality and safety in construction

A

Stages of activities in the work process
SKILLS – SOCIAL COMPETENCE

A. Stages of activities in the work process (continued)

SOCIAL COMPETENCE	**III. Maintaining or improving the technical efficiency of a construction**	**C.III.A.L2** – take responsibility for simple maintenance jobs on a construction performed individually or in a group under supervision – assess one's own tasks and take responsibility for them when performing auxiliary and simple renovation and maintenance work on a construction	**C.III.A.L3** – act autonomously to maintain and repair internal construction installations and components, as well as cooperate in a group when performing such work – take responsibility for the results of the maintenance work performed on a construction	**C.III.A.L4** – comply with prevailing norms, principles and legal regulations when managing the renovation and maintenance work of small teams – assess one's own work and that of one's team in maintaining and repairing internal construction installations and components – make autonomous decisions on the maintenance and repair work of a construction	**C.III.A.L5** – comply with prevailing norms, principles and legal regulations guaranteeing the proper quality of the workmanship as well as the safety of the employees and users of a construction when managing the renovation and maintenance work of large teams – make autonomous decisions when managing the renovation and maintenance work of a construction – critically assess a team's activities and take responsibility for the results of one's own actions and decisions made when managing the renovation and maintenance work of a construction – participate in promoting a culture of quality and safety in maintaining or improving the technical efficiency of a construction	**C.III.A.L6** – enforce compliance with norms, principles and legal regulations guaranteeing the proper quality of the management as well as the safety of employees and users of a construction when supervising the work of maintaining or improving the technical efficiency of a construction – make autonomous decisions on supervising the work of maintaining or improving the technical efficiency of a construction – critically assess supervisory activities and take responsibility for the results of one's actions and decisions made when supervising repair and maintenance jobs on a construction – shape and promote a culture of quality and safety in maintaining or improving the technical efficiency of a construction	**C.III.A.L7** – develop norms, principles and legal regulations on maintaining or improving the technical efficiency of a construction to guarantee the quality, efficiency and safety of this work – develop and act in accordance with the code of conduct and organisational culture in maintaining or improving the technical efficiency of a construction	**C.III.A.L8** – take responsibility for shaping a favourable and coherent image of the domestic construction sector – influence the long-term development of construction projects and their spatial and functional integration with existing structures (economic, social, spatial) – develop and implement innovative principles of a culture of quality and safety in maintaining or improving the technical efficiency of a construction
	IV. Construction demolition and use of remaining building materials	**C.IV.A.L2** – work under direction and partly autonomously in organised conditions and take responsibility for the results of one's actions during construction demolition – work together with a team of employees in construction demolition	**C.IV.A.L3** – foresee the results of actions taken in construction demolition – assess the impact of one's activities performed in a team working in construction demolition and take responsibility for their results	**C.IV.A.L4** – comply with prevailing norms, principles and legal regulations when managing small teams participating in construction demolition and the recycling of the obtained building materials – assess one's own work and that of the team one directs in construction demolition and the recycling of the obtained building materials – communicate as required during demolition work to ensure the safety of co-workers and persons in the area adjacent to the construction being demolished – comply with ethical principles when removing the materials resulting from demolition work	**C.IV.A.L5** – comply with prevailing norms, principles and legal regulations guaranteeing the proper quality of workmanship and safety when managing the work of large teams in construction demolition and the recycling of the obtained building materials – make autonomous decisions when managing the deconstruction, demolition and dismantling of constructions – critically assess the team's activities and take responsibility for the results of one's own activities and the decisions made when managing construction demolition work and the recycling of the obtained building materials – participate in promoting a culture of quality and safety in construction demolition and the recycling of the obtained building materials	**C.IV.A.L6** – enforce compliance with norms, principles and legal regulations guaranteeing the proper quality of management and safety when supervising construction demolition work and the recycling of the obtained building materials – make autonomous decisions when supervising construction demolition work and the recycling of the obtained building materials – critically assess supervisory activities and take responsibility for the results of one's actions and decisions made when supervising construction demolition work and the recycling of the obtained building materials – shape and promote a culture of quality and safety in construction demolition work and the recycling of the obtained building materials	**C.IV.A.L7** – develop norms, principles and legal regulations governing construction demolition work and the recycling of the obtained building materials to guarantee the quality, efficiency and safety of such work – supplement and update the knowledge required for the effective implementation of construction demolition work and the recycling of the obtained building materials – develop and act in accordance with models of proper behaviour and organisational culture in construction demolition work and the recycling of the obtained building materials	**C.IV.A.L8** – take responsibility and influence the development and shaping of space and the environment as the result of performing construction demolition – develop and implement the innovative principles of a culture of quality and safety during construction demolition work and the recycling of the obtained building materials – promote a culture of safety and responsibility during construction demolition work and the recycling of the obtained building materials

