CONSTRUCTION BLUEPRINT SECTORAL STRATEGIC APPROACH TO COOPERATE ON SKILLS IN THE CONSTRUCTION INDUSTRY

WP5. Identification of occupations and professional profiles to be updated

R6.1. National research on the modernisation of the occupational profiles

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COOPERATION FOR INNOVATION AND THE EXCHANGE OF GOOD PRACTICES SECTOR SKILLS ALLIANCES FOR IMPLEMENTING A NEW STRATEGIC APPROACH ("BLUEPRINT") TO SECTORAL COOPERATION ON SKILLS

PROJECT NUMBER:

600885-EPP-1-2018-1-ES-EPPKA2-SSA-B

PARTNERSHIP		
VET PROVIDERS	SECTORAL REPRESENTATIVES	COUNTRY
FLC (COORDINATOR)	CNC	SPAIN
IFAPME	EMBUILD	BELGIUM
SATAEDU	--	FINLAND
CCCA-BTP	FFB	FRANCE
BZB	ZDB	GERMANY
BFW-NRW		
AKMI	PEDMEDE	GREECE
TUS	--	IRELAND
FORMEDIL	ANCE	ITALY
VSRC	LSA	LITHUANIA
CENFIC	--	PORTUGAL
SCKR	CCIS CCBMIS	SLOVENIA
	BUDOWLANI (TRADE UNION)	POLAND
	FIEC	EU
	EFBWW	EU
	EBC	EU

All.Construction

Skills Blueprint for the Construction Industry

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1.0	31/03/2023	The consortium	

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1. Executive summary

The in-depth research at national levels as well as the comparative analysis among the results has allowed the consortium to identify new skills and emerging profiles at national and European levels, in order to address the challenges and developments the construction sectors face; More specifically, this analysis report offers a first mapping and recommendations concerning the:

- Selection of EU profiles as a subject of upskilling strategy
- Presentation of European construction competence frameworks that are relevant to occupational profiles' methodology and procedure
- Correlation of the European occupational profiles to skill demands of each country and in EU in general
- Recommendation of new skills for almost 250 national occupational profiles related to the energy efficiency, circular economy and digitalization
- Identification of new trends that lead to emerging occupational profiles in the construction sector.

2.1 Description of the deliverable

This report focuses on update of European Occupational Profiles in the EU, with a special focus on Blueprint construction countries: Belgium, Finland, France, Germany, Greece, Ireland, Italy, Lithuania, Poland, Portugal, Slovenia, Spain. Except of a series of new skills that could be proven beneficial at national level for the existing occupational profiles available at national qualification frameworks, new emerging occupational profiles are also included.

This deliverable (D5.3) is the one of the 2 outcomes of WP5 – Study on occupational profiles and qualifications (relevant requirements and regulations for the Blueprint), which is aligned with, and a continuation of, the research carried out in WP2 & WP3.

The WP5 deliverables are devised as complementary to one another and aim to offer wide angle pictures of different aspects of the relationship between construction demands and job profiles. Specifically, this report intends to offer a picture of the Construction skills industry and demands at a European level as well as a recommendation for the update of specific European profiles.

2.2 Rationale

Under the Rationale's subsection, the logic for selecting specific BUILD UP skills projects was primarily theoretical on the basis of the WPs results and European research analysis.

A clarification of the terminology that will be used is required. In particular, it is essential for the purposes of this report to define what is intended by the terms: occupation, job, qualification, skill and competence. Based on the above, the following words should be justified and explained further:

- ***An occupation*** is defined as the "set of jobs whose main tasks and duties are characterised by a high degree of similarity" (Cedefop, Glossary of Key terms, 2014).
- ***A job*** is defined as the "set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self-employment" (ISCO)
- ***A skill*** is the ability to carry out the tasks and duties of a given job (ISCO-08) and is more specifically connected to the "ability to apply knowledge and use know-how to complete tasks and solve problems" (Cedefop, Glossary of Key terms, 2014)
- ***A competence*** is the ability to apply learning outcomes adequately in a defined context or to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (ESCO).

The concept of qualification can vary as it includes a wide range of different aspects. As clarified by Cedefop, it can be intended as a formal qualification, which is defined as "the formal outcome (certificate, diploma or title) of an assessment process which is obtained when competent body determines that an individual has achieve learning outcomes to given standards and/or possesses the necessary competence to do a job in a specific area of work. Moreover, the term qualification can be also used to signify a job requirement, meaning in this case the "knowledge, aptitudes and skills required to perform specific tasks attached to a particular work position".

2.2 Methodological note

The research is based on a mixed method approach, since different policy measures and frameworks are applied. In this context, we have used the following tools:

- ***Desk research and analysis*** of ESCO qualifications;
- ***Exploitation of WP2 structured interviews*** and questionnaires;
- ***Use of BUILD UP skills recommendations*** and resources for the identification of skills needs for the energy and circular economy sector;
- ***Organize small interviews*** with national policy stakeholders to give a first validation of the European Occupational Profiles;
- ***Utilization of field research statistics*** of BUILD UP skills projects relevant to energy efficiency, digitalization and circular economy;
- ***Use of WP2 skill needs results*** in view of connecting them with WP5 job profiles;
- ***Use of WP3 research results*** in view of correlating them with WP5 job profiles.
- ***National Reports compareative analyses***

As far as the desk and literature study being conducted, we followed certain steps:

- **Step 1** : Identification of relevant Sectoral Occupations and relevant qualifications. This activity includes an analysis ofthe ESCO, where the European multilingual classification of Skills, Competences, Qualifications and Occupations is available, providing a common wording, classification and description of the occupations that are relevant to the Construction Sector.
- **Step 2**: Revision of qualification standards carried out under the BUILD UP Skills Pillar II initiative. The initiative identified skills gap in the energy and environmental aspects ofthe construction sector, including trainings to selected participants.

- **Step 3**: Validation of findings with Stakeholders and Social Partners ofthe Construction Sector. The results from the identification ofthe relevant occupations according to ESCO classification is going to be consulted with the sectorial partners of our Blueprint partnership.
- **Step 4**: Identification of skills gaps through the use of the latest skills and competence frameworks. The WP Lead Partner is going to present the most recent frameworks regarding Energy Efficiency, Circular Economy and Digitalisation
- **Step 5**: Finalization of findings. Identified areas for upskilling according to the findings of Steps 1 to 3 are going to be recommended
- **Step 6** : Identification of the national catalogue of valid Occupational Profiles and selection ofthe relevant sectoral Occupational Profiles at a national level. The relevant selection of sectoral profiles is going to be finalized after the consultation with the national sectoral stakeholders, who are going to be consulted in round table or face to face meetings
- **Step 7**: The provision of the final Skills and competence gaps analysis at a country level. During this step the partners are going to establish a list of profiles to be updated, while the prioritization of skills/qualifications and competences to be included is also going to be prepared.

Based on the above, the following table was used for Step 1 until Step 5, in view of identifying our sources of information.

Identification of our database (Table 1)		
Database	**Search terms**	**Data range**
European Publications	"construction jobs" , "construction observatory", "occupational profiles in construction", "construction in 2030", "skill needs analysis of construction"	Priority to sources being published in 2018 until today.
Build Up Skills	"European skills", "skill needs analysis", "occupational profiles", "construction statistics"	Priority to papers and reports being published from 2016 until today
European Construction Observatory		
Cedefop/Skills Panorama		
ILO		
Frontiers in build environment		
Circular economy action plan		
The Renovation wave		
The Pact of Skills		

The European Climate Act		
ESCO	"construction", "building", "technicians"	Data vary (2018-2021)
EQF Framework	EQF definitions	Priority being given to data that is updated in the current stage (after 2019)
EntreComp Framework	Definitions of the framework	
DigiComp Framework		

Based on the above, after the conduction of mapping of sources, we have checked the selection of the right and high-quality papers for our research analysis.

Selection of our database (Table 2)		
Database	**Found**	**Being Selected**
European Publications	20	3
Build up skills	50	5
European Construction Observatory	40	10
Cedefop/Skills Panorama	10	4
ILO	30	3
Frontiers in build environment	2	1
Circular economy action plan	1	1
The Renovation wave	1	1
The Pact of Skills	1	1
The European Climate Act	1	1
ESCO	1	1
EQF Framework	1	1
EntreComp Framework	1	1
DigiComp Framework	1	1

Selection of the top reports related to construction roles and job profiles (Table 3)		
Database	**Name of the paper**	**Link (if available)**
European Commission	Priority Sector Report: Construction industry	here
WEF	The Future of Jobs Report 2020	here
European Construction Observatory	Improving the human capital basis	here
Cedefop/Skills Panorama	Construction workers: skills opportunities and challenges (2019 update)	here
Autodesk	FUTURE OF WORK IN CONSTRUCTION	here

After creating our project's database, AKMI and the leader had developed the methodology of mapping the European profiles. In particular, ESCO is utilized as the main source of mapping the

main EU profiles that will be a subject of modernization. AKMI had created an excel file in which it delivered the main aspects of the ESCO procedure, as following:

- The unique code of each occupational profile
- The category that belongs to(prioritization)
- The title of the profile
- The knowledge, skills, qualifications approach

As long as the mapping was finished, AKMI had prepared a field research questionnaire, in view of being utilized by any of the partners to wish to exploit the Task 5.1 to policy stakeholders as well as to use it as a reference questionnaire for the launch of Task 5.2.

Moreover, the methodology being followed was the first validation of the 5.1 by the project's team and any policy stakeholder. In the meantime, bilateral meetings will all the partners have been launched, organizing the work ahead.

2.3 A premise to the construction industry: Vacancy rates, GVA and core skills for 2030

According to Eurostat, one way of measuring the size of the construction sector is through the gross value added (GVA) generated by this economic activity as a share of total GVA. This share was between 5 and 6 % in the EU in the period 2010 to 2020. It was highest at 5.8 % in 2010, falling to 5.1 % in 2014 to 2017 and then increasing again to reach 5.6 % in 2020. Based on this fact, it is undoubtedly true that the Construction sector is on the rise and Job profiles' identification is topical. In detail, among the Member States, the share of GVA in construction fell in 14 Member States between 2010 and 2020, with the largest decreases in Greece, Bulgaria and Spain. Among the Member States with an increasing share of the construction sector during this period, Ireland, Latvia, Denmark, Germany and Hungary showed the highest growth (Eurostat, 2020).

Furthermore, the labour market in Europe is increasingly defined by two general characteristics: At first glance, the demand for labour is skewed towards high-skilled workers with tertiary education. According to the European Centre for the Development of Vocational Training (CEDEFOP) by 2025 about 48% of all job opportunities in Europe will be filled by individuals with tertiary-level qualifications, while 85% of all EU jobs need at least a basic digital skill level (Observatory, 2020). Second, although the employment rate has been rising in recent years, employers have difficulty filling positions with workers who have the right skills, and in turn impedes further investments and business growth (EIB, 2019). This situation largely affects the **European construction sector**. While the sector's talent pool is shrinking with ageing workers retiring and young people reluctant to consider construction as their career choice, it is also correlated to further challenges of adapting and upgrading the skills and abilities of the current working-age labour force.

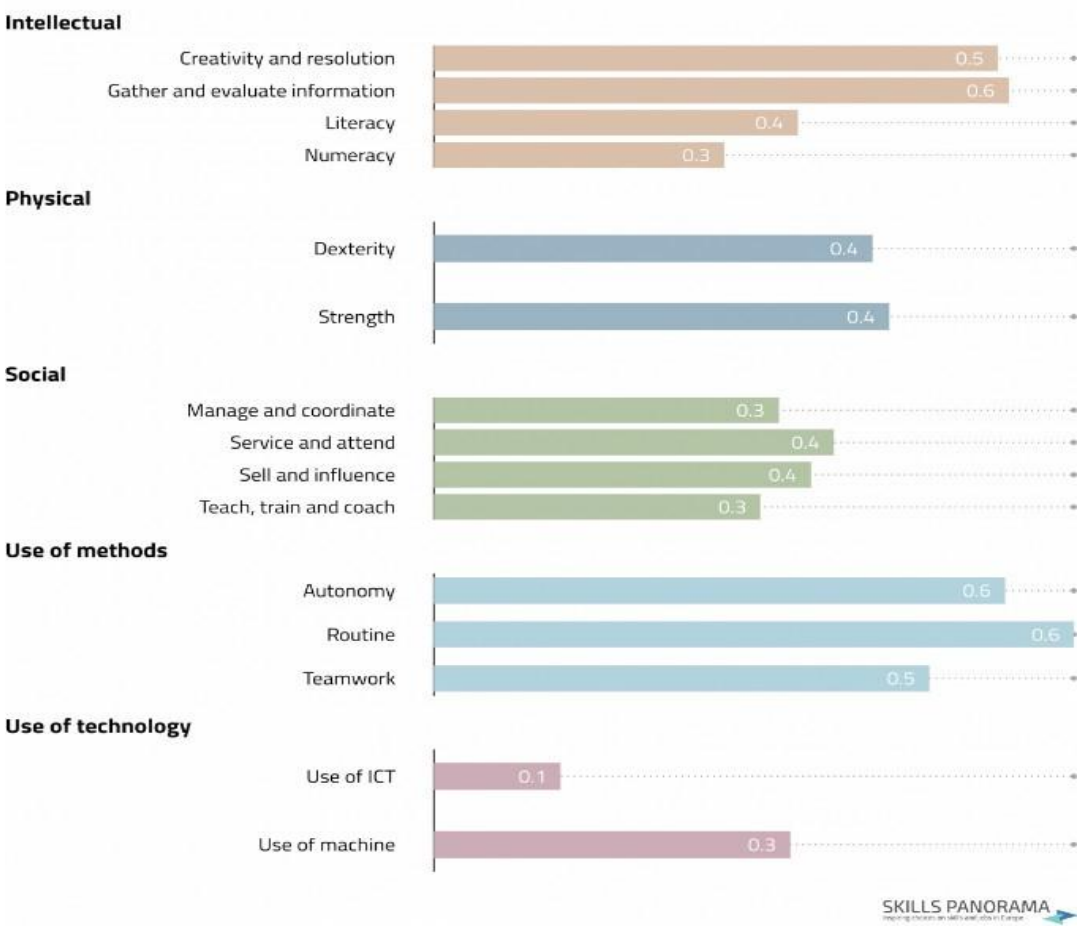
Moreover, while estimates of the share of jobs that could be potentially automated vary, consensus exists that the effects of automation will be massive. Globally, 60% of occupations include over a third of activities, which are automatable24. In the EU, between 37% and 69% of all jobs could be partly automated, affecting up to 60% of workers in Europe by 203025,26. This development is exacerbating the existing skill mismatch, showing that, unless counteracted, the skill gap will only expand in the future.

Moreover, Cedefop (Cedefop, 2019) highlights that around 8.7 million people were employed as construction workers in 2018. Employment in the occupation, following the severe crisis in 2018 fell by ***7.4 percent between 2006 and 2018***. It is a traditional vocational education and training (VET) occupation, which includes a variety of jobs such as housebuilders, carpenters, stonemasons, plasterers, plumbers, painters and floor-layers. Employment in the construction sector is foreseen to grow by 7.6 percent over the period of 2018-2030. In order though to replace those construction workers who will leave the occupation for one reason or another, an estimated 4 million between 2018 and 2030, as well as 4.5 million job openings will need to be filled. Moreover, around two thirds of construction workers in the EU have low to medium level qualifications. Based on this fact, as well as WP2 and WP3 input (seeing later), the Blueprint Construction project is going to focused on ***VET occupational profiles***, covering the gap of knowledge that is already being created. Based on the ECSO analysis (Observatory, 2020), the following construction jobs were on top in 2018:

- Construction workers are 43.2% of the European labour market
- Science and engineering professionals as the 9.5% of the labour market
- Electro engineering workers as the 8.6% of the labour market
- Technical labourers as the 6.3% of the labour market

It is widely accepted that one of the biggest obstacles to the development of the construction sector in the EU is the availability of human capital, both in terms of highly skilled workforce, as well as low skills, which require specific training and competences. While the job vacancies in the sector have grown steeply over recent years, tertiary education and VET have not grown in line with the existing demand. As commented in the previous sections on vacancy rates, skill shortages appear when workers are unable to meet the needs of the labour market despite the high unemployment. However, the level of educational achievement and qualification of the workforce also plays a role in the misallocation of resources and mismatch between the supply and demand of the sectorial workforce. Mismatches could be alleviated by improving the existing skill base, through attracting new people in the workforce and upskilling the ones already in employment.

Bottleneck vacancies are reported by national institutions, public employment agencies and other industry stakeholders, and they represent activities in which shortages are identified, usually measured by ratios between ready to fill vacancies and unemployment rates. Bottleneck vacancies are thus interpreted as labour shortage in specific activities and occupations. This labour shortage is often explained by low enrolment in relevant training, leading to insufficient available qualification for these occupations. Such situations of labour shortage can only be addressed through regular training and education



According to Eurofound's monitor (Monitor, 2019) the construction analysis on job skills is related to the formulation of a scale which summarizes the important skills as 1 and the less important as 0. Skills which are ranging from 0.5-0.8 are medium ones in importance. Based on the graph, routine, gathering and evaluating information are considered as top skills of construction workers. Moreover, autonomy is considered as a high-level important skill. As second important skills we can list the following:

- Literacy
- Numeracy
- Use of machine and dexterity

In the same analysis, it is highlighted that there is a need for higher-level growing skills among people that are not trained at a higher level. The main drivers of this change in job demand and skillset are related to the following factors:

- ***Technological advances bring about new aspects***, such as the fact that building workers should possess sufficient qualifications and professional development to use IT-based and automated equipment, such as remote controlled vehicles and smart tools. Based on this, BIM is very useful to design and manage construction project at all stages of production process.
- ***Due to the environmental and technological advances***, the VTB (very tall building) construction will become more common in the EU of 2030, and demands new specific skills.