A

Stages of activities in the work process
SOCIAL COMPETENCE

B. Business, communication, security, professional development and mobility

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
		KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:
KNOWLEDGE	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	K.I.B.L2 – not applicable	K.I.B.L3 – not applicable	K.I.B.L4 – the health and safety regulations of laboratory work, including taking soil samples from boreholes and testing new building materials – the principles and forms of communication with the designer and public construction authorities – the principles and forms of cost estimation – available career paths	K.I.B.L5 – the principles of compiling source information for construction programming, planning, design and for construction administration – the principles of developing partial analyses for construction programming, planning and design – the principles and forms of estimating the value of implementing a construction and/or investment project/task	K.I.B.L6 – the principles of analysing the construction market and its economic dynamics – the principles of analysing the condition of existing constructions in an area and making an inventory of them – the principles of developing a land use plan and its environmental impact – the principles of determining legal status, external and urban planning conditions – the principles and regulations of working with a client in designing a construction – the principles of determining the cost of the production resources to be used – the procedures for handling complaints and motions from parties to the proceedings, replying and providing explanations, allowing access to case files and cooperating with state inspection authorities – the principles of providing information on the safety and health protection (BIOZ) plan in construction project design documents	K.I.B.L7 – the principles of researching and analysing the economic situation of the construction industry – the social conditions of spatial planning and the principles of consulting residents on this issue – the legal and economic-financial principles of providing consulting services in the construction sector – the principles of performing administrative functions in construction – the principles and methods of conducting training activities in construction – the mechanisms of communication among the parties involved in issuing a decision on undertaking a construction investment	K.I.B.L8 – the principles and methods of researching the effectiveness and innovation of programmed and planned investment projects/tasks – the principles of planning a scientific career in construction specialties – the principles of communication between scientific communities and construction industry entities – the principles of developing legal acts in construction – the research results on the communication mechanisms of participants in the construction investment process
	II. Construction-installation work (jobs)	K.II.B.L2 – the basic concepts of construction – the basics of communication (verbal and visual) at a construction site – the OHS instructions for the tasks being performed at a construction site – the principles of transportation at a construction site	K.II.B.L3 – available vocational education paths – the general economic condition of the construction industry and the construction market – the health and safety regulations at a construction site – the principles of communicating (verbal and visual) at a construction site – the basic factors determining the necessity of geographical mobility	K.II.B.L4 – the current labour market situation in construction and construction-installation jobs – the rules of safety in organising the work of a team of employees performing construction-installation jobs – the principles of organising communication (verbal and visual) at a construction site – the economic condition of the construction industry and labour market forecasts in construction – the main consequences of occupational and geographical mobility in construction work	K.II.B.L5 – the principles of developing BIOZ plans – the principles of calculating outlays and cost estimates for construction-installation jobs – the rules of suspending construction-installation jobs in the event of danger – the principles of cooperating and communicating with external clients and subcontractors – the risks in the organisation of construction-installation jobs – the principles of conducting training at the workplace	K.II.B.L6 – the principles of supervising construction – the principles of providing a safe working environment, overseeing compliance with health and safety, fire protection and environmental protection regulations – the methods of conducting training in construction – the paths of professional development in managerial positions in construction – the principles and methods of recruiting a team of employees to implement a construction investment – the methods of planning employee mobility when organising a construction site	K.II.B.L7 – the methods of analysing occupational and geographical mobility in construction – the methods of labour market analysis in the construction sector – the principles of building a communication system during the implementation of large, complex constructions – the analysis of the impact of the economic situation in the construction industry on the level of expenditures for construction investments and the labour market	K.II.B.L8 – the methodology of researching the economic situation and labour market in the construction industry – the methods of communicating in a multilingual work environment in the implementation of international projects – the methods of analysing the impact of economic migration on the labour market situation in the construction industry – the international scientific research achievements on the economic situation and labour market in the construction sector
	III. Maintaining or improving the technical efficiency of a construction	K.III.B.L2 – the basic risks involving the presence of hazardous substances in renovation and maintenance work – the basic principles of working safely in the vicinity of gas, electrical, ventilation and air conditioning installations in constructions	K.III.B.L3 – the risks involving the presence of hazardous substances in constructions – the principles of handling asbestos in the repair and maintenance of constructions – the OHS regulations of working on installations in constructions	K.III.B.L4 – the principles of communicating with the manager of a renovated construction – the principles of formal communication between the entities involved in the construction-installation process of a renovated construction	K.III.B.L5 – the principles of communicating with the owner and manager of a construction about the construction-installation work being performed in a construction in use – the principles of calculating the expenditures of construction work – the responsibility for organising work safety during construction, installation and maintenance work	K.III.B.L6 – the principles of cooperating with the owner and manager of a construction during the planning of construction, installation and maintenance jobs	K.III.B.L7 – the principles of the inspections conducted by construction administration authorities to ensure that owners and administrators are properly using constructions in accordance with their intended purpose and maintaining them in proper technical condition – the principles of having the owner/manager of a construction perform mandatory inspections and periodic assessments of the construction and its technical infrastructure together with its adjacent area – the principles of providing expert opinions on the safety of a construction and its users	K.III.B.L8 – the international achievements in the field of promoting knowledge about energy-efficient technologies and the environmentally-friendly use of constructions
	IV. Construction demolition and use of remaining building materials	K.IV.B.L2 – the OHS instructions on how to act when using various methods of construction demolition	K.IV.B.L3 – the occupational safety regulations of construction demolition – the signs and signals used when using explosives for construction demolition	K.IV.B.L4 – the principles of safety when organising the work of a team to demolish a construction – the organisation of communication in a team demolishing a construction	K.IV.B.L5 – the principles of organising the internal communication of a team demolishing a construction	K.IV.B.L6 – the risks associated with construction demolition – the principles of obtaining a permit for construction demolition – the principles of organising effective communication during construction demolition	K.IV.B.L7 – the principles of conducting an investigation on the causes of a construction disaster – the methods for optimising the costs of construction demolition	K.IV.B.L8 – the latest methods of investigating the causes explaining a construction disaster – the functioning of organisations working in environmental protection in construction

B

Business, communication, security,
professional development and mobility
KNOWLEDGE