Table 2. **Forecast job creation and destruction in 2020-30 linked to EGD implementation in most heavily impacted sectors by occupation level (difference in employment levels between baseline and EGD skills forecast scenario)**

Occupation	Coke & refined petroleum products	Gas, steam & air conditioning	Mining and Quarrying	Water supply, Sewerage, Waste management & Remediation activities	Construction	Electricity	Computer programming, information services
Highly skilled non-manual occupations	-62.7	-36.0	-19.4	404.1	122.5	90.9	56.3
Skilled non-manual occupations	-14.5	-8.4	-3.9	104.3	28.6	20.3	4.8
Skilled manual occupations	-76.8	-14.5	-31.4	244.9	305.2	28.5	3.7
Elementary occupations	-13.7	-1.3	-3.4	207.3	30.4	2.8	0.5
Total	**-167.8**	**-60.3**	**-58.2**	**960.5**	**486.6**	**142.4**	**65.3**

NB: A main assumption underlying the analysis is that the occupational composition of employment in sectors is not affected by EGD implementation (see also Chapter 2).

Source: Cedefop skills forecast, 2020 baseline and EGD scenario estimates.

- ***The production's changes*** such as the off-site manufacturing which is on demand; In particular many parts of a structure are on demand, since can be built in construction factories before being transported. In this context, we may first summarize that bricklayers and plasterers are not in need as they were before, and they will need to adapt their knowledge and skills in Industry 4.0 era.
- ***Green buildings also become the top 1st priority*** of Cedefop's analysis as well as Construction's research. In this context, some building and related trade workers should also possess the mathematical and analytical thinking, measuring and establishing strategies that will foster the minimisation of waste production in their factories or company's operations.
- ***"Greener" infrastructure*** involves also the decarbonisation focus for construction workers.
- ***The European Green Deal (EGD)*** will have a potential impact on the future of Jobs. The impact of the transition to a green economy will transcend the sectors more directly linked to sustainability and climate change. Not only sectors such as energy (especially renewables), transport, manufacturing (especially automotive, steel and iron), construction, agriculture, and waste management, but also others will be impacted, albeit at various intensities (Cedefop, 2021). An estimated 3 to 4 million construction workers in various occupations such as carpenters and joiners, bricklayers, and technicians will require training on **energy efficiency** and **renewable energy sources**. Construction workers are often found to lack knowledge on how to reuse and recycle industrial/construction waste (ECSO, 2020). Based on the figure Table 2, Construction workers that are related to non-manual occupations will be fewer than those of skilled manual occupations. Moreover, the Elementary occupations will be reduced, as we have seen also above.

- ***Although the main employment affects concentrated in sectors directly targeted by EGD policies*** (e.g., extraction industries, construction and waste management) the EGD is also expected to enhance employment in several service sectors, such as **engineering and administration**.

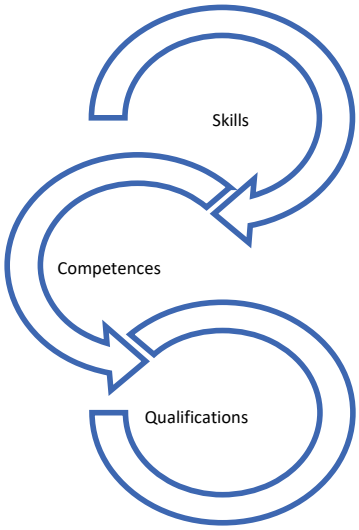
Occupational Profiles methodology

3.Structure of EU Occupational Profiles

ESCO is the multilingual classification (Commission, ESCO) of European Skills, Competences, Qualifications and Occupations. The ESCO classification provides the identification and categorization of skills, competences, qualifications and occupations relevant for the European labour market and education and training.

The Commission has developed ESCO with the following aims:

- ***to improve communication between the education and training sector*** and the EU labour market. In the case of Blueprint Construction, to improve VET education by enhancing the skillset of construction identified profiles
- ***to support geographical and occupational mobility in Europe***. In the case of Blueprint Construction, it aims to generate knowledge triangles which will foster new synergies among VET organizations, companies, and policy stakeholders



- ***to make data more transparent and easily available for use*** by various stakeholders, such as public employment services, statistical organizations and education organizations. In the case of Blueprint Construction, it assists in the mapping of occupational profiles, and the correlation of their skillset to WP2 and WP3 detailed previous analysis
- ***to facilitate the exchange of data between employers, education providers and job seekers*** irrespective of language or country; In the case of Blueprint Construction, it formulates a construction-based methodology which can be exploited not only by other EU and policy Projects, transferring its idea to other sectorial areas

The ESCO is organized in 3 main pillars:

- the occupations pillar;
- the knowledge, skills competences pillar;
- The qualification pillar

Moreover, it includes specific prioritization categories, which are (see listed only the ones that interest us):

- ***Managers***
- ***Professionals***
- ***Technicians and Associate professionals***

- ***Elementary Occupations***
- ***Craft and Related trade workers***
- ***Plant and machine operators***

3.1 Dimension 1st: occupations' pillar

The core element that defines an ESCO occupation is the main idea or understanding of what the occupation is about and how it differs from other occupations. These are captured in the description and scope note (ESCO).

The structure of the occupations pillar Occupations in ESCO are structured through their mapping to the **International Standard Classification of Occupations (ISCO-08)** (ISCO)**,** which has been developed by the International Labour Organization (ILO). The ESCO occupations and their ISCO-08 hierarchy formulate the ESCO occupations pillar.

ISCO-08 provides the top four levels while ESCO occupations provide the fifth and lower levels of EQF. In this context, it is in direct correlation to our Project, because we focus on VET profiles in construction.

3.2 Dimension 2nd: skills pillar

"The knowledge, skills and competences pillar, also referred to as the "skills pillar", provides a comprehensive list of skills that are relevant for the European labour market. The skills pillar includes knowledge, skills and competences that are defined as follows:

- ***Knowledge****: The body of facts, principles, theories and practices that is related to a field of work or study. Knowledge is described as theoretical and/or factual and is the outcome of the assimilation of information through learning.*
- ***Skill:*** *The ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).*
- ***Competence****: The proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations, and in professional and personal development."* (ESCO)

Based on the above, this pillar is particularly useful for the identification of relevant skills under job profiles.

"As for the occupations, ESCO provides metadata for each concept in the skills pillar including the following:

- ***A preferred term*** *that is used to present the concept.*
- ***Non-preferred terms*** *(synonyms, spelling variants, declensions, abbreviations, etc.).*
- ***Hidden terms*** *(e.g., outdate, misspelled or politically incorrect terms).*
- *A description that explains more in depth what the skill is about in line with the action verb and level of detail used in the title.*
- *A scope note that clarifies the semantic boundaries of the concept.* (ESCO)

As far as the skills are concerned, **ESCO skills' pillar** (ESCO) shows:

- *"The relationship with ESCO occupations. This shows for which occupations knowledge, skill or competence is typically relevant, including those for which it is essential and those for which it is optional.*
- *The reusability level, which indicates how widely a knowledge, skill or competence concept can be applied.*
- *Transversal knowledge, skills and competences are relevant to a broad range of occupations and sectors;*
- *Cross-sector knowledge, skills and competences are relevant to occupations across several economic sectors;*
- *Sector-specific knowledge, skills and competences are specific to one sector, but are relevant for more than one occupation within that sector;*
- *Occupation-specific knowledge, skills and competences are usually applied only within one occupation or specialism."*

3.3 Dimension 3rd: qualifications' pillar

Qualifications in ESCO are **generated from national qualifications databases of Member States. These qualifications are included in the National Qualifications Frameworks that have been referenced to the EQF (seeing under 2.4 subsection).** When collecting information on individual qualifications, the Commission applies the following principles:

- *"**Subsidiarity**: The competences of Member States, their different education and training system traditions, and where applicable, the autonomy of the awarding bodies are fully respected.*
- ***Learning outcomes approach**: ESCO is following the learning outcomes approach, which highlights what someone knows, understands and is able to do on completion of a learning process.*
- ***Bridging the communication gap**: Information on qualifications can be correlated to the skills pillar, supporting closer cooperation between employment and education/training.*
- ***Transparency**: This includes information that is required by market actors to assess the quality and trustworthiness of a qualification.*
- ***Up-to-date**: Data on qualifications needs to be up-to-date*
- ***Non-discriminatory**: Transparent information, including quality assurance, is provided without any discriminatory issues being concerned*
- ***Complementarity between ESCO and the EQF**: The qualifications pillar of ESCO is developed in full compliance and complementarity with the EQF"* (ESCO)

3.4 Other EU competence Frameworks

EQF

The EQF is an **8 level learning outcomes-based framework** for all types of qualifications that serves as a translation tool between different national qualifications frameworks. This framework helps improve transparency, comparability, and portability of people's qualifications in construction.

EQF levels (Table 4)			
Level	Knowledge	Skills	Responsibility
1	Basic general knowledge	Basic skills required to carry out simple tasks	Work or study under direct supervision in a structured context
2	Basic factual knowledge of a field of work or study	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	Work or study under supervision with some autonomy
3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems
4	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities
5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others
6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	Manage complex technical or professional activities or projects, taking responsibility for decision making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups
7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for
8	for original thinking and/or research	basis for original thinking and/or research	original thinking and/or research
9	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

The EQF covers all types and all levels of qualifications, and the use of learning outcomes makes it clear what a person knows, understands and is able to do. EQF is also linked to the National Qualification Framework (see chapter 6).

On the following table, we may see the correlation of ESCO to EQF since, the last also involves the knowledge pillar, the skills pillar and the qualification's pillar (responsibility and autonomy) (Commission, EQF)[1]

Having seen through desk and literature review, as well as through our WP2 and WP3 analyses, that VET occupational profiles are the ones that should be updated, we focus mostly on EQF 3 to EQF 5 which are connected to VET education.

The Digital Competence Framework 2.0

This Framework highlights the key components of digital competence in 5 areas which can be summarized below[2]:

- ***"Information and data literacy**: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organize digital data, information and content.*
- ***Communication and collaboration**: To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.*
- ***Digital content creation**: To create and edit digital content To improve and integrate information and content into an existing body of knowledge while understanding how copyright and licences are to be applied. To know how to give understandable instructions for a computer system.*
- ***Safety**: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.*
- ***Problem solving**: To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. Using digital tools to innovate processes and products. To keep up-to-date with the digital evolution."* (Commission, The Digital Competence Framework 2.0)

The DigiComp is useful for our analysis since it indicates what type of digital competences each profile may have; In this case it is useful for identifying in the European and National Occupational Profiles (see chapter 5) ICT dimension of skills in view of categorizing them.

[1] *See in Annex 4, EQF tables*

[2] *See in Annex 5, the DigiComp levels*

DigiComp levels (Table 5A)		
Number	Competence Area	Definition
1	Information and data literacy	1.1 Browsing, searching and filtering data, information and digital content To articulate information needs , to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies. 1.2 Evaluating data, information and digital content To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content. 1.3 Managing data, information and digital content To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment.
2	Communication and collaboration	2.1 Interacting through digital technologies To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context. 2.2 Sharing through digital technologies To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices. 2.3 Engaging in citizenship through digital technologies To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies. 2.4 Collaborating through digital technologies To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge. 2.5 Netiquette To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments. 2.6 Managing digital identity To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.
3	Digital content creation	3.1 Developing digital content To create and edit digital content in different formats, to express oneself through digital means. 3.2 Integrating and re-elaborating digital content To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge. 3.3 Copyright and licences To understand how copyright and licences apply to data, information and digital content. 3.4 Programming To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.

4	Safety	4.1 Protecting devices To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy. 4.2 Protecting personal data and privacy To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a "Privacy policy" to inform how personal data is used. 4.3 Protecting health and well-being To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g., cyber bullying). To be aware of digital technologies for social well-being and social inclusion. 4.4 Protecting the environment To be aware of the environmental impact of digital technologies and their use.
5	Problem solving	5.1 Solving technical problems To identify technical problems when operating devices and using digital environments, and to solve them (from troubleshooting to solving more complex problems). 5.2 Identifying needs and technological responses To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility). 5.3 Creatively using digital technologies To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments. 5.4 Identifying digital competence gaps To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up to date with the digital evolution.

The Green Competence Framework

This Framework highlights the key components of green competence in four competence areas: 'embodying sustainability values', 'embracing complexity in sustainability', 'envisioning sustainable futures' and 'acting for sustainability'. Each area comprises three competences that are interlinked and equally important. GreenComp is designed to be a non-prescriptive reference for learning schemes fostering sustainability as a competence.

GreenComp levels (Table 5B)		
Number	**Competence Area**	**Definition**
1	Embodying sustainability values	1.1 Valuing sustainability To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values. 1.2 Supporting fairness To support equity and justice for current and future generations and learn from previous generations for sustainability. 1.3 Promoting nature To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems
2	Embracing complexity in sustainability	2.1 Systems thinking To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems. 2.2 Critical thinking To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions. 2.3 Problem framing To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems
3	Envisioning sustainable futures	3.1 Futures literacy To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future. 3.2 Adaptability To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. 3.3 Exploratory thinking To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.
4	Acting for sustainability	4.1 Political agency To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability. 4.2 Collective action To act for change in collaboration with others. 4.3 Individual initiative To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet.

The GreenComp is useful for our analysis since it indicates what type of green competences each profile may have.

3.5 Presentation and identification of EU Occupational Profiles

Methodology

Taking the above into consideration, the first mapping of EU Profiles took into account the principles of ESCO as far as the organization of information, as well as the content, involving information relevant to EQF and DigiComp. In view of organizing the information, AKMI had followed a specific approach:

1. The desk research of all ESCO VET construction profiles in view of listing them
2. The organization of information on the basis of Skills, Knowledge and Qualifications' pillar. In particular, for each ESCO profile, it had explored the way of mapping the information according to the 3 pillars
3. The connection of ESCO to ISCO levels, on the basis of coding each profile
4. The analysis of each job profile according to ESCO research analysis
5. The presentation of each ESCO category that the job profile belongs to(eg. Technicians, professionals, etc.)
6. The correlation of each job profile to a certain EQF level.

Presentation of EU Occupational Profiles

Based on the above, AKMI in collaboration with the consortium made the 1st initial mapping of ESCO profiles. We have made a summary table in which the core skills are presented. Later we will check if the skills need strategy add supply skills to this table. The following table contains[3]:

- The numeration
- The prioritization category of the job profile
- The title of the job profile
- The Educational Background (EQF) which is related to each category according to the specific needs. More specifically:
    - Elementary Occupations are related to EQF 1-2
    - Craft and related trade workers are mostly related to EQF 2
    - Technicians and associated professionals are mostly related to 3-4
    - Plant and machine operators are mostly related to EQF 2-3
    - Professionals: Architects, planners, surveyors and designers are mostly related to EQF 4-5
    - Managers are mostly related to EQF 4-5

4. Revise of Skills and Jobs

4.1 Revising Skill needs: Correlation to WP2 and WP3

Based on WP2 and WP3 analysis, WP5 summarizes the basic skills that are already presented, explored further other ones and connecting them with job profiles. The key main areas are:

- **Energy efficiency**
- **Circular economy**

[3] *See Annex*

- **Digitalization**

Energy efficiency

This section highlights the most important skills related to energy efficiency and construction jobs. In doing so, this section highlights the need to shift the approach to construction and construction skills, to adjust to these recent policy and market changes. In view of meeting the challenges and transition to a low-carbon climate resilient economy, Europe and European MS are focusing on climate change mitigation and adaptation measures. Hence, in November 2018, the EC presented its long-term strategic vision to reduce greenhouse gas (GHG) emissions. In its vision it emphasized the need for energy efficient solutions and smart and adequate infrastructure. For example, the retrofitting of existing infrastructure can ensure long-term sustainable use, while the replacement of old infrastructure can be compatible with decarbonisation activities. ***Based on WP2 and WP3 analysis*** as well as on ***research analysis through desk research,*** the following results are made (Observatory, 2020):

Skills related to job profiles (Table 6)	
Skills	**Professionals**
Sustainable Energy Efficiency	highly trained installation and assembly practitioners
preparing a building programme and conducting a site analysis	All Construction professionals
assess and balance environmental, economic and legal factors that characterize a specific construction project	Construction General Supervisor, manager, Facilities Manager
knowledge about any relevant climate considerations	All Construction workers
Understanding the energy performance goals	All Construction workers
Knowledge about waste management	Professionals, Architects and planners as well as Technicians
Recycling of materials	
Resource management	
Climate change adaptability	
Health and safety in their decision-making process	
ensuring the final construction includes the necessary infrastructure to face long-term climate change challenges	
Use of BIM	
“green” public procurement as a means of reducing the environmental impact of the construction sector	
knowledgeable and skilled concerning the sustainable set up of the construction site and preparatory activities	Professionals, Architects and planners
Be trained to develop the necessary skills to carry out sustainable construction practices on-site	Construction labourer
Organization of the logistics	Construction General Supervisor, manager, Facilities Manager

effective communication with clients regarding energy efficient renovation, installation of energy efficient building automation systems, post-installation follow-up services and enhanced cooperation among all professionals involved in this stage	Professionals, architects and planners
skilled in the removal of waste from the site and in detecting leakages, pollution and emissions	Technicians and elementary construction workers
Decarbonization and integration of renewables	deep renovation specialists (not found in ESCOs profiles) as well as Professionals, Architects and planners
High health and environmental standards	All construction workers
Respect for aesthetics and architectural quality	Crafts and related trade workers as well as deep renovation specialists

However, we may see that, due to Renovation Wave of Europe (Commission, A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives, 2020), new jobs are emerging and are topical for the sector. One of them is deep renovation specialist, which is not considered in ESCO occupational profiles' first mapping.

Skills and Training

Based on the above, the trend across the EU indicates that the highest numbers of workers needing to be trained in energy efficiency and renewable energy are found in the following professions:

- **Electricians**
- **Plumbers (including installers of heat pumps boilers, biogas systems, central heating, sanitary and thermic equipment)**
- **Carpenters and joiners**
- **Bricklayers**
- **Technicians (including Heating, Ventilation, and Air Conditioning - HVAC) Deep renovation specialist**

However, increased focus is also being given to **Managers and Supervisors**, as they are able to overview a whole project and its phases.

Circular economy

The European Commission has adopted in 2020 a new Circular Economy Action Plan (Commission, Circular Economy Action Plan, n.d.) one of the main components of the European Green Deal, the new European agenda for sustainable growth. It is also a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss. Taking into account WP2 analysis, as well as the skills that are emphasized in Circular Economy Action Plan, we list the most important skills that are needed for today's industry. Later we are associate them with specific Professions, based on this, the following skills are related to specific job roles which are listed in ESCO and need upskilling:

Skills related to job profiles (Table 7)	
Skills	**Professionals**
Work safely with chemicals	All construction workers
Waste and recycling	Craft and related craft workers as well as technicians
Use of raw materials	Technicians and Craft, related craft workers
Promotion of sustainability	Professionals, Architects and planners as well as Technicians
Green public procurement (applies also to energy efficiency)	All construction workers with a focus on Professionals, Architects and planners
Knowledge of Regulations	All construction workers
Knowledge of dismantling procedures	Craft and related trade workers as well as technicians
New procedures of Deconstruction	Construction managers
Wood construction	Craft and related workers
The use of waste-free and low-waste technologies and technological lines increasing the efficiency in the production of materials, construction products, and the implementation of construction investments	Professionals, Architects, and planners as well as Technicians
Planning and organizing sustainable construction (energy-saving architectural design, high comfort and fictionality of the building, minimal environmental impact).	
Conducting construction waste management in a closed cycle.	

Digitalization

On 2020 the European Commission published the European Digital Strategy (Commission, 2020) as well as the European strategy for data, focusing on the digital transformation. The Commission will focus on three key objectives:

- **Technology that works for people**: Development, deployment and uptake of technology that makes a real difference to people's daily lives.
- **A fair and competitive economy**: A frictionless single market, where companies of all sizes and in any sector can compete on equal terms, and can develop, market and use digital technologies
- **An open, democratic and sustainable society**: A trustworthy environment in which citizens are empowered in how they act and interact, and of the data they provide both online and offline.

Covid-19 has changed the whole way of interaction and work environment, as it imposed the digital working stereotype. Having acknowledged the WP2 skills analysis, we add to ESCO profiles the following skills that are on demand:

Skills related to job profiles (Table 8)	
Skills	**Professionals**
Work safely with chemicals	All construction workers
Waste and recycling	Craft and related craft workers as well as technicians
Use of raw materials	Technicians and Craft, related craft workers
Promotion of sustainability	Professionals, Architects and planners as well as Technicians
Green public procurement (applies also to energy efficiency)	All construction workers with a focus on Professionals, Architects and planners
Knowledge of Regulations	All construction workers
Use of 3D printer	Craft and related craft workers as well as technicians
Use of robots	Plant and machine operators
Drones' use	Technicians and associate professionals, as well as Craft related workers
Automation	All construction workers
Knowledge of chemicals	Professionals, Architects and planners as well as Technicians
Data privacy and security	All construction workers

Moreover, using ECSO analysis (ECSO, 2020), we have found that also the following digitalization skills especially after the pandemic are required:

- Geographic information systems which creates the need for **GIS specialists** (DigiComp dimension 2)
- Digital permits system for **technicians** (DigiComp dimension 2)
- Digital logbooks for **technicians** and **craft related workers** (DigiComp dimensions 1 & 2)
- IoT for **Managers** (DigiComp dimension 5)

WP3 results and connection to WP5

From the survey responses, the training needs of VET centres in each country can be understood. In particular, they have been identified 42 curricula or descriptors of which 22 relate to the topic area of energy efficiency, 11 to the topic of circular economy and 9 to the topic area of digitalisation.

VET centres suggested that knowledge is needed around:

- thermal insulation
- energy efficient building systems (HVAC)
- renewable energy
- compliance with EU and national policies around energy efficiency of buildings and certification of buildings
- Energy efficient retrofitting of buildings and historic buildings was also strongly suggested.

Moreover, the majority agreed on the enhancement of the core skills of **Craft and Related trade workers(eg. Plumber, bricklayer etc.)**

In the category of digitalisation, it was strongly suggested that:

- knowledge and awareness around the BIM method is needed
- Digital tools used on the construction site
- digital tools for health and safety
- home automation
- drones
- Augmented & Virtual Reality.

In the category of Circular Economy, they were proposed the following components to be added in training material:

- waste management
- sustainable construction
- LCA
- green procurement
- business models for circular economy

4.2 BUILD-UP skills: Input for the identification

BUILD UP Skills is a flagship EU initiative aiming at equipping building professionals with the skills needed for the energy transition. Its focus is on the increase of the number of qualified professionals by developing national qualification platforms and roadmaps and providing training in the field of energy efficiency and renewable energy in buildings.

The assessment of Pilar II confirmed that boosted education and training of **craftsmen** and **other onsite construction workers** and **system installers** in the building sector was of major importance. Based on its success and timeliness, BUILD UP Skills initiative could be considered a good practice at EU level as first successful policy and implementation project focusing on skills needs in construction. Upskilling the workforce is a concept that has gained momentum in the past few years. Many construction companies suffer from massive layoffs due to the evolution of core skillsets, while simultaneously falling short in resourcing key jobs and/or areas that are critical to success. Under this circumstance, the BUILD UP Skills initiative highlights that 3 to 4 million blue collar workers will need upskilling in the area of the EE alone (ESCO).

In Blueprint Construction WP5 is being used for the development of occupational profiles at an EU level through the utilization of its results in the final report; Based on the above, the following recommendations can be utilized from the initiative

- ***Provision of requirements for mandatory training courses*** for blue-collar workers for energy efficiency; The initiative has highlighted that energy efficiency is the most important topic area for the upskilling of EU job profiles.
- ***Provision of requirements related to recognition for skilled, trained workers***, for example, by defining worker categories depending on their skills and knowledge level, by including the training courses in the national catalogue of qualifications (or equivalent) and by recognising that the certification provided by the training complies with the national standards. Under this circumstance, Blueprint Construction had followed the below strategy:

- WP2/Formulation of the training needs analysis ○ WP3/ Formulation of the training material
- WP5/ Correlation the job profiles in Construction with the previous 2 WPs and connecting them with EQF knowledge levels. Moreover, we have used also ESCO, which connects to the skills and knowledge pillar being identified in Build Up Skills recommendations.

- ***Utilization of IT approaches and more concretely BIM – IT*** and particularly BIM is an increasingly important technology in buildings' energy efficiency. Training blue- and white collar workers is essential. This finding is correlated also to the Skills Needs Analysis (see above).
- ***Enhancement of Cross-craft understanding and communication between different profiles of construction workers*** and between blue-collar workers and white collar workers. On this basis, the Blueprint Construction tries to map different "construction family categories" by organizing their full skillset and upskilling demands, understanding the different EQF levels (on the basis of ISCO-08)[4]

[4] *See Chapter 3*

5.Concluding remarks regarding European Occupational Profiles

5.1 Validation of European Occupational Profiles

Under this subsection, the methodology being followed was:

1. The analysis of European Publications related to EU Occupational Profiles in Construction (January-May 2021)
2. The communication of the whole analysis with the Leader, in view of discussing further methodologies(May 2021). On the first glance, the following recommendations were made:
    - The Occupational profiles should be only VET
    - The Occupational profiles should take into account the EU Competence Frameworks
    - The Occupational profiles should be on the basis of WP2 and WP3 research analysis
    - Engineering professions should be excluded except those being identified in Skill Needs Analysis
3. The contact of each organization separately in view of checking the profiles and communicating them with their national authorities (1st Phase in Summer 2021). The following recommendations were made:
    - The incorporation of optional skills under each job profile
    - The alignment of job profiles to Build Up skills projects
    - The focus on BIM and other digital tools
    - The incorporation of civic engineer professionals under EQF level 4
    - The incorporation of a detailed methodology in relation to the Occupational profiles
4. The second validation phase will be launched in 2022(Spring) in view of checking the whole results and the final provision of 5.2 Report with detailed national occupational profiles. The consortium will organize policy consultations with national stakeholders for the final reviewing of the WP5.
5. The final validation phase will be launched in 2022 (Summer) with a view to summarizing everything.

5.2 European Construction Industry in 2030: Recommendations on the upskilling of European Occupational Profiles

On the basis of the above, first conclusions can be made on the formulation of the upskilling procedure of EU occupational profiles. The optional skills of each profile should be enhanced; Having checked the detailed WP2 and WP3 analysis, as well as the European Construction Observatory recommendations alongside with Build Up Skills, we recommend that job profiles which will be trained in accordance of Blueprint Construction could be the following:

- ***Craft and related trade workers*** (1st group): This choice is since Cedefop, WP2, WP3 and European Publications highlighted that they are left behind in terms of theoretical

knowledge (eg. Compliance and security) as well as digitalization. It is recommended that they can incorporate the following skills as core:

- manufacturer's instructions for electrical household appliances
- knowledge about road transport legislation
- waste and recycling
- High health and environmental standards
- Automation and virtual reality
- Use of drones

- ***Technicians and other professionals*** (2nd group): This choice is being made, since the majority of identified ESCO profiles belong to this group as well as are depicted in energy efficiency skill demands. Moreover, the majority of them have skill gaps in waste management. It is recommended that the following skills can be offered an upgrade in this sector. In particular:
  - CAD software (medium level knowledge)
  - cost management (medium level knowledge)
  - design principles (medium level knowledge)
  - electrical engineering (medium level knowledge)
  - energy efficiency (medium level knowledge)
  - energy performance of building (medium level knowledge)
  - BIM knowledge (medium to high knowledge)
- ***Admin and Managerial staff*** (3rd group): This choice is being made since the identified ESCO profiles are closely related to the enhancement of the following skills:
  - waste management
  - sustainable construction
  - LCA
  - green procurement
  - business models for circular economy

6. Structure of National Occupational Profiles

6.1 Methodology

Having used the results of 5.1 Task we are going to the formulation of the National Occupational Profiles' methodology. In particular the following steps are being followed:

1. ***The identification of National Occupational Profiles*** in each country of the project: In view of proceeding with this step AKMI has created a new excel template for the mapping of the national occupational profiles; In this context, all partners should incorporate inside the required information. The organization of the template was the same as the EU one, with an exception in the EQF level which was replaced with the NQF. Each organization should follow the same structural template, however the methodology differs; Since each country has different policy frameworks and educational characteristics, it was not easy to identify with the same way the NOP(National Occupational Profiles). In particular the following challenges have been met:

- *The difficulty of organizations* to find their national authorities in view of requiring information
- *The difficulty of organizations* to correlated the WP5 with the previous lessons learnt
- *The challenge of identified the National Occupational Profiles* due to the fact of responsibility; Many partners addressed the issue of not possessing the authorization to check National Occupational Profiles and Frameworks
- *The challenge of organizations* to find the NQF of each job profile

Under these circumstances, the leader and AKMI have decided to apply a hybrid methodology which will be based on the following characteristics:

- Utilization the desk and literature study of EU publications and published research material
- Organization of focus groups or interviews (for those organizations who have the opportunity) with policy stakeholders and business partners related to construction
- Delay of the validation procedure, due to the application of a detailed 5.2 Methodology.

National Occupational Profiles template (Table 9)

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	ALTERNATIVE TITLES OF OCCUPATIONS	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE	OPTIONAL SKILLS	OPTIONAL KNOWELDGE
Provide the national coding of the occupation al profile (if it exists) EXAMPLE: GR009	If you find information online please provide the link	Provide the category that this profile belongs to: ELEMENTARY PROFESSIONS (in each country may this differ and also it may be different to ESCO's approach. If it is different, please indicate this)	Title of the Profile		Which NQF applies to ? You should use educational levels of low or VET level according to European Occupational Profiles' Excel. PARADIGM--> NQF 4	Apply a summary of what the occupational profile does in terms of tasks and job description	Apply the core skills of it and indicate if they are the same or different from ESCO's listing. PARADIGM -- > Apply 3D printing (the same to ESCO)	Apply the optional skills of it and indicate if they are the same or different from ESCO's listing	Apply optional knowledge of it and indicate if they are the same or different from ESCO's listing

2. ***The mapping of similarities*** between National Occupational Profiles to EU job profiles: Under this step, all partners have undergone a first analysis of the National Occupational Profiles, through the already selection of those that are more in favour for upgrading. However, they were asked in the first place to map the occupational profiles that ranged from 2-5 and not to select them in the first place. In this framework, we apply a security and risk strategy which help us not to provide a report that is not of high-quality or detailed oriented.
3. ***The communication of each country***[5] with its national construction basis: This is the most difficult part of the project since many countries have encountered difficulties. AKMI and FLC provided the solution of choosing whether the report will be a result of a hybrid methodology (e.g. Applying desk and field research procedures) or one way or another. However, AKMI has asked that utilization of previous and already job regarding Field research can be re-used for the purposes of better connection among the different WPs as well as for better justification.
4. ***The correlation of the findings*** to Energy, Circular Economy, and Digitalization Frameworks: AKMI had analysed the mapping of each country's national profiles to the needs of each Construction Framework, as it is identified.
5. ***The correlation of National Occupational profiles to Build Up Skills II initiative:*** Utilizing the national results of Build Up II, AKMI was able to identify further correlations of 5.1 to 5.2, since it compares the skills needed for the EU in general as well as to each country in advance.
6. ***The correlation of National Occupational Profiles*** to WP3 analysis: Using this analysis, AKMI has created a framework matrix, within it categorized the skill needs, for each profile. However, this step is already under process, since the selection of occupational profiles has not finished yet.
7. ***Their first validation from the Policy stakeholders*** (to be organized in Spring 2022): When the first selection of Occupational profiles happens, each country will organize a public consultation with policy stakeholders and NAGs in view of validating its results.
8. ***Their finalization process*** to be organized in Spring 2022: Under this step, a final view of the occupational profiles and skill needs in each sector will be given.

6.2 A first mapping of National Occupational Profiles

In view of checking similarities and differences, AKMI will follow a country-cantered approach. In particular:

France

France has identified in the 1st mapping 36 Occupational Profiles from different thematic sectors. The methodology that has followed was a hybrid one; It has organized not only desk research but interviews with business partners in construction. The following Occupational Profiles were identified[6]. Out of these 36, the following have been selected:

[5] *See Annex*
[6] *See Annex*

- Elementary level : Machine Operator
- Elementary level: Roofer
- Elementary level: Electrician
- Elementary level: Sealer
- Elementary level: Crane operator
- Elementary: Plumber (maintenance)
- Elementary: Heating Technician (Maintenance)
- Elementary: Locksmith-Metalworker
- Elementary: Robotic Machine Operator
- Elementary: Wood Manufacturer
- Elementary: Construction Equipment Mechanic
- Elementary: Topographic Surveyor Technician
- Elementary: Business Manager
- Elementary level: Workshop Manager
- Elementary level: Worksite manager

We may see that there are similarities with the EU Occupational Profiles in terms of definitions. However, the following differences are highlighted:

- The elementary level in France is NQF 3 which is more professional than the EQF 1-2 for the same job profiles
- The first look in France profiles gives the impression that the core skills of these preselected profiles are most related to technical work. We see that business management, as well as soft skills, are missing, which can be the subject of improvement.
- BIM and IoT technologies are generally missing; It can be a subject for WP3 training
- The majority of elementary jobs are related to craft related ones in EU. However, the target remains the same.

Belgium

The methodology that Belgium followed was the partners' focus on French-speaking Belgium, since the company has its headquarters there. Belgium is a federal state and the competence for education and training belongs to the regions and communities. This means that there are 3 different systems of vocational training in Belgium:

- French-speaking
  Dutch-speaking
- German-speaking

These 3 systems are very different and are analysed separately by Cedefop (Cedefop, Country fiches). There is no harmonization at the national level and no national institution responsible for producing national occupational profiles. Based on this, the partnership has followed specific steps such as the following:

- They focused on the occupational profiles produced by the public authority SFMQ (Service Francophone des Métiers et des Qualifications) in the construction sector. The occupational profiles, drafted by SFMQ in partnership with social partners, describe an occupation and determine the professional skills required by the worker in this occupation.
- In a second phase, SFMQ drafted Training Profiles corresponding to the occupational profiles. It determines, together with all the education and training operators, the learning outcomes allowing to infer the acquisition of professional competences, the minimum necessary equipment, and the common evaluation framework.
- Since they are related to training centres in the regional IFAPME network, they can't offer any view on possible recommendations regarding updates of the occupational profiles, which has to be discussed with authorities and social partners.

However, when the drafting and summarizing of the profiles will be done and finalized, main conclusions can be drawn from the Skill Needs of WP2.

As far as the occupational profiles are concerned, Belgium had identified the following:

- Bricklayer corresponding to NQF 3
- Screed layer corresponding to NQF 3
- Tiler corresponding to NQF 3
- Plasterer corresponding to NQF 3
- Roofer corresponding to NQF 3
- Sealer corresponding to NQF 3
- Painter corresponding to NQF 3
- Carpenter corresponding to NQF 3
- Builder in timber structure corresponding to NQF 3
- Indoor carpenter corresponding to NQF 3
- Outdoor carpenter corresponding to NQF 3
- Residential Electrical Installer corresponding to NQF 3

As we see, the majority of profiles are already mapped in the EU Occupational Profiles. However, we see as France that the country focuses on craft related professions, corresponding to add the category until now to the 1st top category for upskilling.

Germany

Germany faces the same problem as Belgium, since it has different educational rules in the country and each region has its own unique characteristics. Based on this, it is difficult to select and recommend specific occupational profiles. However, since the Skill Needs Analysis has been published, we may adjust their recommendations to WP5.