B. Business, communication, security, professional development and mobility (continued)

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
		IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:
SKILLS	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	S.I.B.L2 – not applicable	S.I.B.L3 – not applicable	S.I.B.L4 – apply OHS regulations in the laboratory work of testing the quality of soils, building materials and water – maintain effective communication with the designer – implement plans for one's own professional development	S.I.B.L5 – compile source information for construction programming, planning, design and for construction administration – develop partial analyses for construction programming, planning and design – estimate the value of implementing a construction and/or investment project/task – improve one's own qualifications and broaden professional competences	S.I.B.L6 – perform administrative functions in construction – cooperate with a client during construction design – implement the procedures for handling complaints and motions from parties to the proceedings, replying and providing explanations, allowing access to case files and cooperating with state inspection authorities – apply the principles of including the BIOZ plan in construction project design documents	S.I.B.L7 – develop functional and spatial programmes and use research on the economic situation in construction to prepare, design and plan an investment task – perform consultancy services in construction – conduct teaching activities in construction design, preparation and planning – ensure effective communication with the investor and contractor during the preparation of a construction investment – implement the principles of consultation and communication with the local community during the spatial planning process	S.I.B.L8 – research the effectiveness and innovation of programmed and planned investment projects/tasks – plan one's own scientific career in the sector – develop the principles of communication between the scientific and the construction market communities – participate in the process of developing legal acts in construction – conduct research on the communication between the participants of the construction investment process
	II. Construction-installation work (jobs)	S.II.B.L2 – apply work safety instructions at a designated work station – communicate as required to perform occupational tasks	S.II.B.L3 – apply the principles of work safety during the performance of construction-installation jobs – apply the principles of communication (verbal and visual) with a team and supervisors at a construction site – adapt one's occupational activities to the need for geographical mobility – increase professional competences and raise/broaden qualifications in construction-installation jobs – raise the level of one's own professional competences through the use of career counselling	S.II.B.L4 – apply the principles of organising the work safety of a team of employees – apply the principles of effective communication at a construction site – plan one's professional career taking into account the need for geographical mobility – assess the economic situation in construction in the context of one's own professional future – plan one's own professional development and make decisions on improving one's qualifications	S.II.B.L5 – develop a BIOZ plan – apply the regulations on suspending construction-installation jobs in the event of danger – take the assessment of the economic situation in construction into account when estimating and planning the costs of work – apply the principles of cooperation and communication relating to the performed and supervised construction-installation jobs with external clients and subcontractors – eliminate the risks in the construction-installation process – conduct workplace training – apply the principles of effectively recruiting employees to perform construction-installation jobs	S.II.B.L6 – perform activities in the area of construction supervision in cooperation with the entities involved in building the construction – introduce work safety management systems in a construction company – apply the principles and methods of recruiting a team of employees to implement a construction investment – plan and organise employee mobility when organising a construction site – enable supervised staff/employees to improve their professional qualifications and increase their competences – transfer knowledge and experiences to colleagues	S.II.B.L7 – use analyses of occupational and geographical mobility in construction in planning and managing a construction project – use construction sector labour market analyses in one's work – conduct didactic activities on performing construction-installation jobs	S.II.B.L8 – develop new methods to research and analyse the economic situation and labour market in construction within the scope of construction-installation jobs – research and improve the forms of effective communication in the implementation of construction-installation jobs – research and implement new forms of cooperation and communication in complex construction projects, including in the international community
	III. Maintaining or improving the technical efficiency of a construction	S.III.B.L2 – use work safety instructions in the vicinity of hazardous substances in construction-installation jobs – use work instructions in the vicinity of gas and electrical installations, ventilation and air conditioning in construction-installation jobs to maintain or improve the technical efficiency of a construction	S.III.B.L3 – prevent the risks of the presence of hazardous substances in constructions and the building materials used during construction work – apply the principles of communication with the manager and users of a renovated construction	S.III.B.L4 – organise the work safety of a team of employees – communicate effectively and negotiate with the manager of a construction – plan to improve the efficiency of a construction and its surroundings	S.III.B.L5 – establish effective modes of communication and negotiation with the owner and manager of a construction within the scope of the construction-installation jobs – organise construction work, taking into account the principles of work safety in the presence of gas, electrical, ventilation and air-conditioning installations, as well as in the vicinity of hazardous substances	S.III.B.L6 – establish cooperation with the owner/manager of a construction when planning construction, installation and maintenance jobs	S.III.B.L7 – implement the principles of administrative oversight to verify that the owners and administrators are properly performing their duties, using the constructions as intended and properly maintaining their technical efficiency – ensure that the property manager conducts mandatory inspections and periodic assessments of the construction, its technical infrastructure and its surroundings – provide expert opinions on the safety of constructions and their adjacent areas, as well as the safety of the persons using them	S.III.B.L8 – promote, in the national and international construction community, the scientific achievements of energy efficiency and environmental protection in the operation of constructions, including their revitalisation and thermal modernisation
	IV. Construction demolition and use of remaining building materials	S.IV.B.L2 – comply with work safety instructions at a construction demolition site – apply the principles of communication during construction demolition	S.IV.B.L3 – apply safety regulations during construction demolition – use the signs and signals of the construction demolition process	S.IV.B.L4 – apply the principles of organising the work safety of a team of employees during construction demolition – organise the communication system of a team during construction demolition	S.IV.B.L5 – organise the internal communication of a team during construction demolition	S.IV.B.L6 – assess the risk associated with construction demolition – ensure the safety of the jobs being performed in construction demolition	S.IV.B.L7 – apply the principles of conducting investigations on the causes of a construction disaster – promote the effective, environmentally-friendly use of the building materials remaining after construction demolition	S.IV.B.L8 – study and develop methods of conducting investigations explaining the causes of a construction disaster – study and implement new, environmentally-friendly solutions for the use of the building materials remaining after construction demolition

B

Business, communication, security, professional development and mobility SKILLS

B. Business, communication, security, professional development and mobility (continued)

	SECTORAL DETERMINANTS	LEVEL 2 IS READY TO:	LEVEL 3 IS READY TO:	LEVEL 4 IS READY TO:	LEVEL 5 IS READY TO:	LEVEL 6 IS READY TO:	LEVEL 7 IS READY TO:	LEVEL 8 IS READY TO:
SOCIAL COMPETENCE	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	C.I.B.L2 – not applicable	C.I.B.L3 – not applicable	C.I.B.L4 – maintain proper relations and communication with the client commissioning laboratory tests, such as, among others on soil boreholes and building materials – take responsibility for the safety of the occupational tasks performed and the work station	C.I.B.L5 – comply with prevailing rules of conduct in construction guaranteeing the proper quality of the investment process in construction programming, planning and design – take into account the economic and social aspects of construction investments in construction programming, planning and design	C.I.B.L6 – take into account the economic situation in construction design – comply with the professional code of ethics during construction programming, planning and designing – maintain constructive interpersonal relations in the design team	C.I.B.L7 – take into account the long-term economic outlook in spatial planning – promote the principles of the professional code of ethics in construction design – promote energy-saving construction solutions	C.I.B.L8 – promote high ethical standards in the research community in the domestic and international construction industry – take into account the public interest when conducting scientific research – promote the development of close relationships between the communities of scientific researchers, designers and planners
	II. Construction-installation work (jobs)	C.II.B.L2 – act in accordance with OHS instructions and the instructions of supervisors when performing occupational tasks – establish the relationships required to perform tasks at a construction site	C.II.B.L3 – maintain communication with co-workers and supervisors when performing occupational tasks – take into account the needs of one's own geographical mobility and its related stress in the construction-installation process – act in accordance with the basic code of ethics of the construction industry – predict and assess one's own activities at a construction site in the context of team work and take responsibility for this – comply with OHS regulations when performing construction-installation jobs	C.II.B.L4 – act in a loyal manner with subordinate employees and supervisors at a construction site – take into account occupational and geographical mobility as a permanent element of construction work – take responsibility for one's own work safety and that of a subordinate team of employees – maintain communication with both one's own and other teams at a construction site	C.II.B.L5 – take responsibility for safety and health protection at a construction site – be aware of the relationship between workmanship quality and the costs of construction-installation jobs – initiate collective activities with employees to ensure work safety (self-control and OHS implementation)	C.II.B.L6 – take responsibility for construction work safety and the employees involved in its implementation – take into account stress-generating factors in the organisation of construction-installation jobs – promote the engineer's code of ethics in the workplace and apply it when communicating with the investor and co-workers	C.II.B.L7 – strive to ensure balance between the costs of the work and construction sustainability requirements – promote energy-saving solutions in construction – promote lifelong learning in the construction industry	C.II.B.L8 – share knowledge and experiences with young research teams in construction – take into account public needs in scientific research and its results – promote the social functions of construction and its role in socio-economic development
	III. Maintaining or improving the technical efficiency of a construction	C.III.B.L2 – act in accordance with work safety instructions in the presence of hazardous substances as well as gas and electrical installations	C.III.B.L3 – maintain communication and proper relationships with the client and users of a renovated/maintained construction – limit the difficulties encountered by users of a construction during construction-installation jobs	C.III.B.L4 – take into account the effects of one's own and the team's activities on the comfort of the functioning of a construction's users – maintain proper relations with the manager of a construction during negotiations and arrangements regarding the scope of the work	C.III.B.L5 – maintain an assertive relationship with the manager of the renovated construction – include the needs of users in the BIOZ plan for the renovation or revitalisation of a construction	C.III.B.L6 – negotiate with the manager of a construction in a professional, ethical manner	C.III.B.L7 – promote energy-saving solutions during the renovation and conversion of existing constructions	C.III.B.L8 – develop new solutions to improve the comfort of using constructions – shape the culture of revitalising housing resources and industrial and post-industrial facilities to improve real estate standards
	IV. Construction demolition and use of remaining building materials	C.IV.B.L2 – act in accordance with work safety instructions in construction demolition	C.IV.B.L3 – comply with OHS regulations on construction demolition – concentrate and manage the stress-related factors resulting from the dangers of using explosives in construction demolition	C.IV.B.L4 – take responsibility for environmentally-friendly activities in construction demolition and promote attitudes in support of environmental protection – manage the stress of taking responsibility for one's own and the team's work safety	C.IV.B.L5 – promote environmentally-friendly activities in the process of construction demolition	C.IV.B.L6 – act to limit stress-related factors associated with construction demolition	C.IV.B.L7 – promote environmentally-friendly activities in the construction industry regarding the material remaining after construction demolition	C.IV.B.L8 – shape an environmentally-friendly culture in the international community regarding dismantled building resources

B

Business, communication, security,
professional development and mobility
SOCIAL COMPETENCE

C. Technical means, building materials and technologies used in the construction investment process

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
KNOWLEDGE		KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:
	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	K.I.C.L2 – not applicable	K.I.C.L3 – not applicable	K.I.C.L4 – the principles of assembling, preparing, controlling, adjusting and maintaining laboratory equipment and devices to test building materials – the principles of testing the physical, chemical and mechanical properties of building materials and their durability – the principles of using hardware and software to perform design work	K.I.C.L5 – not applicable	K.I.C.L6 – the Construction Law, the Construction Products Act and other regulations required to programme, plan, design and issue decisions on undertaking a construction investment – the properties of building materials and norms used in construction project design – the principles of planning construction-installation jobs in construction demolition and managing the work of using explosives – design norms in the use of building materials – the principles of using hardware and software for autonomous design work	K.I.C.L7 – the principles of developing a programme for construction projects incorporating qualitative and spatial functions and taking into account innovative building materials and technologies – the theoretical foundations of using advanced and innovative technologies and building materials – the principles of developing proposals for construction projects (constructions, sanitary installations, electrical installations, technology, principles of the order of building installations, preparation, inspection, regulation and maintenance of laboratory equipment and devices for testing building materials, acoustics) and the principles of their implementation in a planned construction project	K.I.C.L8 – the directions and trends of scientific developments in building materials and the technologies for their use – the directions of developments in the technical sciences in designing construction equipment – the directions of developments in intelligent tools for construction programming, planning and design – the achievements of the international scientific community in materials science for the construction industry
	II. Construction-installation work (jobs)	K.II.C.L2 – the instructions and procedures for the safe performance of simple construction-installation jobs – the principles of using simple construction tools – the instructions for safe mobility at a construction site – the basic features of the building materials used	K.II.C.L3 – the regulations on safely performing construction-installation jobs, servicing tools, equipment and working in the vicinity of heavy equipment – the properties of the building materials used in one's construction-installation work – the principles of organising the transportation of building materials and prefabricated elements at construction and storage sites – the principles of selecting the proper tools and equipment for construction-installation jobs – the principles of servicing, using and storing the tools, power tools and equipment required to perform tasks – the principles of analysing the documentation on the construction work to determine the types of building materials needed – the principles of measuring and operating the measuring tools used at a construction site – the principles of choosing technologies for construction-installation jobs	K.II.C.L4 – the principles of sampling building materials for testing and preparing the relevant documentation – the properties of building materials and their proper use – the principles of organising a building materials field laboratory – the principles of organising the production of semi-manufactured building materials at a construction site – the principles of choosing the optimal technologies for construction-installation jobs – the principles of organising a storage area for building materials at a construction site	K.II.C.L5 – the Construction Law, Construction Products Act and other regulations required to perform construction-installation work (jobs) – the regulations on recording and documenting the use of machines in construction-installation jobs – the regulations on a limited scope of building entitlements – the regulations on preparing a BIOZ plan – the regulations on organising construction-installation jobs – the norms of building materials – the regulations and principles of using transportation during construction-installation jobs	K.II.C.L6 – the regulations on maintaining construction documentation on the use of equipment and building materials – the technologies used in building constructions – the regulations on construction entitlements – the principles of using innovative building materials – the norms of working with heavy construction equipment – the principles of organising the transportation of building materials at a construction site	K.II.C.L7 – the principles of using construction machinery in the context of organising and executing a complex construction project – the methods of using innovative building materials – the construction technologies used in implementing complex construction projects (including line investments)	K.II.C.L8 – the principles of developing legal acts for the construction industry – international scientific achievements in organising construction-installation jobs and new construction technologies – research results on using innovative building materials – the results of research and the implementation of solutions in construction logistics
	III. Maintaining or improving the technical efficiency of a construction	K.III.C.L2 – the instructions and procedures for the safe performance of simple construction-installation jobs – the instructions for working in the vicinity of electrical and gas installations	K.III.C.L3 – the principles of selecting and calculating the quantity of building materials, selecting the tools and equipment needed to execute and repair construction installations and structures – the principles of repairing construction installations and structures – the instructions for working in the presence of asbestos	K.III.C.L4 – the principles of maintaining the documentation for renovation and maintenance work – the principles of choosing the optimal technologies for construction-installation jobs	K.III.C.L5 – the durability norms of insulation products, construction installations and structures – the regulations on organising asbestos removal in a construction	K.III.C.L6 – the regulations on real estate management – the methods and regulations on improving the energy performance of a construction – the technologies of conducting comprehensive renovation work and the jobs involved in changing the construction of existing facilities	K.III.C.L7 – the methods of revitalising degraded areas around a construction being built – the new technologies of renovating constructions, including the methods of improving their energy efficiency – the use of new construction insulation materials – the new technological solutions of replacing construction installations	K.III.C.L8 – the directions of developments in research on sustainable construction – the results of research and implementation in revitalising old housing resources and industrial facilities
	IV. Construction demolition and use of remaining building materials	K.IV.C.L2 – the principles and instructions for safely performing simple construction-installation jobs in construction demolition – the instructions for sorting the building materials remaining after construction demolition	K.IV.C.L3 – the norms and regulations of work safety in construction demolition – the regulations and norms of work safety in construction demolition with the use of explosives – the basic principles of using the building materials remaining after construction demolition – the principles of determining the order of dismantling construction components in accordance with the technical and design documentation	K.IV.C.L4 – the regulations on organising the work of construction demolition – the regulations and norms on organising the work of construction demolition with the use of explosives – the principles of organising a storage site for the building materials obtained from construction demolition – the technologies of construction-installation jobs in construction demolition – the technologies of using and recycling building materials remaining after construction demolition	K.IV.C.L5 – the regulations and norms on using explosives in construction demolition – the principles of using heavy equipment for construction demolition	K.IV.C.L6 – the technologies used in complex demolition jobs – the principles and methods of performing construction-installation jobs in construction demolition with the use of explosives	K.IV.C.L7 – the principles and technologies of demolishing large constructions – land reclamation technologies after the demolition of a construction	K.IV.C.L8 – the results of scientific research and implementation in the field of recycling building materials – research results on land reclamation technologies after the demolition of constructions