Mason corresponding to EQF 4

- Tile and mosaic layer corresponding to EQF 4
- Road builder corresponding to EQF 4
- Screed layer corresponding to EQF 4
- Thermal and noise insulation fitter corresponding to EQF 4
- Furnace and chimney builder corresponding to EQF 4
- Construction plant operator corresponding to EQF 4
- Pipeline installation worker corresponding to EQF 4
- Rail track builder corresponding to EQF 4
- Roofer corresponding to EQF 4
- Carpenter corresponding to EQF 4
- Concrete and reinforced concrete builder corresponding to EQF 4
- Wall builder corresponding to EQF 4
- Engineered stone technologist corresponding to EQF 4
- Woodwork and building protector – specialising in buildings protection corresponding to EQF 4
- Sewer builder corresponding to EQF 4
- Special civil engineering works builders corresponding to EQF 4
- Construction finishing worker – specialising in dry wall construction corresponding to EQF 4

Based on the above list of profiles the following assumptions can be made:

- The main sector that we will focus for upskilling in Germany is the Craft related workers
- The main educational level and skills attainment are EQF 4, which is more advanced than the EU one.
- The main skills that are currently missing and may be subject for enhancement are the following:
    - Automation
    - BIM
    - CAD software
    - Business models' utilization
    - Soft skills related to communication
    - Circular economy related to waste management

Greece

In Greece, the system is hybrid, and besides the National Organization for Certification of Qualifications & Vocational Guidance, PEDMEDE's network, as well as the utilization of NAG's and case studies, offer assistance to the project partners. The following occupational profiles are currently under mapping:

- craftsman working on the restoration & maintenance of historic and traditional building corresponding to EQF 4

- operator of mobile machines-machines of public and industrial works corresponding to EQF 3
  Glass technician – glazier corresponding to EQF 4
- Technician of plumbing installations corresponding to EQF 4
- Aluminium and metal constructor corresponding to EQF 4
- Interior Designer corresponding to EQF 4
- Works machinery technician corresponding to EQF 3
- Installer - superintendent of burners, central heating installer/engineer corresponding to EQF 4
- foreman on construction sites, frontline supervisor corresponding to EQF 4
- Carpenter craftsman corresponding to EQF 4
- Quality department executive corresponding to EQF 4
- Technical construction planner corresponding to EQF 4
- Insulation technician corresponding to EQF 4
- Welding and metal cutting technician corresponding to EQF 4
- Refrigeration and air conditioning technician corresponding to EQF 4
- Gas technician, Combustion gas technician corresponding to EQF 4
- Dry constructing systems technicians corresponding to EQF 4
- Stone technician corresponding to EQF3
- Small hydroelectric power station operators corresponding to EQF 3-4
- Management and control technician of environmental protection systems corresponding to EQF 4

Based on the first initial findings, the following highlights can be made:

- The majority of the Occupational Profiles as in the craft related area as well as is related to technicians. Based on this, it is in direct correlation to the EU analysis and profiles which targets as the first two choices Crafts and Technicians for priority of upskilling
- The majority of Occupational Profiles are related to EQF 4 which is higher than the EU one in the same occupations
- The main skills that are missing are:
  - BIM knowledge
  - Waste Management
  - IoT applications

Spain

Spain has used a hybrid also methodology in view of depicting the first mapping of occupational profiles in its area. It consults desk research publications as well as business stakeholders and NAGs. It has identified the following Occupational profiles:

- Bricklayer
- resilient floor layer
- Stonemason
- Road construction supervisor
- Construction general supervisor
- Precast moulder
- Structural ironworker
- Metal products assembler
- Insulation worker
- Installer of waterproofing systems in buildings
- Construction scaffolder
- Roofer
- Structural-metal preparers and erectors metal products assembler
- Plasterer
- Solar energy technician
- Crane, hoist and related plant operators
- Window installer
- Welder
- Welders and flame cutters
- Terrazzo setter
- Cargo vehicle driver
- Earthmoving and related plant operators
- Excavator operator
- Bulldozer operator
- Scraper operator
- Grader operator
- Road roller operator
- Crane technician
- Solar energy technician

The following first conclusions can be made:

- The majority of occupational profiles are related to Craft workers; The second group that is the first in the mapping is plant operators
- The majority of occupational profiles are related to 3-4 as Germany and Greece
- The main skills that are missing concerning the Skills Needs Analysis strategy are:
    - IoT applications
    - Automation and use of drones
    - BIM
    - CAD Software

Poland

Partners faced severe challenges due to the fact that the occupational profiles' identification is a very new procedure for policy stakeholders. Until now, they have conducted the first initial mapping of Occupational Profiles. The following occupations are listed:

- Construction managers
  Building architects
- Construction supervisors
- Bricklayers and related workers
- Stonemasons, stone cutters, splitters, and carvers
- Carpenters and joiners
- Building frame and related trades workers not elsewhere classified
- Roofers
- Floor layers and tile setters
- Plasterers
- Insulation workers
- Painters and related workers
- Civil engineering labourers
- Building construction labourers

Based on the above, the following first conclusions can be made:

- The majority of occupations are corresponding to EQF 4-5
- The majority of occupations are related to technicians and crafts sector The majority of occupations are missing the following skills:
    - Use of BIM
    - Automation
    - IoT applications

Portugal

Portugal has used mainly desk research for mapping its national occupational profiles. In particular, the following are listed:

- Bricklayer
- Tiler / Tile
- Civil Construction Painter
- Plumber
- Earth Moving Equipment Driver / Operator
- Lifting Equipment Driver
- Earth Moving Equipment Mechanic
- Facility Electrician
- Measurement and Budget Technician
- Civil Construction Design Technician

- Construction Technician / Construction Conductor
- Occupational Safety Technician
- Technician Installer of Solar Photovoltaic Systems
- Environmental Management Technician
  Management Support Technician
- Renewable Energy Thermal Systems Installer Technician
- Electronics, Automation and Command Technician
- Electrical Installation Technician
- Hotel Facilities Maintenance Technician
- Technician/a Specialist in Construction Conduction
- Technician Specialist in Energy Rehabilitation and Infrastructure Conservation – Buildings

Based on the first mapping, the following first results can be formulated:

- The majority of occupations are EQF 2 which is equal to EU one
- The majority of listed professions are related to the Crafts sector
- The majority of occupations are mostly related with energy efficiency
- The majority of skills that are missing and are on demand (see previous sections) are:
    - BIM Knowledge
    - Business models' knowledge
    - Green procurement strategy
    - Automation

Slovenia

In the system of Slovenia vocational qualifications there are 6 catalogues of standards of professional skills developed at EQF level 4 in the field of construction. These are qualifications that are mostly absent from the education system, with the exception of NOQ (NPK) Floor Layer. The only NOQ (NPK) that does not have appointed members of the commission is the Installer of refractory materials and therefore verification and certification procedures cannot be carried out.

The remaining 5 NOQs (NPK) are implemented according to the labour market needs. At the 5th level of difficulty, we have developed 3 professional standards and on the basis of them two educational programs and one NOQ (NPK), at the 6th level of difficulty, one professional standard and one educational program. The occupational/professional standard is also the basis for a catalogue of standards of professional knowledge and skills. Occupational/Professional standards are a common basis for the development of educational programs for short upper secondary vocational education, upper secondary vocational education, upper secondary technical education, short-cycle higher vocational education and for the development of catalogues of standards of professional knowledge and skills for the NOQ (NPK) system. Occupational/Professional standards are classified according to levels of difficulty. For each

level of difficulty, we present the path provided by professional standards, either participation in an educational program (IP) or the existence of a catalogue of standards of professional skills and thus the possibility of obtaining a national occupational/professional qualification NOQ (NPK).

The methodology being followed by the Slovenian partners was mainly the incorporation of desk research at first place. In this concept, the following occupations were explored:

- Civil engineer (Short cycle higher vocational education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Construction technician (Upper secondary technical education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Construction technician (Upper vocational-technical education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Painter-Signpainter (Upper secondary vocational education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Tesar/tesarka Carpenter (Upper secondary vocational education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Bricklayer (Upper secondary vocational education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Assistant Construction Worker (Short upper secondary vocational education); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Low-rise construction worker (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- High-rise construction worker (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Stone fitter (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Installer of building fixtures (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Stone working machinery operator (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Dry stone waller (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Road maintenance operative (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Asphalter (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Road inspector (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Hydraulic engineering worker (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Floor layer (Vocational Qualification); Occupational/Professional standard: Poklicni standard (nrpslo.org)

- Shingler (Vocational Qualification);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Water infrastructure administrator (Vocational Qualification);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Installer of fire-resistant materials (Vocational Qualification);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Drywall Installer (Upper secondary vocational education);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Stonemason (Upper secondary vocational education);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Tinsmith-Roofer (Upper secondary vocational education);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Floor covering installer (Upper secondary vocational education);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Water protection supervisor (Vocational Qualification)
  Occupational/Professional standard: Poklicni standard (nrpslo.org)
- Construction foreman (Upper secondary vocational education);
  Occupational/Professional standard: Poklicni standard (nrpslo.org)

Based on the above, the following first conclusions can be made:

- The majority of professions in Poland are considered as Elementary to Craft ones
- The second category which is more prominent is Technicians
- The majority of skills that have been identified as those for enhancement of occupational profiles (see above) are
  - BIM knowledge
  - Green procurement IoT and virtual reality technologies
  - Soft skills related to communication
  - Energy efficiency high quality applications

Ireland

Ireland followed more the literature study process rather than the hybrid one. However, it has offered as the other high-quality results, which are related to the following occupational profiles:

- Brick and stone laying
- Carpentaria and joinery
- Geo driller
- Painting and decorating
- Plastering
- Plumbing
- Scaffolding
- Stonecutting and stone masonry
- Wood manufacturing and finishing

Based on the above, the first conclusions that can be made are:

- As we see the majority of profiles are high VET ones, in relationship to the European ones
- The majority of profiles are mostly related to the Crafts sector
- The skills that have been identified under Skill Needs Analysis as those on demand and are missing are:
    - BIM Knowledge
    - Green procurement
    - Automation and IoT
    - Virtual reality
    - Application of drones

Italy

Italy has provided input through the utilization of NAGs feedback as well as the exploitation of desk research review. In this context, the main occupational profiles which listed were:

- Water Efficiency Expert
- Water Efficiency Technician
- CD waste treatment engineer
- CD waste management supervisor
- C&D reuse and recycling worker
- window installation team worker
- insulation installation worker
- insulation installers supervisor
- energy manager

Based on the above provision, the following first conclusions can be made:

The occupational profiles being provided are mostly related to the second group of updating, Technicians.

- Emphasis has been given also to professionals, and this is justified to the high level of EQF that is mapped.
- As far as the top skills that are missing concerning the Skill needs analysis of WP2 are:
    - Automation and virtual reality applications
    - Soft skills related to communication
    - Green procurement
    - BIM knowledge
    - Compliance and ethics
    - Business models

Lithuania

In view of depicting its country situation, Lithuania had worked on the basis of a hybrid methodology, utilizing all the tools that we proposed to the partnership. Based on this the following occupational profiles are listed:

- Construction works brigade leader
- Building construction foreman
- House builders
- Bricklayers and related workers
- Stonemasons, stone cutters, splitters and carvers
- Concrete placers, concrete finishers and related workers
- Carpenters and joiners
- The Mounter of prefabricated constructional
- Scaffolding builder
- Buildings repairer steeplejack
- Roadman
- Roofer
- Paving laying operator
- Parquet layer
- Tiler
- Plasterer
- Insulator
- Glass cutter
- Dormer glass cutter
- Pipefitter
- Plumber

  The Plumber
- Refrigeration and air-conditioning equipment mechanic
- Building painter
- Decorator, mosaic maker
- Decorator
- Welder
- Tinsmith

- Steel constructions fitter
- Electrician

Based on the above the following conclusions can be made:

- The majority of listed occupations are considered in relationship with the Crafts sector
- The second prominent sector is Technicians
- The majority of occupations are linked to NQF 3-4
- The following skills needs are missing on the basis of the Skill Needs Strategy:
    - IoT applications
    - Compliance
    - Business models related to economy

Finland

Finnish partners have started by organizing policy consultations with stakeholders at a national level, in view of gathering feedback. In the meantime, they searched for national and European papers concerning their country's context. Based on this, the following occupational profiles were listed:

- Building construction worker
- Carpenter / Joiner
- Builder
- asphalt worker
- Earthmover
- Bricklayers
- House Builder
- Concrete finisher
- Element installer
- Stonemason
- Construction painter
- Construction engineer
- Plumbing installer
- Building electrician
- Resilient floor layer
- Carpet and parquet installer
- Plasterers (normally same as bricklayer)
- Roofer

  Furniture Installer
- Constructing crane operator

Based on the above, the following conclusions can be made:

- The majority of occupations are related to EQF 4-5 which means that are more advanced occupations than those in the EU
- The majority of the occupations are related to the crafts sector
- The core skills which were identified in WP2 as those on demand, and are missing are the following:
    - BIM knowledge
    - Green procurement strategy
    - IoT applications

6.3 Correlation of National Occupational Profiles to Build Up Skills II

Connecting National Occupational Profiles to Build Up Skill II initiative (II, 2018), we make the following correlations:

- ***Green procurement***: As it is highlighted in the Study of Final Report of Build Up Skills II, the demand for green procurement qualifications / skills as part of tendering procedures require that tendering procedures in the construction sector incorporate skills and quality requirements for certified qualifications. The same applies to our case baring in mind that Green Procurement is listed as one of the main skills to be added in the selected occupational profiles.
- ***Updating the national roadmap*** – If the EU does (or does not) request / suggest an update for the Pillar I country roadmaps, consider doing one (with the original stakeholders plus others); As it was the recommendation of Build Up Skills II, Blueprint Construction comes to cover this gap by updating Skill needs, job profiles and occupations related to construction.
- ***Use of other BUILD UP SKILLS projects as a benchmark to compare whether the project was heading the right direction:*** The Blueprint Project does this, by incorporating Build Up Skills II into its methodological approach, as well as taking it as the guide for correlating skills, Jobs and qualifications.

6. 4 Validation

Partners have responded to a questionnaire being provided by AKMI S.A which was tailored to the needs of companies, SMEs and policy stakeholders related to construction. Responses from professionals in each country have been collected and have been analysed to gather results and come up with conclusions.

Number of Participants per Country	
Belgium	3 participants
Italy	26 participants
Spain	8 participants
Greece	4 participants
Ireland	6 participants

France	4 participants
Portugal	3 participants
Lithuania	1 participant
Slovenia	1 participant

In this context, the following information has been extracted:

Regarding the challenges and problems that construction workers are facing:

Participants were asked about the challenges and problems the construction workers and the whole sector are facing at national level. Responses have been collected and grouped allowing the consortium to came up with the following conclusions.

a) **Shortage of Skilled Workers:** Many responses highlight the difficulty in finding skilled workers in the construction sector. The fact that there is a clear shortage of skilled labour, that needs to be addressed, is confirmed not only by the questionnaires but also by the national reports also. The factors that cause this shortage differ between them, but it seems that they all co-exist in the participant countries shaping the situation.
The most pressing and important of them according to the participants factors are:
   - the aging workforce,
   - low attractiveness of the sector for young people,
   - a mismatch between the skills demanded by the labour market and those possessed by workers.

b) **Training and Upskilling:** There is a recognized need for further training and upskilling of construction workers to adapt to the changes in the labour market. This need is not only recognized by the participants in the questionnaires but also can be seen in the national policies and strategies and the discussions taken at the national and local levels.
The advancements that seem to cause the need for further training and upskilling lie mostly in:
   - The technological developments in the construction industry,
   - The increasing use of digital applications (digitalization of the construction sector),
   - And the imperative shift of the sector to energy efficiency.

   Professional training, reskilling, and specialized knowledge of the above are considered crucial in order for companies to meet the evolving demands of the construction industry**.**

c) **Health and Safety:** The issue of health and safety in the construction sector is mentioned multiple times. Workers are often at risk of having an accident, and applying safety measures properly is crucial for the reduction of accident rates. Meeting all the health and safety requirements is an obligation of both the construction companies and workers. Training and understanding of the risks are key points for the application of safety measures. Safety awareness, guidance from employers, and compliance with regulations are important aspects that need improvement.

d) **Material Shortages and Increased Costs:** Construction companies are dealing with challenges related to material shortage. At the same time, the costs of materials are increased. As regulations and standards tent to be more demanding, this also has an impact to the cost of each project. These factors can lead to delays in projects, higher

expenses, and difficulties in meeting project requirements. Based on that, being able to know the regulations and standards as well as to know how to apply techniques that lead in cost-reduction or addressing shortages, are considered quite useful skills for the construction workers to have.

e) **Communication and Cultural Differences:** The construction industry often involves workers from diverse cultures. Hiring foreign workers or migrants has also been identified as a proof-based strategy to address the lack of labour in many countries. A multicultural working environment thought fosters communication and coordination challenges on construction sites. Addressing these cultural and technical communication barriers is crucial for smooth project execution. In order to address that the workforce should not be trained on increasing their communication skills but also skills leading in accepting cultural differences.

f) **Administrative and Bureaucratic Challenges:** The construction sector faces bureaucratic hurdles, slow bureaucracy, contradictory legislation, and in some cases ineffective justice systems. These factors contribute to delays in project approvals, disputes, and inefficiencies in the construction process. Having the skills to better understand administrative procedures and a bureaucratic system is considered a benefit for a construction worker, especially for those leading a project.

g) **Image and Perception**: The low attractiveness of the construction sector is a fact not only for young people. Workers of all ages seem to perceive the construction industry as a sector of low salaries, poor work conditions, seasonal work, and a lack of professionalization and certification. Whether this image is true or not, it definitely has a strong negative impact on the overall workforce availability of the sector. As is often the case more skilled employees are in a position to claim better salaries.

h) **Changing Market Dynamics:** The construction sector is experiencing shifts in market demands, such as a focus on energy renovation, digitalization, and sustainability. Adapting to these changes and acquiring new skills and knowledge is crucial for construction workers to remain competitive in the evolving market.

i) **Economic Instability:** Many participants have expressed their worries on the near future of the industry. Economic instability, inflation, and economic fluctuations can impact the construction industry, leading to uncertainties in project pipelines, funding, and employment stability for the construction sector. There is an significant need the construction industry to alter the way construction companies operate in order to defend themselves against such dangers.

In conclusion, the challenges faced by the construction sector at national and EU level include the shortage of skilled labour, the need for training and upskilling, health and safety concerns, material shortages and increased costs, communication and cultural differences, administrative and bureaucratic hurdles, image and perception issues, changing market dynamics, and economic instability. Solutions to the above are met in different areas. Different stakeholders such as government bodies, construction companies, and industry associations need to act. A common solution though lies in the training and upskilling of the workforce (current and future).