C

Technical means, building materials and technologies used in the construction investment process

KNOWLEDGE

C. Technical means, building materials and technologies used in the construction investment process (continued)

SKILLS

SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:
I. Programming, planning, designing and issuing decisions on undertaking a construction investment	S.I.C.L2 – not applicable	S.I.C.L3 – not applicable	S.I.C.L4 – prepare and operate instruments and devices for testing building materials as well as check and regulate their operation – maintain laboratory devices and equipment – perform scheduled tests of the physical, chemical and mechanical properties as well as the durability of building materials – use hardware and software to perform design work	S.I.C.L5 – not applicable	S.I.C.L6 – advise on the technical aspects of building materials and new technologies in construction – design a construction in accordance with the Construction Law and the regulations and norms for building materials – use hardware and software to autonomously perform design work – check the formalities of a construction project, i.e. compliance with prevailing applicable legal regulations – plan the protection of neighbouring constructions during the use of building materials and equipment	S.I.C.L7 – test the physical, chemical and mechanical properties as well as the durability of building materials – design constructions using new technologies – design a demolition process taking into account the distribution of the structure's mass, predicted behaviour of the demolished construction and the construction technologies used at different times	S.I.C.L8 – conduct research on the application of new tools, devices and equipment in construction – develop and implement new technologies for designing construction projects
II. Construction-installation work (jobs)	S.II.C.L2 – safely perform simple construction jobs using simple mechanical tools under supervision – operate not very complicated construction equipment under supervision – safely perform occupational tasks at a construction site in the vicinity of the heavy equipment being used	S.II.C.L3 – organise one's own work station, choose the building materials, tools and equipment to perform construction-installation jobs in accordance with OHS, fire protection, ergonomics and environmental protection regulations – assess the properties of the building materials used for the tasks being performed in construction-installation jobs – transport building materials and prefabricated elements at a construction site – service, operate, maintain and store tools, power tools and the equipment needed to perform occupational tasks – analyse construction work documentation to determine the types of building materials needed – perform measurements and operate the measuring tools used at a construction site – perform construction jobs in accordance with the adopted technology	S.II.C.L4 – apply the principles of sampling building materials for testing and preparing the relevant documentation – assess the properties of the building materials available for the work at the construction site and use them correctly – organise the work of a building materials field laboratory – organise the production of semi-manufactured building materials at a construction site – choose the optimal technology to perform construction-installation jobs – maintain the documentation of the building materials used in ongoing jobs	S.II.C.L5 – prepare a BIOZ plan for the use of heavy equipment – maintain the documentation of the building materials used in construction-installation jobs	S.II.C.L6 – maintain the documentation of the building materials and heavy equipment used in accordance with prevailing regulations – approve the plan for organising the transportation of building materials at a construction site – perform construction using complex technical means (equipment and machines)	S.II.C.L7 – introduce new organisational solutions for the use of building materials and heavy construction equipment – use energy-saving technologies in building a construction	S.II.C.L8 – develop new, energy-saving technologies for construction-installation jobs – introduce the use of innovative building materials in one's work – conduct research on new solutions relating to the equipment used in construction-installation jobs
III. Maintaining or improving the technical efficiency of a construction	S.III.C.L2 – safely perform simple maintenance jobs using simple tools under supervision – safely perform occupational tasks in the vicinity of electrical and gas installations under supervision	S.III.C.L3 – organise one's own work station, choose the tools and equipment needed to renovate constructions and repair construction installations in accordance with the regulations on OHS, fire protection, ergonomics and environmental protection – select and calculate the amount of building materials needed to renovate and repair installations and constructions – repair construction installations and renovate constructions in accordance with the adopted technology	S.III.C.L4 – maintain documentation on the building materials used in renovation and maintenance work – organise the building materials and equipment needed to perform specific construction-installation jobs – supervise the process of using equipment for construction-installation jobs – choose the optimal technology for construction-installation jobs	S.III.C.L5 – determine the technology for construction-installation jobs in accordance with prevailing regulations – organise and coordinate the transportation of building materials needed for construction renovation and conversion in accordance with one's entitlements – agree on the type of products to use in construction jobs with the manager of the construction	S.III.C.L6 – organise and supervise complex construction jobs to renovate, convert and modify a construction in accordance with one's entitlements – choose the technologies for complex construction-installation jobs and the conversion/expansion of a construction	S.III.C.L7 – implement comprehensive plans for construction renovation using innovative building materials – implement energy-saving technologies during construction renovation	S.III.C.L8 – conduct research on new energy-saving technologies for existing constructions – develop new technologies for renovating and replacing installations in constructions
IV. Construction demolition and use of remaining building materials	S.IV.C.L2 – follow instructions to safely perform simple construction-installation jobs in construction demolition – sort the building materials remaining after construction demolition in accordance with instructions	S.IV.C.L3 – organise one's own work station, choose the tools and equipment needed for construction demolition in accordance with the regulations on OHS, fire protection, ergonomics and environmental protection – apply the norms and regulations for the safe use of tools and equipment in construction demolition – apply work safety regulations in the vicinity of heavy demolition equipment – apply the regulations and norms of work safety in construction demolition with the use of explosives – apply the principles of selecting, storing and using the building materials remaining after construction demolition – apply the correct order of dismantling construction components in accordance with the technical and design documentation	S.IV.C.L4 – organise the work of heavy equipment in construction demolition – organise the work of a team of employees in construction demolition with the use of explosives – organise a storage site for the building materials obtained from construction demolition – as part of demolition work, supervise and organise the recycling of debris and other recovered building materials for construction aggregate	S.IV.C.L5 – organise the machinery and equipment intended for construction demolition – organise the work of construction demolition with the use of explosives – organise the work of heavy equipment in construction demolition	S.IV.C.L6 – prepare a BIOZ plan for construction demolition with the use of explosives – coordinate and supervise, in accordance with one's entitlements, the demolition process using various methods – use the necessary building materials and equipment to limit or eliminate vibrations, dust, excessive noise, etc. to ensure the safety of neighbouring buildings .	S.IV.C.L7 – modify the construction demolition plan – develop optimal demolition methods for such constructions as buildings, bridges, viaducts, chimneys and other facilities	S.IV.C.L8 – conduct scientific research and develop new technologies in the field of recycling building materials – conduct research on reclamation technologies at post-demolition sites