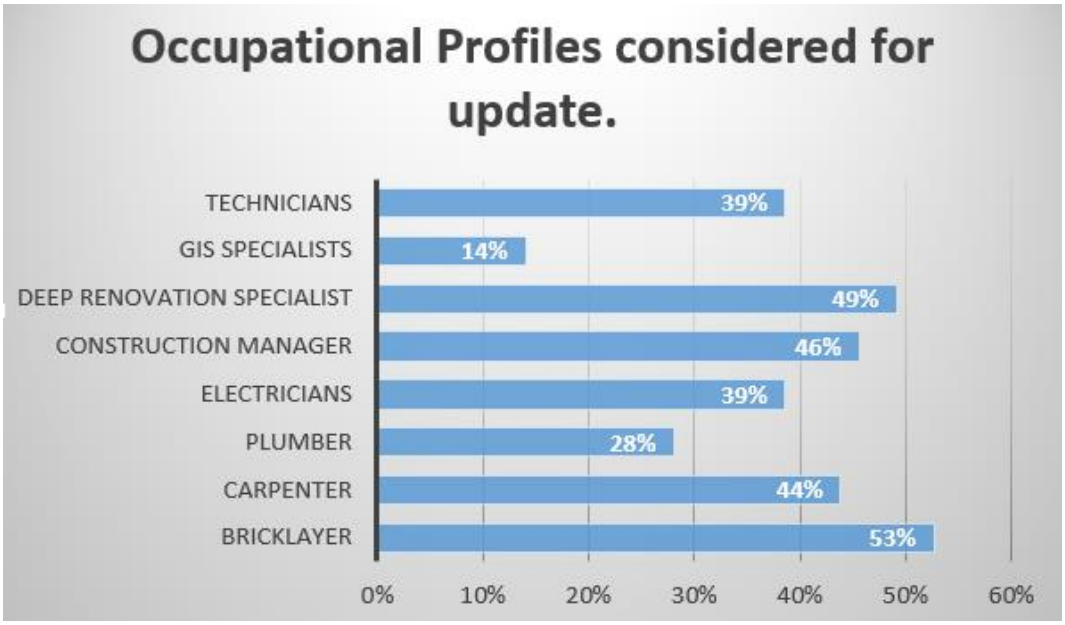
Occupational Profiles at EU level considered to be updated are:

Participants have been asked to choose among the following occupational profiles, those which are needed to be updated to support the upskilling process.

- Bricklayer
- Deep Renovation Specialist
- Construction Manager
- Carpenter
- Technicians
- Electricians
- Plumber
- GIS Specialists

The profiles most in need to be updated is the **a) Bricklayer**, **b) Deep Renovation Specialist** and **c) Construction manager**, **d) carpenters**

Below we also present the results at national level.



Other occupational profiles considered important to be upgraded:

Participants were also asked to name other occupational profiles they consider important to be upgraded at national level. As it is proven by the national reports the national construction sectors differ a lot in terms of national qualification frameworks, economy and market situation, legislation, VET system. This led to a variety of responses among the partners. In order to better present the results, the occupational profiles mentioned were grouped in four different categories, as seen below:

Group 1: Construction Specialties

This group includes professionals with specialized skills and knowledge in specific construction trades or disciplines.

- Finishing trades / textile architecture interface / recycling industries interface
- Insulation specialists, governments, clients, designers
- New technologies
- Renovation specialists
- External wall insulation installers EWI (incorporate insulation and specific plastering) and green/circular advisers

- Plastering
- Niche or emerging occupations for retrofit
- Roofer (waterproofing, thermal insulation, and roof finishing technician

Group 2: Project Management and Innovation

This group consists of professionals responsible for overseeing and managing construction projects from inception to completion.

- Management of complex operations in general contracting, BIM trades, Smart building, and Smart City
- Lack of workforce in general and for new projects
- Proposal manager for energy renovation; facilitator for articulated decisional processes; "performance" surveyor
- Digitalization of machine operation. Inspection and work with UAS
- The bricklayer, in terms of gender training, making it easier for women to work, among other updates demanded by society and the 2030 Agenda
- Property Administrators as an essential rehabilitation agent: ability to comprehensively understand all the different aspects of rehabilitation, channelling work to other technicians and professionals, and economic and administrative management, both in rehabilitation and subsequent operation

Group 3: Skilled Labour and Support Roles

This group encompasses a wide range of skilled laborers and support roles that are essential to the construction industry.

1. All General Workers/Labourers
2. CONDUTTORI DI MACCHINE OPERATRICI (conductors of operating machines)
3. APPRENDISTATO (apprenticeship)
4. Escavatorista (excavator operator)
5. STAFF WITH ADEQUATE SCHOOL TEACHING
6. Amministrazione e flusso di cassa (administration and cash flow)
7. Drivers and transporters
8. Construction company personnel; Promoters; Waste manager
9. Admin. technicians

Group 4: Client Relations and Heritage Preservation

This group focuses on client relations and the preservation of cultural heritage in the construction industry. Professionals in this group work closely with clients, understanding their needs and requirements, and ensuring effective communication and collaboration throughout the project. The client has a key role in driving the market.

- Client responsible
- Designers
- Building contractors
- Manoeuvres

Recommended skills:

Participants were also asked to recommend skills that could let to the update of the profiles and the upskilling of the sector. Despite the differences at national level and the variety of skills recommended ten clear skill-sets have been identified during the analysis of the results – and in comparison to the results of the previous tasks (1 and 2) and the national reposts.

The ten categories of skills that that individuals working in the construction industry lack and need to be obtain are the below:

1. **Digitalization:** Many individuals (current and future workers) lack **digital skills**, including the ability to use digital tools and technologies such as BIM (Building Information Modelling), IoT (Internet of Things) platforms, and other digital platforms. This lack of digital literacy hampers their ability to adapt to the changing technological landscape of the industry.
2. **Green Techniques/Energy Saving Methods:** There is a lack of knowledge and skills related to green techniques, energy-saving methods, and sustainability practices. This includes knowledge of new energy schemes, recycling, environmental sensitivity, and understanding the concept and application of the circular economy.
3. **Construction Skills:** Specific construction skills such as understanding water vapor migration, detailed planning, and implementation in the field are also lacking. At the same time workers in the construction sector need to combine the above skills with others (multi-skilled). Construction workers should present good construction skills will at the same time consider environmental impacts, analyse and manage data, and integrate and implement the circular economy.
4. **Language and Communication:** Language barriers, particularly the lack of English proficiency among electricians, can impede their ability to understand complex machinery manuals. In addition, the construction sectors in many EU countries employ foreign workers who do not always speak the national language. Construction sites are actually multi-cultural working environment and language as well as communication skills are considered a necessity and should be improved, as this lack of language skills can hinder the overall progress and completion of projects.
5. **Energy Efficiency and Renewable Technologies:** There is a need for improved skills in areas related to energy efficiency, renewable technologies, retrofitting, heat pump installation, and the use of digital tools and BIM management. These skills are crucial for achieving Net Zero Energy Buildings (NZEB)[7] and incorporating sustainable practices in construction.
6. **Cross-Trade Training and Collaboration:** The construction sector includes a lot of trades that need to collaborate with each other for the completion of work. For example, carpenters and other professionals need cross-trade training to understand the work of other trades and how their own work impacts the overall project. Collaboration, knowledge sharing, and understanding of energy efficiency fundamentals and circular economy principles are vital for the industry.
7. **Soft Skills and Mindset:** Soft skills such as flexibility, adaptability, willingness to learn, and change mindset are lacking in the construction industry. These skills are essential for embracing new technologies, sustainability practices, and adopting innovative approaches.

[7] https://europeanclimate.org/wp-content/uploads/2022/03/ecf-building-emissions-problem-march2022.pdf

8. **Knowledge of New Materials and Technologies:** Construction workers, especially bricklayers and carpenters, lack knowledge and understanding of new materials, digitalization, and interconnections with other tasks. This lack of knowledge hampers their ability to adapt to new processes and technologies.

Overall, it is clear that there is a need for comprehensive upskilling and training programs in the construction industry, focusing on **digitalization, sustainability, energy efficiency**, and the **use of new materials and technologies**. Addressing these skill gaps will enable the industry to meet evolving demands, improve productivity, and contribute to a more sustainable future.

Below a list with specific skills emerged during the project and grouped in the three main qualification areas where the Construction Blueprint project focused.

Specific Skills Identified per field (Table 11)		
Energy Efficiency	**Digitalization**	**Circular Economy**
• New energies • New materials • LCCA analysis • Technical and legal requirements for energy efficiency • Long-term energetic sustainability • Installation of energy-efficient coatings • Energy efficiency mindset	• Use of the BIM model • Knowledge of collaboration processes linked to BIM • BIM mastery and administration • Technical knowledge of building industry software • Mobile technologies • Virtual reality • Artificial learning • Intelligent automation • Use of digital apps for work recording and information transfer • ICT tools for planning and management	• Valorisation of materials and waste from renovation or demolition sites • Waste management on site • Circular economy impact on natural resources • Reduction in waste • Reuse, recycling, and repair for extended producer responsibility • Mapping tools and digital models for circular economy • Knowledge of materials for building energy efficiency in relation to traditional products • Reuse and recycle in construction • Digitization of traceability for circular economy

Some skills overlap across the three qualification areas. These skills highlight the interconnectedness between digitalization, energy efficiency, and circular economy in the construction industry and indicate the need of a holistic upgrade of the occupational profiles.

The skills that overlap across multiple groups are:

- **Use of the BIM model:** This skill is relevant to both Energy Efficiency and Digitalization as it involves utilizing digital technology for collaborative project management and optimizing energy performance.

- **Technical knowledge of the building industry:** This skill is mentioned in Digitalization as proficiency in office automation and design software. It is also relevant though to Energy Efficiency as it enables understanding and implementing energy-efficient technologies and practices
- **Waste management on site:** This skill is seen in both Digitalization and Circular Economy as it involves effectively managing and recycling construction waste, contributing to both sustainability and resource conservation.
- **Reuse, recycling, and repair for extended producer responsibility (EPR) channels:** This skill is present in both Digitalization and Circular Economy. It emphasizes the importance of implementing circular economy principles by promoting the reuse, recycling, and repair of materials and products.

6.5 Recommendations for upgrading occupational profiles

The role of the construction sector at national and European level regarding economic development, job creation, and sustainable growth is considered vital. As the national analyses, that were held at each of the 12 countries of the Construction Blueprint project (see annexes), indicate the industry goes through rapid changes and faces various challenges at national and therefore at European levels.

The update of the occupational profiles is considered among the best given solutions, as well as the upskilling of the workforce. In order to meet the demands of such a dynamic landscape, countries across Europe have identified key skills that require upgrading within their respective national construction sectors and national qualification frameworks.

By updating occupational profiles to align with the evolving needs of the construction sector, European countries can foster a skilled workforce capable of driving innovation, sustainability, and competitiveness in the industry. This introduction sets the stage for a comprehensive approach to updating occupational profiles at the European level, ensuring the construction sector remains resilient, adaptive, and sustainable in the face of future challenges.

Considering the diverse national characteristics and skill requirements, the project has proceeded into make recommendations at national level. At the same point suggestions on emerging occupational profiles have been included ranging from technicians specializing in energy renovation and digitalization to professionals focused on sustainability, green transition, and circular economy principles.

A complete analysis at national level is provide in the national reports of all the 12 countries of the project (Belgium, Finland, France, Germany, Greece, Ireland, Italy, Lithuania, Poland, Portugal, Slovenia, Spain) available on the website of the project, in their native languages as well.

In the table below the key summary points of each countries are presented.

Core Upgrading Skills per Country (Table 12A)					
		Belgium	Finland	France	Germany
National Construction Sectors Characteristics		• Skill gaps • Job vacancies • Regional Training • Green jobs • Sustainable construction • Sectorial collaboration	• Sustainability • Vocational education and training • Shortage of supervisors and designers • Changing construction methods	• Regulatory changes -Environmental regulation (RE2020) • Climate challenge • Covid-19 pandemic • Price of materials and energy • Waste management • Digital transformation	• Dual system: learning in the company and in the vocational school • Vocational training • Skill gaps • Training regulations
Skill to be updated per Qualification area	Energy Efficiency	• Familiarity with Building Energy Management Systems (BEMS) • Knowledge of Energy-Efficient Insulation Techniques: • Acquiring knowledge about energy-efficient lighting systems and control technologies	• Learning about sustainable building materials and techniques, • knowledge and skills in conducting energy audits • Staying updated on the latest energy-efficient construction practices and technologies	• Understanding energy-efficient technologies and systems used in construction machinery • Knowledge of modern heating technologies, such as heat pumps, solar thermal systems, and energy recovery systems • Understanding and installing renewable heating technologies	• Understanding of energy-efficient building practices and techniques. • Knowledge of energy-efficient production techniques for concrete, natural stone, and artificial stones. • Familiarity with energy-efficient construction equipment and machinery.
	Circular Economy	• Proficiency in Waste Management and Recycling • Understanding circular economy principles in waste management and disposal	• Waste management and recycling on construction sites: • Knowledge of sustainable building materials and integrating them into architectural designs to promote the use of recycled and eco-friendly materials. • Implementing circular economy principles in construction projects	• Knowledge of sustainable masonry practices, including the use of locally sourced and environmentally friendly materials, such as natural stone or recycled bricks • Understanding waste management strategies on construction sites • Knowledge of certified wood products, recycling and repurposing wood waste, and implementing circular design principles in the manufacturing and construction of wooden structures	• Knowledge of sustainable construction practices, such as the use of recycled or reclaimed materials in construction projects. • Familiarity with sustainable material sourcing and utilization in engineered stone production. • Ability to incorporate recycled or upcycled tiles and materials into tiling projects.
	Digitalization	• Understanding and working with sustainable flooring materials: • Proficiency in Digital Design and Visualization Tools • Embracing digital project management and communication tools	• Use Building Information Modelling (BIM) software for construction planning and coordination. • Staying updated on digital tools and technologies relevant to the construction industry	• Proficiency in implementing BIM workflows on construction sites • Familiarity with digital project management tools and software • Utilizing data analytics to optimize production processes and equipment performance	• Proficiency in using digital tools and software for design and production planning. • Proficiency in utilizing digital tools for building inspection and damage assessment. • Proficiency in utilizing digital tools for construction equipment operation and management.
Suggested Emerging Occupational Profiles		• Technician-coordinator in energy renovation • Insulation professionals • Energy performance of buildings • Building thermic • Energy renovation project	• Digitalization • Energy smart areas • Robotics • Virtual reality (VR) • Augmented reality (AR)	• Management and bricklaying • Qualified workers in renovation works • Architects and construction managers • Skilled building workers for energy efficiency standards	• Environmental protection and sustainability • Reading and applying analogue and digital plans and drawings • Carrying out analogue and digital measurements • Energy efficiency measures

Core Upgrading Skills per Country (Table 12B)					
		Greece	Ireland	Italy	Lithuania
National Construction Sectors Characteristics		• Construction industry growth • Foreign investments • Sustainable building practices • Legislation reshaping • Worker shortage • Adoption of new technologies • Energy efficiency - ESG objectives	• Housebuilding increase • Employment growth Female representation in construction • Occupations in short supply • Public investment in construction • Aging construction workforce • Apprenticeship system	• Skill gaps • Renewable energy • Sustainable development • Resilience plans • Green skills • Circular economy • Sustainable housing	• Skill gaps • Non-residential buildings • Engineering structures • Residential buildings • Real estate market • Housing demand
Skill to be updated per Qualification area	Energy Efficiency	• Knowledge of energy-efficient construction techniques, materials, and technologies • Understanding energy-efficient building practices • Ability to recommend and install energy-efficient glazing systems • Ability to collect, analyze, and interpret data from machine sensors and monitoring systems • Ability to run diagnostic software for energy-efficient practices	• Knowledge of heat pump installation and maintenance • Understanding mechanical ventilation systems • Familiarity with heating controls for energy efficiency • Knowledge of ventilation controls to optimize indoor air quality and energy usage • Understanding control strategies for efficient energy management • Knowledge of decarbonization strategies in construction • Understanding energy and carbon reduction options in building projects	• Designing and implementing energy-efficient water systems in buildings • Installing and maintaining energy-efficient water systems, including the use of efficient appliances and equipment • Coordinating energy-efficient insulation projects, including the selection and implementation of suitable insulation systems	• Proficiency in installing various types of pipes • Knowledge of proper techniques for filling holes with thermal insulation materials for energy efficiency • Understanding heat pump installation and maintenance procedures for optimal energy performance
	Circular Economy	• Familiarity with sustainable and recycled materials • Familiarity with green building certifications and standards • Knowledge of recycling and waste management principles specific to machinery components • Ability to identify opportunities for resource recovery, waste reduction, and recycling • Understanding of circular economy principles and practices in construction	• Awareness of retrofitting incentives and opportunities for energy efficiency improvements • Understanding the challenges and considerations in building and retrofitting for energy efficiency	• Understanding circular economy principles and practices in waste recovery, recycling, and reuse • Promoting circular economy practices in insulation projects, such as recycling and reusing insulation materials (and resource efficiency. • Recognizing materials and their physical and chemical characteristics for effective construction and demolition waste recycling	• Knowledge and practice of proper packaging and waste sorting techniques • Understanding how to identify and salvage reusable materials on construction sites • Knowledge of sustainable procurement practices, such as sourcing environmentally friendly and locally produced materials
	Digitalization	• Familiarity with digital tools, software, and applications used in the construction industry • Proficiency in digital documentation and record-keeping • Knowledge of Building Information Modelling (BIM) software and workflows • Proficiency in using construction management software and project management tools • Proficiency in computer-aided design (CAD) software and 3D modelling	• Ability to interpret construction drawings and specifications • Familiarity with Building Information Modelling (BIM) for digital construction management • Proficiency in using digital logbooks for documenting energy-related data and performance metrics	• Proficiency in using digital tools for water system design, modelling, and performance analysis • Basic digital literacy skills for accessing and interpreting digital plans and specifications • Proficiency in using energy management software and digital analytics tools for monitoring and optimizing energy consumption	• Proficiency in using BIM software and techniques • Knowledge of digital project management tools and methodologies • Familiarity with integrating Internet of Things (IoT) devices and smart systems in construction projects
Suggested Emerging Occupational Profiles		• Geographic information systems (GIS) specialists • Smart Building Programming Technician • Executive of Energy Saving Applications in Buildings • Building Management Systems (BMS) Protocols • Restoration & maintenance of historic and traditional buildings	• BER Assessor • Retrofit Engineer / Designer • Retrofit Coordinator • Heat Pump Installer • Domestic Solar PV installer • Insulation Operatives	• Craftsmen, skilled workers and plant and vehicle operators • Specialists and technical professions	• Sustainability • Green transition

Core Upgrading Skills per Country (Table 12C)					
		Poland	Portugal	Slovenia	Spain
National Construction Sectors Characteristics		• Skill gaps (Energy efficiency, Digitalization, Circular economy) • Market qualifications • Green construction • Thermal modernization • Renewable energy installations • Foreign workers	• Labour shortage • Qualified professionals • Rising costs • Raw materials • Public tenders • Attractiveness of the sector & Incentives for construction workers	• Labour shortage • Investment in construction • Export and import of construction services • Construction costs • Residential property prices	• Unemployment rate / Employment decline • Future employment growth • Digital education • High-tech occupations • Building permits
Skill to be updated per Qualification area	Energy Efficiency	• Advanced energy efficiency skills • Organization of works for energy efficiency • Advanced techniques related to energy efficiency	• Developing skills in energy-efficient building practices and technologies can help construction workers contribute to energy-saving initiatives	• Heat pumps • Solar power plants	• Ensuring the proper composition and consistency of concrete, (mixing concrete) • Proper installation of insulation materials • Accurate material estimation is crucial for cost control and efficient resource management
	Circular Economy	• Use of new materials • Waste management organization	• Embracing the principles of the circular economy in the construction sector can minimize waste, promote resource efficiency, and reduce environmental degradation.	• Green transition • Sustainability	• Ability to apply effective waste sorting practices • Knowledge and experience in identifying and reusing suitable construction materials • Applying protective coatings on surfaces
	Digitalization	• Digital tools use • BIM use • Work organization in the BIM system	• Advancements in digital technologies have revolutionized the construction industry. Construction workers can benefit from skills in digital tools	• Digitization of work • BIM systems • 3D mapping	• Proficiency in reading and understanding construction 2D and 3D drawings • Competence in using various power tools is essential for efficient and precise construction activities • Maintaining accurate and up-to-date records of work progress
Suggested Emerging Occupational Profiles		• 3D Printing Technology in Construction • Digitization of Investment and Construction Processes • Unmanned Aerial Vehicle Systems (Drones) in Construction • Green Construction/Circular Economy • Building Material Recovery and Reuse • Building Renovation and Thermal Modernization • High-Efficiency HVAC Systems • Renewable Energy Source Installations	• Construction Project Managers with Digital Skills • Sustainable Design and Retrofit Specialists • Green Construction • Smart Technology, Cost Control.	• Energy Auditor • Green Skills • Sustainable Development • Accreditation Schemes • Technological and Regulatory Changes	• Energy audit managers • Energy auditors • Energy audit technicians • Mechanical, air-conditioning, and heating installation technicians • Technicians in energy audits for electricity and lighting installations • Building energy audit technicians • Technicians in energy audits for thermal installations

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7. Final Remarks

7.1 Summarising the key aspects of the report

Despite the differences of the construction sectors at national levels, the three main fields of energy efficiency, circular economy and digitalisation are common to all countries of the Construction Blueprint Project. Almost all the occupational profiles (more than 250) identified at national level are in need to be updated with skills that fall under these three main fields. Their update is considered essential in order to address the industry's evolving challenges and requirements.

While on one hand it is important to focus on updating the occupational profiles of the construction sector at national level, at European Level it might be useful to discuss on developing the following horizontal efforts.

Addressing Skill Gaps: The existing skill gaps should be recognized and bridged by prioritizing comprehensive training programs and initiatives. This includes focusing on the needs of specific countries and tailoring training programs accordingly, yet a European framework could be of necessary. Such a framework should foster the collaboration between industry stakeholders, educational institutions, and vocational training providers is crucial for identifying and addressing these skill gaps effectively.

Embracing Sustainable Practices: Sustainable construction practices should be promoted / adopted at larger scale. Updating occupational profiles to incorporate skills related to energy efficiency, circular economy principles, and sustainable building materials is among the most proper solutions. The provision of training on the latest energy-efficient construction techniques, green building certifications, waste management, and the use of recycled materials is recommended. This will enable construction professionals to contribute to environmental conservation and meet the growing demand for sustainable infrastructure.

Enhancing Digitalisation: The importance of digitalization in the construction industry and update occupational profiles to include digital skills should be further recognized. Proficiency in Building Information Modelling (BIM), digital project management tools, and other relevant digital technologies are considered key points at this point. This will enable construction professionals to leverage digital tools for improved project coordination, cost control, and data-driven decision-making.

Fostering Collaboration and Knowledge Sharing: Collaboration between industry stakeholders, academia, and vocational training institutions to facilitate knowledge sharing and innovation should be encouraged. This collaborative approach will ensure a well-rounded and up-to-date skill set among construction professionals.

Promoting Lifelong Learning: Emphasis on the importance of continuous learning and professional development within the construction sector, should be put. Construction professionals should be encouraged to participate in ongoing training programs, workshops, and certifications to stay updated with the latest industry trends, technologies, and regulations. This will enhance their adaptability and enable them to meet the evolving needs of the construction sector.

Strengthening Vocational Education and Apprenticeship Programs: Vocational education and apprenticeship programs are to provide hands-on training and practical experience to aspiring construction professionals. The quality and accessibility of these programs should be enhanced if it is to attract more individuals to the construction sector. Fostering collaboration between educational institutions and construction companies to ensure alignment between the skills taught and industry requirements, might be a good idea

Upskilling and Training: There is a general lack of upskilling and training opportunities, particularly in areas such as climate change, new technology, and new regulations. Trade unions and industry organisations should collaborate to establish upskilling programs that address these emerging needs.

These efforts will contribute to the growth and resilience of the European construction sector while meeting the demands of a rapidly changing environment.

7.2 Stakeholders' Presentation

Upon the finalization of the national reports each partner country shared the results and recommendations with at least national stakeholders. Partners either organised a group meeting with stakeholders, or a bilateral meeting, or/and disseminated the national reports via e-mail.

The purpose of the meetings was to share the project's results, engage stakeholders in discussions, and foster a path forward to upskill the construction workforce, aligning it with the evolving demands of the industry, adopting newly emerged developments, and responding to challenges at the national and European levels.

Discussions focused on the Construction Blueprint project conclusions and suggestions for upskilling the existing occupational profiles were presented, recommending the enhancement of competencies of construction workers in the areas of Energy Efficiency, Circular Economy, and Digitalization.

Among the stakeholders that the national reports shared with, were National Association, Local and National Construction Companies and enterprises, VET institutes, National Institute of Qualifications as well as individuals.

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Annexes

ISCO Occupational Profiles

National Occupational Profiles

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	ALTERNATIVE TITLES OF OCCUPATIONS	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE	OPTIONAL SKILLS	OPTIONAL KNOWELDGE
ISCO-089313	here	**Elementary Occupation: Building construction labourers**	**9313.1-Building construction worker**	*building construction labourer mechanical construction worker electrical construction worker construction site worker building site labourer installation and commissioning construction worker construction site labourer construction worker building site worker construction labourer civil construction worker*	**Experience in Construction/Heavy Equipment/Earthmoving Equipment Operation/ EQF Level 1-2**	Building construction workers prepare and maintain building construction activities on construction sites. They perform preparation and clean-up work in order to assist specialised construction workers.	apply finish to concrete check compatibility of materials dig soil mechanically follow health and safety procedures in construction inspect construction supplies inspect masonry work install construction profiles install wood elements in structures mix concrete move soil operate digging construction equipment place drywall pour concrete prepare surface for painting prepare surface for plastering prepare wall for wallpaper transport construction supplies use safety equipment in construction work in a construction team	apply adhesive wall coating communicate with construction crews construct wood roofs cut wall chases finish mortar joints fit doors inspect construction sites install plumbing systems install roof windows lay tiles operate concrete pumps operate masonry power saw place concrete forms plan construction of houses plaster surfaces read standard blueprints screed concrete secure heavy construction equipment set window	building construction principles building materials industry carpentry construction industry construction methods demolition techniques plumbing tool types of concrete forms types of concrete pumps types of plastering materials
ISCO-083112	here	**Technicians and Associate Professionals**	**3123.1-Construction General Supervisor**	*construction programme manager construction general supervisor construction programme supervisor construction supervisor construction project supervisor building programme supervisor building programme manager construction general supervisor*	**Academic Background in technology or engineering/EQF 3-4**	Construction general supervisors keep track of the proceedings of all stages in the building process. They coordinate the different teams, assign tasks, and resolve problems.	conduct quality control analysis coordinate construction activities ensure compliance with construction project deadline ensure equipment availability evaluate employees' work follow health and safety procedures in construction inspect construction supplies keep records of work progress liaise with managers manage health and safety standards monitor stock level plan resource allocation plan shifts of employees process incoming construction supplies react to events in time-critical environments secure working area supervise staff use safety equipment in construction work in a construction team	advise on railway infrastructure repairs apply arc welding techniques apply spot welding techniques apply thermite welding techniques calculate needs for construction supplies inspect rail from track inspection vehicle inspect railways visually install railway detectors maintain rail infrastructure monitor ballast regulator monitor rail laying machine monitor rail pickup machine monitor tamping car operate grappler operate rail grinder operate sleeper clipping unit order construction supplies provide first aid provide technical expertise recruit employees rig loads train employees transport construction supplies use measurement instruments work ergonomically	construction product regulation cost management machinery load capacity
ISCO-083111	here	**Technicians and Associate Professionals**	**3116.1.1-Asphalt laboratory technician**	*road surface laboratory technician asphalt production technician road surface technician technical supervisor, asphalt production bitumen technician bitumen production technician aggregates and asphalt laboratory technician aggregates and bitumen laboratory technician site technician, asphalt site technician asphalt technician asphalt production technical supervisor materials technician laboratory technician, asphalt*	**Academic Background in technology or engineering or laboratory training/EQF 34**	Asphalt laboratory technicians perform asphalt and related raw materials inspections and laboratory testing, ensuring a high quality of the products. They also participate in coming up with resolutions to technical issues on construction sites.	apply safety procedures in laboratory check quality of raw materials inspect asphalt inspect construction supplies run laboratory simulations supervise laboratory operations supervise site maintenance test concrete use safety equipment in construction writes inspection reports	conduct soil sample tests follow health and safety procedures in construction set up temporary construction site infrastructure	civil engineering construction industry construction methods
ISCO-08216	here	**Professionals: Architects, planners, surveyors and designers**	**2161- Building architects**	*architectural designer architects' residential architect architectural planner commercial architect building designer urban architect*	**Academic background in urban planning, construction and architecture/EQF 4-5**	Building architects design commercial, industrial, institutional, residential and recreational buildings and plan and monitor their construction, maintenance and rehabilitation.	advise on building matters analyse problems for opportunities conduct field work consider building constraints in architectural designs create architectural sketches design buildings design open spaces design spatial layout of outdoor areas develop architectural plans draw blueprints execute feasibility study identify customer's needs identify necessary human resources integrate building requirements of clients in the architectural design integrate engineering principles in architectural design integrate measures in architectural designs interpret technical requirements meet building regulations negotiate with stakeholders perform field research	adapt existing designs to changed circumstances advise customers on building materials advise legislators assess environmental impact carry out tendering communicate with construction crews communicate with local residents develop a specific interior design develop professional network ensure compliance with construction project deadline finish project within budget follow work schedule liaise with local authorities make architectural mock-ups manage contracts monitor parameters' compliance in construction projects oversee construction project participate in governmental tenders prepare building permit applications prepare lesson content provide lesson materials provide technical expertise strive for harmonious architectural constructions use specialised design software	architectural conservation building materials industry cartography construction legal systems energy efficiency energy performance of buildings engineering principles fine arts furniture trends furniture wood types of historic architecture landscape architecture mathematics physics project management topography zero-energy building design

							provide cost benefit analysis reports satisfy aesthetic requirements satisfy technical requirements use CAD software write an architectural brief		
ISCO-081219	here	**Managers: Business services and administration managers not elsewhere classified**	**1219.1.1-Facilities Manager**	*building cleaning and maintenance manager* *facilities maintenance manager* *building maintenance manager* *facility maintenance technician* *facilities coordinator* *facilities superintendent* *facilities administrator*	**Educational background in Business, Administration and /EQF 3-4**	Facilities managers perform strategic planning as well as routine operational planning related to buildings' administration and maintenance. They control and manage health and safety procedures, supervise the work of contractors, plan and handle buildings maintenance operations, fire safety and security issues, oversee buildings' cleaning activities, utilities infrastructure and are in charge of space management.	carry out energy management of facilities ensure compliance with noise standards ensure equipment availability ensure equipment maintenance ensure inspections of facilities establish daily priorities follow company standards handle customer complaints inspect building systems inspect contracts for related grounds maintenance work liaise with managers maintain customer service maintain relationship with customers manage budgets manage facilities services manage logistics manage maintenance operations manage space utilisation manage staff manage supplies oversee the facilities services budget perform risk analysis plan buildings maintenance work plan facilities management policies plan health and safety procedures promote facilities management services strive for company growth supervise daily information operations	apply procurement create solutions to problems handle surveillance equipment liaise with security authorities manage emergency evacuation plans manage major incidents read standard blueprints recruit employees respond to burglar alarm systems	accounting building automation cleaning industry health and safety measures contract law employment law energy market energy performance of buildings supply chain management
ISCO-08711	here	**Craft and Related Trade Workers: Building Frame and related trades workers**	**7112-Bricklayers**	*industrial oven brick mason* *trowel occupation worker* *brick laying labourer* *specialist brick layer brick laying worker brick layer*	**Educational background in Building and civil engineering/EQF 2**	Bricklayers assemble brick walls and structures by skilfully laying the bricks in an established pattern, using a binding agent like cement to bond the bricks together. They then fill the joints with mortar or other suitable materials.	check straightness of brick finish mortar joints follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies install construction profiles interpret 2D plans interpret 3D plans lay bricks mix construction grouts secure working area snap chalk line sort waste split bricks transport construction supplies use measurement instruments use safety equipment in construction work ergonomically	apply finish to concrete apply proofing membranes apply restoration techniques build scaffolding calculate needs for construction supplies document survey operations estimate restoration costs inspect supplied concrete install falsework install insulation material keep personal administration keep records of work progress maintain equipment maintain work area cleanliness mix concrete monitor stock level operate masonry power saw operate surveying instruments order construction supplies place concrete forms pour concrete process incoming construction supplies reinforce concrete remove concrete forms rig loads screed concrete set up temporary construction site infrastructure use squaring pole work in a construction team	building codes
ISCO-08711	here	**Craft and Related Trade Workers: Building Frame and related trades workers**	**7111.1-House Builder**	*builder of houses* *builder* *domestic property builder* *home builder* *residential property builder*	**Educational background in Building and civil engineering/EQF 2**	House builders construct, maintain and repair houses or similar small buildings using a range of techniques and materials of several construction building workers.	assess construction compliance check compatibility of materials create floor plan template create smooth wood surface design floor follow health and safety procedures in construction follow safety procedures when working at heights inspect concrete structures inspect roofs install construction profiles install wood elements in structures maintain construction structures perform roof maintenance plan construction of houses prepare building site prepare surface for hardwood floor laying read standard blueprints seal flooring use safety equipment in construction work in a construction team building codes building materials industry roofing techniques	apply roll roofing calculate needs for construction supplies construct wood roofs coordinate construction activities cut resilient flooring materials cut stair carriages ensure compliance with construction project deadline install gutters install in-floor and in-wall heating install laminate floor install metal roofing install roof flashing install structural glazing lay interlocking roof tiles lay non-interlocking roof tiles lay resilient flooring tiles order construction supplies prepare roofing materials prepare surface for painting process incoming construction supplies set up temporary construction site infrastructure	construction product regulation energy efficiency energy performance of buildings
ISCO-087114	here	**Craft and Related Trade Workers: Building Frame and related trades workers**	**7114.1-Concrete finisher**	*flooring operative* *concrete floor finisher and layer* *layer and finisher* *concrete finisher and layer floor finisher* *concrete flooring operative* *concrete floor finisher power float finisher* *cement finisher wet concrete finisher* *cement mason concrete layer* *concrete renovator power floater concrete finisher ganger*	**Educational background in Building and civil engineering/EQF 2**	Concrete finishers work with binding agents like cement and concrete. They put up any removable forms and pour concrete into the forms. They then execute one or several actions to finish the concrete: cutting, screeding or levelling, compacting, smoothing, and chamfering to prevent chipping.	clean wood surface follow health and safety procedures in construction inspect concrete structures inspect supplied concrete mix concrete monitor concrete curing process place concrete forms pour concrete prevent damage to utility infrastructure react to events in time-critical environments recognise signs of corrosion remove concrete forms screed concrete transport construction supplies use measurement instruments use safety equipment in construction work ergonomically work in a construction team	apply finish to concrete apply proofing membranes apply spray foam insulation calculate needs for construction supplies drive mobile heavy construction equipment feed hoppers follow safety procedures when working at heights guide concrete hose inspect construction supplies install insulation blocks interpret 2D plans interpret 3D plans keep heavy construction equipment in good condition keep records of work progress monitor stock level operate concrete mixer truck operate road roller order construction supplies plan surface slope process incoming construction supplies report defective manufacturing materials rig loads set up reinforcing steel set up temporary construction site infrastructure sort waste tie reinforcing steel use sander	types of concrete form types of concrete pumps