C

Technical means, building materials and technologies used in the construction investment process

SKILLS

C. Technical means, building materials and technologies used in the construction investment process (continued)

	SECTORAL DETERMINANTS	LEVEL 2 IS READY TO:	LEVEL 3 IS READY TO:	LEVEL 4 IS READY TO:	LEVEL 5 IS READY TO:	LEVEL 6 IS READY TO:	LEVEL 7 IS READY TO:	LEVEL 8 IS READY TO:
SOCIAL COMPETENCE	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	C.I.C.L2 – not applicable	C.I.C.L3 – not applicable	C.I.C.L4 – control the quality of one's own laboratory test work – comply with the principles of cooperation with a laboratory team – communicate with superiors and clients within the scope of one's professional competences	C.I.C.L5 – not applicable	C.I.C.L6 – use programming, planning and design tools in accordance with the professional code of ethics – promote the culture of quality and efficiency in the use of building materials in the design phase	C.I.C.L7 – comply with the copyright of new design and technological solutions – use advanced communication techniques in the area of design – promote intelligent design tools	C.I.C.L8 – act in national and international forums to introduce regulations ensuring quality and environmentally-friendly building materials – promote the concept of revitalising housing resources using new technologies
	II. Construction-installation work (jobs)	C.II.C.L2 – diligently follow instructions and the orders of supervisors on the use of tools – communicate with the supervisor about the use of tools and building materials – follow orders relating to work safety in the vicinity of heavy construction equipment	C.II.C.L3 – ensure the good condition of the tools and equipment used – use the provided building materials in a rational and cost-effective manner – respond in the event of irregularities and effectively communicate with supervisors about the tools, equipment and building materials used – predict the danger of working in the vicinity of heavy construction equipment	C.II.C.L4 – ensure that a subordinate team of employees maintains tools and equipment in good working order – take responsibility for the cost-effective use of building materials by a subordinate team of employees – communicate with a subordinate team of employees and supervisors about the use of equipment and building materials – ensure the quality of the building materials used – comply with the quality requirements resulting from the technological character of the work	C.II.C.L5 – comply with the principles guaranteeing the optimal use of tools, equipment and machines by employees during construction-installation jobs – provide high quality building materials for construction jobs – take responsibility for the work of heavy equipment during construction-installation jobs – comply with the principles of the rational management of transportation	C.II.C.L6 – take responsibility for the safety and coordination of the work of equipment, transportation and machines during construction – promote a high culture of organisation and work in the use of advanced construction equipment and machines – disseminate knowledge on the proper use of equipment and machines – promote the cost-effective use of building materials	C.II.C.L7 – enforce OHS rules when operating equipment and machinery by developing OHS management systems – promote the rational use of building materials as an element of professional ethics – promote a culture of quality in the use of building materials	C.II.C.L8 – develop a research environment oriented towards the effects of implementing new technologies and materials science in construction – develop prospective visions of the development of construction technologies
	III. Maintaining or improving the technical efficiency of a construction	C.III.C.L2 – avoid the dangers of the hazardous substances occurring in renovation and maintenance work	C.III.C.L3 – communicate with the construction manager on the technology and building materials used in the work – maintain proper relations and communication with the users of a construction about the operation of equipment during renovation and maintenance work	C.III.C.L4 – agree on the technologies and building materials used in the work with the construction manager – ensure the rational use of building materials intended for the renovation and maintenance work performed by a subordinate team	C.III.C.L5 – reduce the inconveniences for the users of a construction resulting from the equipment and machinery employed during its renovation – reduce the negative impact of hazardous substances on co-workers and the users of a renovated construction	C.III.C.L6 – adjust the schedule of machine and equipment work to enable the users of the renovated construction to function	C.III.C.L7 – promote and advance the use of high quality building materials for construction renovation in the professional community	C.III.C.L8 – promote the development of research on energy efficiency in construction maintenance – develop a scientific and/or social community to act on behalf of environmentally-friendly and energy-saving changes in the construction industry
	IV. Construction demolition and use of remaining building materials	C.IV.C.L2 – follow the instructions of supervisors when working in construction demolition in the vicinity of the demolition equipment being used – diligently execute the instructions received on sorting waste after construction demolition	C.IV.C.L3 – act in accordance with the regulations and norms on the use of demolition equipment – be particularly careful when working with explosives	C.IV.C.L4 – take responsibility for a team of employees performing work with the use of explosives – take responsibility for safety when heavy equipment is used to perform construction-installation jobs during construction demolition	C.IV.C.L5 – promote compliance with OHS regulations in a team of subordinate employees during work using equipment and machines for demolition – ensure that norms are applied in construction demolition with the use of explosives	C.IV.C.L6 – promote the principles of work safety in construction demolition with the use of explosives	C.IV.C.L7 – promote environmentally-friendly solutions in the use of building materials from construction demolition	C.IV.C.L8 – develop plans to rationally use old construction resources – promote environmentally-friendly technologies in the reclamation of post-industrial areas

C

Technical means, building materials and technologies used in the construction investment process

SOCIAL COMPETENCE

D. Development trends and innovative technologies in construction

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
KNOWLEDGE		KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:	KNOWS AND UNDERSTANDS:
	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	K.I.D.L2 – not applicable	K.I.D.L3 – not applicable	K.I.D.L4 – the principles of ergonomics and regulations on OHS, fire protection and environmental protection in construction – the legal framework of issuing decisions on undertaking a construction investment – the principles of organising the work of an innovative construction company – the principles of sustainable development in construction	K.I.D.L5 – the principles and forms of planning construction projects/ investments – the principles of strategic planning – the organisational culture of a construction company	K.I.D.L6 – the organisation and activities of entities in the construction market in relation to the size of an investment – the strategic plan of a construction project and methods of its development – measures and indicators of assessing construction development strategies – the principles of determining the geotechnical conditions for construction foundations – prevailing technical and construction regulations – the principles of certifying constructions – design principles using the techniques of three-dimensional building information modelling (BIM)	K.I.D.L7 – the methods of analysing the organisational efficiency of a construction process – human resource development programmes in the construction industry – the operational risks and problems in determining the correct cost of a construction investment	K.I.D.L8 – advanced methods of designing work processes in construction companies
	II. Construction-installation work (jobs)	K.II.D.L2 – not applicable	K.II.D.L3 – not applicable	K.II.D.L4 – innovative methods and technologies in construction-installation work – the principles of using and servicing typical and specialised tools and equipment at construction-installation job sites – the justification for introducing changes in the organisation of construction-installation jobs – the regulations, principles and methods of properly performing and commissioning construction-installation jobs	K.II.D.L5 – the quality management system and its main components – the principles used in the quality management of construction-installation services – the characteristics of the resources in the work systems of construction companies	K.II.D.L6 – the methods of planning processes and tasks in construction practice – quality assurance systems for construction-installation jobs, as well as installation work – the regulations and principles of preparing a construction area – the principles of managing a team that is implementing a construction project	K.II.D.L7 – the principles and methods of monitoring construction-installation jobs with the use of information technology – advanced methods and tools for designing intelligent constructions	K.II.D.L8 – advanced methods of analysing the efficiency of the work organisation in a construction company – construction and the use of modern machines and equipment minimising energy and labour consumption and increasing work safety in the construction process
	III. Maintaining or improving the technical efficiency of a construction	K.III.D.L2 – not applicable	K.III.D.L3 – not applicable	K.III.D.L4 – the applicable regulations and principles of using and operating a construction – the need to apply new technologies to increase the energy efficiency of constructions – the significance of supporting work to thermo-modernise and renovate constructions	K.III.D.L5 – the principles and methods of testing products used in construction and documenting the performed tests	K.III.D.L6 – IT programs and tools developed for the construction industry – the principles of ensuring that the architectural and building solutions comply with technical and construction regulations – the principles and methods of conduct when investigating the causes and circumstances of construction disasters	K.III.D.L7 – the methods of the energy and environmental verification of constructions – the integrated approach to construction management systems – the principles and possibilities of using environmentally-friendly techniques, technologies and building materials – the new technologies increasing the technical and energy efficiency of constructions	K.III.D.L8 – waste-free and low-waste technologies used to reduce the costs of construction projects – the investment and operational support system for solutions that increase the energy efficiency of constructions
	IV. Construction demolition and use of remaining building materials	K.IV.D.L2 – not applicable	K.IV.D.L3 – not applicable	K.IV.D.L4 – the basic principles of construction waste management – applicable regulations, principles and typical methods of construction demolition – recycling technologies for the building materials obtained from construction demolition	K.IV.D.L5 – the principles and methods of monitoring and controlling the construction demolition process	K.IV.D.L6 – the principles and methods of the qualitative and quantitative assessment of construction waste	K.IV.D.L7 – the technologies of re-using building materials, structural elements and insulation (recovery and recycling) in construction	K.IV.D.L8 – the methods and techniques of conducting research and development work to commercialise innovative technologies for recycling building materials