ISCO-087113	here	Craft and Related Trade Workers: Building Frame and related trades workers	7113.1-Stonemason	*tombstone carver* *architectural stone mason stone carver* *structural stoneworker* *memorial stonemason* *heritage stone mason* *artisanal stonemason* *artisanal stone mason* *stoneworker stone mason* *craft stonemason* *mason* *stone setter heritage stonemason* *memorial mason* *stone finisher fixer* *mason stone cutter* *architectural stonemason* *craft mason building mason banker mason*	**Educational background in Building and civil engineering/EQF 2**	Stonemasons manually carve and assemble stone for construction purposes. While CNC operated carving equipment is the industry standard, artisanal carving for ornamental stone is still done manually.	create cutting plan follow health and safety procedures in construction inspect construction supplies inspect stone surface interpret 2D plans interpret 3D plans maintain work area cleanliness mark stone workpieces operate grinding hand tools polish stone by hand prepare stone for smoothing regulate cutting speed secure working area transport construction supplies use measurement instruments use safety equipment in construction use stonemason's chisel work ergonomically	advise on construction materials answer requests for quotation apply restoration techniques assess conservation needs build scaffolding calculate needs for construction supplies estimate restoration costs finish mortar joints follow safety procedures when working at heights keep personal administration keep records of work progress lay stones maintain equipment mix construction grouts monitor stock level operate forklift order construction supplies pack stone products	polish stone surfaces process incoming construction supplies program a CNC controller rig loads set up temporary construction site infrastructure sharpen edged tools sort waste tend stone splitting machine use pneumatic chisel use traditional stone splitting techniques work in a construction team
ISCO-087119	here	Craft and Related Trade Workers: Building	7119.4-steeplejack	*suspended platform driver rope access technician height worker MWEP operator* *rope access steeplejack*	**Educational background in Building and civil engineering/EQF 2**	Steeplejacks are specialised height workers who safely scale the outside of buildings and structures to perform critical work.	build scaffolding construct working platform follow health and safety procedures in construction follow safety procedures when working at heights handle equipment while suspended inspect climbing equipment inspect construction supplies spot other climbers use safety equipment in construction work ergonomically work from suspended access cradle work in a construction team	blast surface clean building facade clean glass surfaces inspect concrete structures inspect insulation inspect masonry work inspect paintwork inspect roofs inspect scaffolding inspect wind turbines install insulation material keep personal administration keep records of work progress lay bricks paint surfaces perform search and rescue missions prune hedges and trees set up temporary construction site infrastructure set window	risk assessment for window cleaning
ISCO-087119	here	Craft and Related Trade Workers: Building Frame and related	7119.1-Construction scaffolder	*scaffolding labourer* *scaffolder in construction* *access platform labourer* *scaffold erector platform erector scaffolder* *(construction) access platform erector site scaffolder*	**Educational background in Building and civil engineering/EQF 2**	Construction scaffolders put up scaffolds and platforms in order to make safe construction work at heights possible.	build scaffolding construct working platform dismantle scaffolding follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies interpret 2D plans interpret 3D plans position base plates position guardrails and toe boards position sole plates recognise signs of corrosion recognise signs of wood rot use measurement instruments use safety equipment in construction work ergonomically work in a construction team	inspect scaffolding install scaffolding pump jacks keep personal administration keep records of work progress plan scaffolding position outriggers process incoming construction supplies rig loads set up temporary construction site infrastructure transport construction supplies work safely with machines	construction product regulation mechanical tools
ISCO-087119	here	Craft and Related Trade Workers: Building Frame and related trades workers	7119.2-Demolition worker	*demolition reclamation operative* *top woman* *demolition project worker* *topman* *mattock woman* *demolition operations worker demolition labourer* *mattock man* *demolition site worker* *demolition and dismantling worker* *demolition experienced worker*	**Educational background in Building and civil engineering/EQF 2**	Demolition workers operate equipment to demolish structures. They safely destroy buildings and remove the debris to permit the site to be used for a different purpose.	demolish structures dispose of non-hazardous waste drive mobile heavy construction equipment follow health and safety procedures in construction keep heavy construction equipment in good condition operate heavy construction machinery without supervision operate jackhammer prevent damage to utility infrastructure react to events in time-critical environments recognise the hazards of dangerous goods secure working area transport construction supplies use safety equipment in construction work ergonomically work in a construction team	demolish selectively dispose of hazardous waste follow safety procedures when working at heights guide operation of heavy construction equipment keep personal administration keep records of work progress operate excavator operate laser cutting equipment operate oxygen cutting torch operate plasma cutting torch operate wrecking ball rig loads secure heavy construction equipment set up temporary construction site infrastructure sort waste	asbestos removal regulations decontamination techniques demolition techniques excavation techniques radiation protection
ISCO-087119	here	Craft and Related Trade Workers: Building Frame and related trades workers	7119.3-manufactured wooden building assembler	*prefabricated building assembler truss assembler* *manufactured building assembler prefab* *house builder prefab house fabricator* *manufactured wooden building fabricator* *prefab home assembler prefab* *house joiner* *manufactured wooden building builder* *manufactured wooden building joiner prefab house assembler*	**Educational background in Building and civil engineering/EQF 2**	Manufactured wooden building assemblers put together wooden elements for use in construction. The elements, or modules, may consist of walls with windows and doors built-in, or may be as large as whole rooms. The assemblers put together the supporting structure, insulation materials, and covering, and fasten it together to obtain usable modules.	clean wood surface install insulation material installs wood elements in structures install wood hardware join wood elements manipulate wood perform pre-assembly quality checks use technical documentation construction products quality standard types of wood products woodworking processes woodworking tools	apply technical communication skills apply wood finishes check quality of raw materials construct wood roofs create wood joints develop assembly instructions dispose of cutting waste material inspect insulation inspect quality of products install plumbing systems keep records of work progress operate wood sawing equipment prepare production reports provide technical documentation read standard blueprints sand wood sharpen edged tools stain wood wear appropriate protective gear	plumbing tools types of insulation material wood cuts

				manufactured wooden building constructor prefab house constructor					
ISCO-083112	here	**Technicians and associate professionals**	**3112.3-construction safety manager**	*safety manager on construction sites health ans safety supervisor safety advisor safety supervisor health and safety manager on construction sites safety officer safety manager construction safety supervisor health and safety manager construction health and safety supervisor*	**Educational background in construction/EQF 3-4**	Construction safety managers inspect, enforce and control health and safety measures at construction sites. They also manage workplace accidents and take action to make sure that safety policies are correctly implemented.	advise on safety improvements apply safety management follow health and safety procedures in construction monitor construction site prevent work accidents supervise worker safety use safety equipment in construction write work-related reports construction methods environmental legislation human factors regarding safety incidents and accidents recording	advise on construction materials assist with emergencies check compatibility of materials clear accident site determine fire risks ensure conformity to specifications follow up on safety breaches inspect construction supplies make time-critical decisions manage major incidents supervise staff test safety strategies undertake inspections work ergonomically write specifications	building materials industry construction product regulation contract law fire prevention procedures
ISCO-083112	here	**Technicians and associate professionals**	**3112.2-construction safety inspector**	*safety controller safety controller on construction sites health and safety advisor safety inspector on construction sites health and safety advisor on construction sites health & safety inspector construction site safety inspector safety advisor safety inspector site safety inspector construction health and safety inspector construction health and safety advisor site safety advisor construction safety controller health and safety inspector*	**Educational background in construction/EQF 3-4**	Construction safety inspectors monitor construction sites and their conformity to health and safety regulations. They perform inspections, identify safety hazards and report on their findings.	advise on safety improvements follow health and safety procedures in construction identify improvement actions identify preventive actions inspect construction supplies monitor construction site test construction material samples undertake inspections write work-related reports	advise on construction materials assist with emergencies communicate health and safety measures determine fire risks educate employees on occupational hazards follow control of substances hazardous to health procedures follow up on safety breaches handle incidents perform risk analysis prevent work accidents report on possible hazards test safety strategies work ergonomically	assessment of risks and threats building materials industry
ISCO-083112	here	**Technicians and associate professionals**	**3112.6 energy conservation officer**	*energy information officer energy management officer*	**Educational background in construction and building/EQF 5**	Energy conservation officers promote the conservation of energy in both residential homes as in businesses. They advise people on ways to reduce their power consumption by enforcing energy efficiency improvements and implementing energy demand management policies.	advise on heating systems energy efficiency analyse energy consumption carry out energy management of facilities develop energy policy identify energy needs promote sustainable energy teach energy principles	energy efficiency energy market energy performance of buildings	renewable energy technologies solar energy
ISCO-083112	here	**Technicians and associate professionals**	**3112.9-surveying technician**	*engineering technician topographic survey technician instrument man surveyor geomatics technician archaeological field technician survey CAD technician land survey technologist transport engineering technician agricultural global positioning system mapper mapping technician instrument woman stereo plotter operator survey technician land survey technician survey party chief*	**Educational background in construction and building/EQF 4**	Surveying technicians carry out technical surveying tasks. They assist surveyors, architects or engineers in surveying related technical tasks such as mapping land, creating construction drawings and operating precise measuring equipment	adjust surveying equipment calibrate precision instrument compare survey computations conduct land surveys ensure compliance with safety legislation interpret geophysical data operate surveying instruments perform scientific research perform surveying calculations prepare surveying report process collected survey data record survey measurements use technical drawing software cartography geodesy geographic information systems geomatics mathematics survey techniques surveying methods technical drawings topography	adjust engineering designs apply digital mapping collect data using GPS collect geological data collect mapping data compile GIS-data conduct research before survey create GIS reports create thematic maps determine boundaries develop geological databases prepare geological map sections use CAD software use geographic information systems value properties	civil engineering principles engineering processes geography geology urban planning law

ISCO-087131	here	**Craft and Related Trade Workers: Painters and**	**7131.1-construction painter**	*specialist painter decorator commercial painter and decorator construction painter and decorator painter (construction) industrial painter and decorator commercial decorator construction decorator*	**Educational background in Building and civil engineering/EQF 2**	Construction painters paint the interior and exterior of buildings and other structures. They may use standard latex-based paints or specialised paints for decorative effect or protective properties. Building painters are skilled in using brushes, paint rollers and paint sprayers for different applications.	clean painting equipment dispose of hazardous waste dispose of non-hazardous waste follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies inspect paintwork interpret 2D plans interpret 3D plans paint surfaces prepare surface for painting protect surfaces during construction work remove paint sand between coats snap chalk line transport construction supplies use measurement instruments use safety equipment in construction work ergonomically work safely with chemicals	advise on construction materials answer requests for quotation blast surface build scaffolding calculate needs for construction supplies install construction profiles keep personal administration keep records of work progress maintain equipment maintain work area cleanliness mix paint	monitor stock level operate rust proofing spray gun order construction supplies paint with a paint gun process incoming construction supplies recognise signs of corrosion set up temporary construction site infrastructure use sander work in a construction team
ISCO-088211	here	**Plant and machine operators and assemblers: Mechanical machinery assemblers**	**8211.3-mechatronics assembler**	*mechatronic equipment supervisor robotic equipment repairer robotic equipment supervisor mechatronic equipment inspector mechatronic equipment operator robotic equipment inspector mechatronic equipment fabricator mechatronics installer mechatronic equipment assembler robotic fitter mechatronic equipment production assembler robotic assembler constructor of mechatronic equipment mechatronic installer mechatronic equipment repairer mechatronics fabricator assembler in mechatronic equipment manufacture robotic equipment operator mechatronic equipment constructor mechatronic assembly technician assembler of mechatronic equipment mechatronics fitter*	**Educational background in mechanics and electronics or construction/EQF 2-3**	Mechatronics assemblers assemble and maintain complex mechatronic equipment and machines, such as robots, elevators, and advanced home appliances. They build the mechanical, electrical, and electronic components, install software, set the systems in operation, and maintain and repair the components and systems.	align components apply assembly techniques apply soldering techniques assemble mechatronic units clean components during assembly ensure conformity to specifications follow safety standards in industrial contexts install mechatronic equipment maintain mechatronic equipment meet deadlines monitor machine operations perform metal work read assembly drawings read standard blueprints remove defective products troubleshoot computer equipment electronics mechatronics quality standards safety engineering	adjust manufacturing equipment assemble machines assemble robots carry out measurements of parts check system parameters against reference values inspect quality of products install automation components install hardware keep up with digital transformation of industrial processes measure electrical characteristics operate precision measuring equipment program firmware replace defect components replace machines report defective manufacturing materials resolve equipment malfunctions set up the controller of a machine test mechatronic units use CAM software	ICT system programming automation technology circuit diagrams computer engineering crimping electrical discharge electromechanics electronics principles hydraulics instrumentation engineering mechanical engineering microelectronics pneumatics robotics
ISCO-08 7411	here	**Craft and related trades workers: Building and related electricians**	**7411.1.2-electric meter technician**	*smart meter installer electric meter maintenance worker electric meter installer electricity meter maintenance operative smart meter technician electric meter test technician electricity meter test technician electricity meter technician electric meter installation technician electricity meter maintenance worker electricity meter installer electric meter maintenance operative electricity meter installation technician*	**Educational background in Building and civil engineering/EQF 2**	Electric meter technicians install and maintain electric meter systems in facilities or buildings. They install the equipment in accordance with regulations and repair faults and other problems. They test the equipment and advise on the use and care	apply health and safety standards identify faults in utility meters inspect electrical supplies install electrical and electronic equipment install electricity meter measure electrical characteristics perform test run troubleshoot use electrical wire tools use technical documentation use testing equipment use wire hand tools wear appropriate protective gear electrical equipment regulations electrical wire accessories electrical wiring plans electricity electricity principles	advise on utility consumption anticipate installation maintenance consult technical resources	install utility equipment keep records of work progress monitor utility equipment read electricity meter use personal protection equipment write records for repairs
ISCO-08 1323	here	**Managers: Construction managers**	**1323.1-construction manager**	*construction project manager construction project cost consultant development project cost manager*	**Educational background in construction/EQF 3-4**	Construction managers are responsible for the planning and coordination of the construction projects. They provide expertise in the design phase of construction projects by facilitating a better	advise on construction materials apply safety management assess construction compliance calculate needs for construction supplies communicate with construction crews ensure compliance with legal requirements identify construction materials from blueprints identify customer's needs interpret technical requirements manage contracts oversee construction project plan construction of houses prepare construction documents review construction projects	audit contractors carry out tendering communicate with customers consider building constraints in architectural designs design power plant systems ensure compliance with construction project deadline ensure compliance with environmental legislation follow nuclear plant safety precautions integrate building requirements of clients in the architectural design	building construction principles construction methods contract law corporate social responsibility energy efficiency environmental legislation nuclear energy project commissioning radiation protection total quality control

				construction cost consultant development project cost consultant quantity surveying consultant quantity surveyor		estimate of the costs and the functional implications. They participate on bid processes for construction projects and handle subcontractors to deliver the different stages of the construction process from beginning to completion. They strive to enhance the value of the projects both improving efficiency and creating value for customers.	work in a construction team budgetary principles building materials industry civil engineering construction equipment related to building materials construction industry construction product regulation cost management project management quality standards	integrate engineering principles in architectural design manage construction archive manage environmental impact monitor contractor performance monitor parameters' compliance in construction projects order construction supplies participate in governmental tenders' review construction plans authorisations	
ISCO-08 1323	here	**Managers: Construction managers**	**1323.1.1-construction general contractor**	*construction contractor construction project manager construction site contractor general contractor in construction*	**Educational background in construction and business administration/EQF 3-4**	Construction general contractors take on the responsibility to deliver a construction project. They participate on bid processes for construction projects and hire subcontractors to deliver the different stages of the construction process from beginning to completion. They make sure subcontractors hold up their part of the agreement and work in the construction site to make sure the project is delivered in time and according to agreed standards.	assess construction compliance audit contractors communicate with customers coordinate construction activities ensure compliance with construction project deadline follow health and safety procedures in construction identify customer objectives keep records of work progress manage contracts monitor construction site monitor contractor performance monitor parameters' compliance in construction projects perform quality control of design during a run read standard blueprints construction product regulation contract law real estate market	advise architects communicate with construction crews coordinate marketing plan actions inspect construction supplies manage health and safety standards perform project management plan allocation of space plan shifts of employees review construction projects use safety equipment in construction	building codes decommissioning design principles energy efficiency energy performance of buildings project commissioning quality assurance methodologies renewable energy technologies zero-energy building design
ISCO-08 3112	here	**Technicians and associate professionals**	**3112.1.2-building inspector**	*building control officer construction control officer construction standards inspector construction control surveyor buildings inspector building control surveyor building services inspector building standards inspector asbestos inspector construction services inspector construction inspector*	**Educational background in construction /EQF 4**	Building inspectors perform inspections of buildings to determine compliance with specifications for various focuses of assessment. They observe and determine the suitability of construction, quality and resistance, and general compliance with regulations.	assess construction compliance communicate problems to senior colleagues inspect building systems liaise with local authorities manage health and safety standards read standard blueprints use safety equipment in construction write inspection reports	advise architects conduct fire safety inspections conduct land surveys create solutions to problems inform on safety standards issue permits manage construction archive monitor parameters' compliance in construction projects negotiate with stakeholders perform field research review construction projects	building materials industry electricity energy performance of buildings fire safety regulations surveying methods topography
ISCO-08 3112	here	**Technicians and associate professionals**	**3112.1.3-construction quality inspector**	*construction QA QS supervisor construction QA QS inspector construction quality control and safety inspector construction quality control and safety supervisor*	**Educational background in construction /EQF 3-4**	Construction quality inspectors monitor the activities at larger construction sites to make sure everything happens according to standards and specifications. They pay close attention to potential safety problems and take samples of products to test for conformity with standards and specifications.	advise on construction materials check compatibility of materials ensure conformity to specifications evaluate employees' work follow health and safety procedures in construction inspect construction supplies keep records of work progress liaise with managers maintain work area cleanliness make time-critical decisions monitor construction site process incoming construction supplies recognise signs of wood rot supervise staff test construction material samples use safety equipment in construction work ergonomically	communicate with external laboratories identify wood warp organise quality circle work in a construction team write specifications	building materials industry design principles statistical quality control total quality control
ISCO-08 3123	here	**Technicians and associate professionals**	**3123.2-underwater construction supervisor**	*sub-sea construction supervisor tunnel construction supervisor canal lock construction supervisor underwater construction project supervisor harbour construction supervisor sub-sea construction project supervisor marine construction supervisor bridge pillar construction supervisor construction diving supervisor marine*	**Educational background in engineering /EQF 3-4**	Underwater construction supervisors monitor underwater construction projects such as tunnels, canal locks and bridge pillars. They guide and instruct construction commercial divers and make sure they adhere to safety regulations.	check diving equipment comply with legal requirements for diving operations comply with the planned time for the depth of the dive coordinate construction activities ensure compliance with construction project deadline ensure diving operations conform with plan ensure equipment availability ensure health and safety of dive teams evaluate employees' work follow health and safety procedures in construction implement dive plans inspect construction sites inspect construction supplies interrupt diving operations, when necessary, keep records of work progress manage health and safety standards plan resource allocation prevent damage to utility infrastructure process incoming construction supplies react to events in time-critical environments secure working area supervise staff use safety equipment in construction work in a construction team	calculate needs for construction supplies construct canal locks construct dams critique the dive with the dive team display warnings around dive site dive with scuba equipment inspect concrete structures inspect offshore constructions inspect pipelines maintain diving equipment measure water depth monitor stock level order construction supplies perform diving interventions perform underwater bridge inspection position anchor poles position dredger provide first aid provide technical expertise recognise signs of corrosion recruit employees report defective manufacturing materials rig loads train employees transport construction supplies	construction product regulation cost management machinery load capacity