D

Development trends and innovative technologies in construction
KNOWLEDGE

D. Development trends and innovative technologies in construction (continued)

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
		IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:	IS ABLE TO:
SKILLS	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	S.I.D.L2 – not applicable	S.I.D.L3 – not applicable	S.I.D.L4 – organise one's own work station in accordance with the principles of ergonomics and regulations on OHS, fire protection and environmental protection – apply the principles of sustainable development in construction practice – use innovative construction technologies	S.I.D.L5 – identify the risks in construction projects – think logically, creatively plan and organise the work of making construction investment decisions	S.I.D.L6 – solve the non-routine problems of organisational units working in an innovative construction process – follow and analyse the development trends of the construction industry – analyse and implement the provisions of a construction company's strategic documents – analyse and implement highly effective alternative systems of energy and heat supply – manage communication processes with the stakeholders of a construction investment – provide data for making urban planning, construction and business decisions – prepare an offer and cost estimate of construction work – prepare tender documentation for the services/jobs of a construction investment	S.I.D.L7 – use strategic planning methods for construction investments – develop a plan, schedule and cost estimate for a construction investment – describe the methods of determining a client's needs and expectations in order to plan a construction investment – cooperate with the R&D&I sector of the construction industry – develop functional and spatial programmes and plans for building, expanding and improving constructions – develop a feasibility study for construction projects – develop employee resource development programmes for the construction industry – conduct research and design work in construction organisation, techniques and technologies	S.I.D.L8 – interpret the barriers to the development of the construction industry – develop forecasts for the development of the construction industry – conduct research to develop new and/or improve existing theories and methodologies that support construction – assess the effectiveness of programming, planning and designing construction investments – conduct information and education campaigns promoting sustainable development in construction – conduct scientific and research work in spatial management – undertake innovative management and organisational activities in programming, planning, and designing construction investments – manage construction projects using new trends in construction – solve the complex problems of innovative construction projects – solve the logistical problems of large construction projects – cooperate with programmers in developing new programs and IT tools for the construction industry
	II. Construction-installation work (jobs)	S.II.D.L2 – not applicable	S.II.D.L3 – not applicable	S.II.D.L4 – use the organisational structure of a construction company in performing professional tasks – use new tools, methods and technologies in construction-installation jobs – verify the quality of construction-installation jobs	S.II.D.L5 – communicate with co-workers in the implementation of innovative technologies in construction – autonomously organise safe and creative work stations for subordinate personnel	S.II.D.L6 – assess one's role and position in planning and implementing the strategy of an innovative construction company – apply the principles of quality and innovative management in order to raise the level of construction services – supervise the achievement of unconventional goals in the implementation of innovative construction projects – calculate the efficiency and productivity of construction services	S.II.D.L7 – manage construction-installation jobs in non-routine situations – have non-routine material resources (tools, equipment, building materials) available, needed for the implementation of an innovative construction project – plan and manage the course of construction-installation work in an innovative manner – plan the development of the workplace one manages in accordance with the strategy of an innovative construction company – organise the process of implementing new construction technologies – analyse and streamline logistical processes at a construction site – develop and improve employees' professional competences needed to implement an innovative construction project	S.II.D.L8 – solve complex, innovative technical and technological problems in the investment process – design a system for monitoring and documenting the progress of construction-installation work – advise investors on new development trends in construction
	III. Maintaining or improving the technical efficiency of a construction	S.III.D.L2 – not applicable	S.III.D.L3 – not applicable	S.III.D.L4 – use innovative tools, methods and technologies to improve the technical efficiency of a construction – monitor and control the technical condition of constructions using traditional and modern methods	S.III.D.L5 – plan and prepare schedules for the maintenance and oversight of constructions – manage a team of specialists responsible for maintaining the technical efficiency of constructions	S.III.D.L6 – participate in implementing IT solutions to support construction investments – locate and remove the structural and implementation flaws of a construction – participate in organising information and promotional campaigns for the development of energy-efficient constructions	S.III.D.L7 – manage innovative projects to improve the technical efficiency of constructions	S.III.D.L8 – conduct scientific and research work on new solutions and technologies for the use of energy and raw materials – develop zero waste and low-waste technologies resulting in lower construction investment costs
	IV. Construction demolition and use of remaining building materials	S.IV.D.L2 – not applicable	S.IV.D.L3 – not applicable	S.IV.D.L4 – organise and supervise the work of a small construction demolition team – secure building and non-building materials from a demolished construction as required by construction waste management regulations	S.IV.D.L5 – apply the principles of ergonomics and the regulations of OHS, fire protection, environmental protection and intellectual property rights	S.IV.D.L6 – supervise construction demolition using ICT resources	S.IV.D.L7 – choose the optimal methods for construction demolition	S.IV.D.L8 – conduct research and develop new or improve existing technologies and methods for construction demolition

D

Development trends and innovative technologies in construction
SKILLS

D. Development trends and innovative technologies in construction (continued)

	SECTORAL DETERMINANTS	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
		IS READY TO:	IS READY TO:	IS READY TO:	IS READY TO:	IS READY TO:	IS READY TO:	IS READY TO:
SOCIAL COMPETENCE	I. Programming, planning, designing and issuing decisions on undertaking a construction investment	C.I.D.L2 – not applicable	C.I.D.L3 – not applicable	C.I.D.L4 – undertake innovative activities in accordance with the code of ethics of the construction industry – cooperate in a team to plan innovative construction projects	C.I.D.L5 – achieve the innovative results anticipated in tender documents, work plans and schedules – build the trust of internal and external customers in the implementation of innovative construction projects	C.I.D.L6 – conduct activities in accordance with the guidelines on ethics and sustainable development – autonomously analyse labour costs in the implementation of non-routine construction projects – present unconventional and creative opinions in the work environment	C.I.D.L7 – think in an analytical, synthetic and creative manner – achieve designated goals with the appropriate use of human capital in the work environment – autonomously coordinate innovative building programmes, plans and projects – exert a positive and creative influence on the innovativeness of employees and investors	C.I.D.L8 – manage change during the implementation of construction innovations – maintain professional contacts and consult with specialists from other fields, significant in developing building materials and technologies
	II. Construction-installation work (jobs)	C.II.D.L2 – not applicable	C.II.D.L3 – not applicable	C.II.D.L4 – cooperate and build trust in a small construction team in the implementation of innovative construction projects – work in a team aimed at the safe and effective performance of innovative construction-installation jobs	C.II.D.L5 – take responsibility for the creative management of the work of subordinate personnel – take responsibility for the creative results of work and for health, safety and environmental protection in the implementation of innovative construction projects	C.II.D.L6 – demonstrate a high degree of innovation and creativity in the construction community – issue orders and ensure their enforcement in the implementation of innovative construction-installation work	C.II.D.L7 – take responsibility for the course and results of implemented construction innovations	C.II.D.L8 – promote and improve innovation-friendly activities in a construction company – provide effective and innovative professional development programmes for employees in the construction industry
	III. Maintaining or improving the technical efficiency of a construction	C.III.D.L2 – not applicable	C.III.D.L3 – not applicable	C.III.D.L4 – take responsibility for maintaining innovative constructions in proper technical condition	C.III.D.L5 – comply with the norms, principles and applicable legal regulations when implementing innovative solutions for maintaining or improving the technical efficiency of constructions – initiate the implementation of organisational and technological innovations that improve the technical efficiency of a construction	C.III.D.L6 – determine the innovative tasks to be implemented to maintain or improve the technical efficiency of a construction – propose solutions to improve the technical and energy efficiency of a construction	C.III.D.L7 – make autonomous decisions on implementing organisational and technological innovations to improve the technical efficiency of a construction	C.III.D.L8 – perform effective negotiation, mediation, advising and consulting on introducing innovations to maintain or improve the technical efficiency of a construction
	IV. Construction demolition and use of remaining building materials	C.IV.D.L2 – not applicable	C.IV.D.L3 – not applicable	C.IV.D.L4 – make autonomous decisions on the use of non-routine methods of construction demolition – propose improvements in the work of construction demolition	C.IV.D.L5 – autonomously undertake innovative solutions in construction demolition – comply with the legal regulations and rules of safety when using innovative methods of construction demolition	C.IV.D.L6 – prevent conflicts in a team implementing innovative methods of construction demolition – predict what may go wrong when team members implement innovative methods of construction demolition	C.IV.D.L7 – effectively enforce the diligence of subordinates when using innovative methods of construction demolition – systematically improve professional competences in the use of innovative methods of construction demolition	C.IV.D.L8 – take professional risks requiring emotional resilience when using innovative methods of construction demolition

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Development trends and innovative technologies in construction
SOCIAL COMPETENCE

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