				construction project supervisor					
ISCO-08 7233	here	**Craft and related trades workers: Machinery mechanics and repairers**	**7233.1-construction equipment technician**	*building equipment servicer building equipment mechanic heavy equipment mechanic heavy equipment inspector building construction equipment operator building equipment operator building construction equipment mechanic building equipment inspector building construction equipment servicer building construction equipment maintenance inspector*	**Educational background in Building and civil engineering/EQF 2**	Construction equipment technicians inspect, maintain and repair heavy-duty vehicles used in construction, forestry, and earthworks such as bulldozers, excavators and harvesters. They perform evaluations of the equipment and ensure the safety and optimal efficiency of the machinery.	conduct routine machinery checks consult technical resources keep heavy construction equipment in good condition manage heavy equipment monitor heavy machinery operate soldering equipment operate welding equipment perform machine maintenance perform test run record test data resolve equipment malfunctions use testing equipment	advise on mine equipment advise on safety improvements apply technical communication skills estimate restoration costs inspect heavy surface mining equipment install electrical and electronic equipment install hydraulic systems install pneumatic systems maintain electrical equipment maintain electronic equipment maintain forestry equipment maintain hydraulic systems manage inspections of equipment order supplies perform risk analysis prepare compliance documents provide technical training secure working area troubleshoot use safety equipment in construction write inspection reports write records for repairs	construction industry construction products electronics hydraulics pneumatics wood products
ISCO-08 7126	here	**Craft and related trades workers: Plumbers and pipe fitters**	**7126.8-plumber**	*attach PEX pipe check water pressure clear out drains follow health and safety procedures in construction inspect construction supplies install PVC piping install metal gas piping install plumbing systems interpret 2D plans interpret 3D plans place sanitary equipment prepare copper pipes for use as gas lines replace faucets snap chalk line transport construction supplies use measurement instruments use safety equipment in construction use welding equipment work ergonomically*	**Educational background in Building and civil engineering/EQF 2**	Plumbers maintain and install water, gas and sewage systems. They inspect pipes and fixtures on a regular basis or make repairs as needed. They bend, cut, and install pipes. They test systems and make adjustments safely and following regulations. They place sanitary equipment.	attach PEX pipe check water pressure clear out drains follow health and safety procedures in construction inspect construction supplies install PVC piping install metal gas piping install plumbing systems interpret 2D plans interpret 3D plans place sanitary equipment prepare copper pipes for use as gas lines replace faucets snap chalk line transport construction supplies use measurement instruments use safety equipment in construction use welding equipment work ergonomically	answer requests for quotation apply a protective layer apply proofing membranes calculate needs for construction supplies consult technical resources cut metal products cut wall chases install solar water heater keep personal administration keep records of work progress maintain work area cleanliness monitor stock level order construction supplies process incoming construction supplies protect surfaces during construction work set up temporary construction site infrastructure set up water filtration system use metal bending techniques use sander work in a construction team	water pressure
ISCO-08 3123	here	**Technicians and associate professionals**	**3123.1.8-demolition supervisor**	*demolition project manager demolition site supervisor demolition and dismantling supervisor dismantling foreman demolition foreman demolition manager demolition operations supervisor demolition project supervisor*	**Educational background in construction /EQF 3-4**	Demolition supervisors monitor operations involved in the demolition of buildings and clean up of debris. They take quick decisions to resolve problems.	coordinate construction activities drive mobile heavy construction equipment ensure compliance with construction project deadline ensure equipment availability evaluate employees' work follow health and safety procedures in construction guide operation of heavy construction equipment keep records of work progress liaise with managers manage health and safety standards plan resource allocation plan shifts of employees prevent damage to utility infrastructure process incoming construction supplies react to events in time-critical environments recognise the hazards of dangerous goods supervise staff use safety equipment in construction work in a construction team	demolish selectively demolish structures dispose of hazardous waste dispose of non-hazardous waste ensure compliance with radiation protection regulations follow nuclear plant safety precautions follow safety procedures when working at heights operate excavator operate heavy construction machinery without supervision operate jackhammer operate laser cutting equipment operate oxygen cutting torch operate plasma cutting torch operate wrecking ball provide first aid provide technical expertise recruit employees report defective manufacturing materials rig loads sort waste train employees work ergonomically	asbestos removal regulations construction product regulation cost management excavation techniques explosives nuclear energy physics radiation protection
ISCO-08 7126	here	**Craft and related trades workers: Plumbers and pipe fitters**	**7126.11-sewer construction worker**	*sewage infrastructure construction worker sewer pipeline construction supervisor sewer system construction worker wastewater infrastructure construction worker waste water pipe layer waste water pipelayer sewer infrastructure construction worker sewage pipelayer sewage pipe layer waste water system worker waste*	**Educational background in Building and civil engineering/EQF 2**	Sewer construction workers install sewer pipes to transport wastewater out of structures and to a body of water or treatment facility. They dig trenches and insert the pipes, making sure they have corrected angle and are connected watertight. Sewer construction workers also construct other elements of sewage infrastructure, such as manholes, and maintain and repair existing systems.	assemble manufactured pipeline parts detect flaws in pipeline infrastructure dig sewer trenches follow health and safety procedures in construction inspect construction sites inspect construction supplies lay sewer pipe level earth surface prevent damage to utility infrastructure prevent pipeline deterioration provide pipe bedding react to events in time-critical environments secure working area test pipeline infrastructure operations transport construction supplies transport pipes	cut metal products dig soil mechanically drive mobile heavy construction equipment guide operation of heavy construction equipment install PVC piping interpret 2D plans interpret 3D plans keep heavy construction equipment in good condition keep personal administration keep records of work progress mix construction grouts operate GPS systems operate excavator operate grappler operate heavy construction machinery without supervision process incoming construction supplies repair pipelines rig loads set up temporary construction site infrastructure work in a construction team	electricity machinery load capacity types of bedding materials

				water system construction worker sewage system worker sewage system construction worker			use measurement instruments use safety equipment in construction work ergonomically ensure compliance with construction project		
ISCO-08 3123	here	**Technicians and associate professionals**	**3123.1.6-construction scaffolding supervisor**	*access platform erection supervisor scaffold erection foreman construction scaffolding foreman scaffolder scaffolding supervisor scaffolding foreman*	**Educational background in construction /EQF 3-4**	Construction scaffolding supervisors plan and supervise the transport, assembly, disassembly and maintenance of the structures. They also ensure the safety of the scaffolds, support structures, access ladders and fenders.	deadline ensure equipment availability evaluate employees' work follow health and safety procedures in construction inspect construction supplies inspect scaffolding interpret 2D plans interpret 3D plans keep records of work progress liaise with managers manage health and safety standards monitor stock level plan resource allocation plan scaffolding plan shifts of employees process incoming construction supplies react to events in time-critical environments recognise signs of corrosion recognise signs of wood rot supervise staff use safety equipment in construction	answer requests for quotation build scaffolding calculate needs for construction supplies construct working platform dismantle scaffolding follow safety procedures when working at heights install scaffolding pump jacks order construction supplies position base plates position guardrails and toe boards position sole plates provide first aid provide technical expertise recruit employees report defective manufacturing materials rig loads train employees transport construction supplies use measurement instruments work ergonomically	construction product regulation cost management mechanical tools
ISCO-08 3112	here	**Technicians and associate professionals**	**3112.1.4-construction quality manager**	*construction quality and safety control supervisor construction quality managers construction QA QS manager construction quality and safety manager construction QA manager construction quality assurance manager*	**Educational background in construction and administration/EQF 3-4**	Construction quality managers make sure the quality of the work meets standards set in the contract, as well as minimum legislative standards. They establish procedures to check quality, perform inspections, and propose solutions to quality shortcomings.	adjust engineering designs advise on construction materials check compatibility of materials communicate with external laboratories ensure conformity to specifications follow health and safety procedures in construction inspect construction supplies keep records of work progress liaise with managers use safety equipment in construction work ergonomically write specifications	conduct quality control analysis evaluate budgets evaluate employees work maintain work area cleanliness make time-critical decisions monitor construction site organise quality circle review construction plans authorisations review construction projects supervise staff test construction material samples work in a construction team	construction methods contract law energy efficiency energy performance of buildings
ISCO-08 7411	here	**Craft and Related Trade Workers: Building Frame and related trades workers**	**7411.1.1-building electrician**	*building maintenance electrician commercial building electrician installation electrician electrical services installer building services electrician maintenance electrician electrical maintenance technician electrical systems installer industrial building electrician electrical maintenance worker electrical installer*	**Educational background in Building and civil engineering/EQF 2**	Building electricians install and maintain electricity cables and other electrical infrastructure in buildings. They make sure installed electrical equipment is isolated and presents no fire hazards. They understand existing situations and make improvements if called for.	follow health and safety procedures in construction inspect construction supplies inspect electrical supplies install electric switches install electrical and electronic equipment install electricity sockets react to events in time-critical environments resolve equipment malfunctions splice cable test electronic units test procedures in electricity transmission use measurement instruments use precision tools use safety equipment in construction work ergonomically	answer requests for quotation assemble electrical components assemble electronic units calculate needs for construction supplies cut wall chases demonstrate products' features install circuit breakers install construction profiles install lightning protection system keep personal administration keep records of work progress maintain electrical equipment maintain electronic equipment order construction supplies process incoming construction supplies program firmware repair wiring replace defect components solder electronics troubleshoot use sander work in a construction team write inspection reports	automation technology electromechanics electronics energy performance of buildings solar panel mounting systems
ISCO-08 3123	here	**Technicians and associate professionals**	**3123.1.5-construction painting supervisor**	*specialist painting supervisor decorating supervisor painting and decorating supervisor construction painting and decorating supervisor industrial painting supervisor commercial painting and decorating supervisor construction decorating supervisor commercial decorating supervisor*	**Educational background in engineering/EQF 3-4**	Construction painting supervisors plan, direct and oversee the work of the crew of painters assigned to a certain project or location. They supervise and evaluate the work of painters.	advise on construction materials answer requests for quotation check compatibility of materials demonstrate products' features ensure compliance with construction project deadline ensure equipment availability evaluate employees work follow health and safety procedures in construction inspect construction supplies inspect paintwork interpret 2D plans interpret 3D plans keep records of work progress liaise with managers manage health and safety standards monitor stock level order construction supplies plan shifts of employees process incoming construction supplies supervise staff use safety equipment in construction work in a construction team	blast surface calculate needs for construction supplies dispose of hazardous waste dispose of non-hazardous waste follow safety procedures when working at heights install construction profiles manage contracts mix paint negotiate supplier arrangements operate rust proofing spray gun paint surfaces paint with a paint gun prepare surface for painting provide first aid provide technical expertise recognise signs of corrosion recruit employees remove paint sand between coats train employees use measurement instruments use sander work ergonomically work safely with chemicals	construction product regulation cost management
ISCO-08 3113	here	**Technicians and associate professionals**	**3113.2-hydropower technician**	*mechanical engineer, hydropower hydroelectric plant technician marine energy technician hydroelectric technician tidal power technician wave power technician hydropower mechanical engineer hydropower plant technician hydroelectric mechanical engineer*	**Educational background in engineering/EQF 4**	Hydropower technicians install and maintain systems in hydropower plants. They perform inspections, analyse problems and carry out repairs. They ensure the turbines operate in compliance with regulations, and assist the hydropower engineers in the construction of turbines.	adjust engineering designs apply health and safety standards design electric power systems maintain electrical equipment manage engineering project monitor electric generators operate scientific measuring equipment perform risk analysis promote innovative infrastructure design troubleshoot use technical drawing software	conduct engineering site audits coordinate electricity generation draw blueprints ensure safety in electrical power operations inspect facility sites maintain records of maintenance interventions perform minor repairs to equipment perform project management perform scientific research promote environmental awareness promote sustainability promote sustainable energy replace large components research ocean energy projects resolve equipment malfunctions wear appropriate protective gear	automation technology mechanical engineering power engineering scientific research methodology

				hydropower mechanical technician					
ISCO-08 3131	here	**Technicians and associate professionals**	**3131.1.5-hydroelectric plant operator**	*hydroelectric power plant technician hydropower plant operator hydro-power plant worker hydro-power plant operator hydroelectric plant worker hydro plant worker hydropower plant technician hydro-power plant technician hydro-power plant operative hydroelectric plant operative hydropower plant operative hydro plant operative hydropower plant worker*	**Educational background in engineering/EQF 3-4**	Hydroelectric plant operators operate and maintain the equipment used in the production of energy from the movement of water. They monitor the measuring equipment, assess the production needs, and adapt the water flow to meet these needs. They also perform repairs and maintenance duties.	apply health and safety standards maintain electrical equipment maintain hydraulic systems monitor electric generators operate hydraulic machinery controls operate hydraulic pumps wear appropriate protective gear	arrange equipment repairs coordinate electricity generation develop strategies for electricity contingencies ensure compliance with electricity distribution schedule ensure equipment maintenance ensure safety in electrical power operations install hydraulic systems liaise with engineers maintain records of maintenance interventions provide advice to technicians read engineering drawings replace large components resolve equipment malfunctions respond to electrical power contingencies	electricity consumption renewable energy technologies technical drawings
ISCO-08 7122	here	**Craft and related trades workers: Floor layers and**	**7122.3-resilient floor layer**	*laminate floor installer linoleum installer resilient floor installer vinyl floor installer linoleum layer of resilient floor vinyl tile installer resilient flooring installer floor layer (resilient)*	**Educational background in Building and civil engineering/EQF 2**	Resilient floor layers place prefabricated tiles or rolls of flooring materials such as linoleum, vinyl, rubber or cork to serve as floor covering.	apply floor adhesive create floor plan template cut resilient flooring materials follow health and safety procedures in construction inspect construction supplies install laminate floor interpret 2D plans interpret 3D plans lay resilient flooring tiles lay underlayment mix construction grouts prepare floor for underlayment transport construction supplies use measurement instruments work ergonomically	advise on construction materials answer requests for quotation apply proofing membranes calculate needs for construction supplies demonstrate products' features install construction profiles install insulation material keep personal administration keep records of work progress monitor stock level	operate wood sawing equipment order construction supplies process incoming construction supplies seal flooring use sander work in a construction team work safely with chemicals
ISCO-08 7122	here	**Craft and related trades workers: Floor layers and tile setters**	**7122.2-hardwood floor layer**	*wood floor layer parquet floor installer of hardwood floors timber floor layer hardwood floor installer parquet floor layer*	**Educational background in Building and civil engineering/EQF 2**	Hardwood floor layers install floors made of solid wood. They prepare the surface, cut parquet or board elements to size, and lay them in a predetermined pattern, straight and flush.	clean wood surface create floor plan template create smooth wood surface fill nail holes in wood planks follow health and safety procedures in construction identify wood warp inspect construction supplies install wood elements in structures interpret 2D plans interpret 3D plans join wood elements lacquer wood surfaces lay underlayment monitor processing environment conditions pin parquet prepare surface for hardwood floor laying transport construction supplies use measurement instruments wax wood surfaces work ergonomically	acclimatise timber advise customers on maintenance of parquet floors advise on construction materials answer requests for quotation apply restoration techniques calculate needs for construction supplies estimate restoration costs keep personal administration keep records of work progress lay marquetry monitor stock level nail floor boards order construction supplies process incoming construction supplies screw and plug parquet boards seal flooring tend CNC laser cutting machine use safety equipment in construction use sander work in a construction team	aesthetics wood moisture content
ISCO-08 7123	here	**Craft and related trades workers: Plasterers**	**7123.2-Plasterers**	*heritage plasterer fibrous plasterer wall finisher solid plasterer plaster labourer plaster worker stucco mason wall plasterer*	**Educational background in Building and civil engineering/EQF 2**	Plasterers apply plaster made from gypsum, cement or other solutions to walls as a smooth finish. They mix dry plaster powder with water, then smear the resulting paste onto a wall. The plaster is then smoothed before it hardens and forms a solid coating on the wall.	apply adhesive wall coating apply proofing membranes cut wall chases follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies install insulation material mix construction grouts place drywall plaster surfaces prepare surface for plastering transport construction supplies use measurement instruments work ergonomically work safely with chemicals	answer requests for quotation apply restoration techniques build scaffolding calculate needs for construction supplies craft ornamental plastering estimate restoration costs install construction profiles interpret 2D plans interpret 3D plans keep personal administration keep records of work progress maintain work area cleanliness	monitor stock level order construction supplies place gypsum blocks process incoming construction supplies protect surfaces during construction work select restoration activities set up temporary construction site infrastructure tape drywall use safety equipment in construction use sander work in a construction team aesthetics art history
ISCO-08 7123	here	**Craft and related trades workers: Floor layers and tile setters**	**7122.4-tile fitter**	*tiler tile setter tiling worker mosaic tiler tile installer tile fitter marble setter tile setter wall tiler floor tiler surface tiler*	**Educational background in Building and civil engineering/EQF 2**	Tile fitters install tiles onto walls and floors. They cut tiles to the right size and shape, prepare the surface, and put the tiles in place flush and straight. Tile fitters may also take on creative and artistic projects, with some laying mosaics.	apply tile adhesive caulk expansion joints cut tiles fill tile joints follow health and safety procedures in construction inspect construction supplies lay tiles mix construction grouts plan tiling snap chalk line transport construction supplies types of tile use measurement instruments use safety equipment in construction work ergonomically	advise on construction materials answer requests for quotation apply restoration techniques attach accessories to tile calculate needs for construction supplies drill holes in tile estimate restoration costs install insulation material interpret 2D plans interpret 3D plans keep personal administration keep records of work progress maintain tile flooring maintain work area cleanliness make mosaic monitor stock level operate mosaic tools order construction supplies plan surface slope process incoming construction supplies protect surfaces during construction work in a construction team	
ISCO-08 7121	here	**Craft and related trades**	**7121.1-roofer**	*roofing carpenter cladding installer asphalt roofer roof tiler tinsmith felt roofer house roofer roof slater*	**Educational background in Building and civil engineering/EQF 2**	Roofers cover structures with roofs. They install the weight-bearing elements of a roof, either flat or pitched, then	apply roll roofing construct wood roofs follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies inspect roofs install gutters install insulation material install roof flashing interpret 2D plans interpret 3D plans lay	advise on construction materials answer requests for quotation apply proofing membranes build scaffolding calculate needs for construction supplies establish green roof install facade cladding	asbestos removal regulations building codes crane load charts energy efficiency energy performance of buildings roofing drones solar panel mounting systems

						cover it with a weatherproof layer.	interlocking roof tiles perform roof maintenance prepare roofing materials recognise signs of wood rot remove roofs secure working area sort waste transport construction supplies use measurement instruments use safety equipment in construction work ergonomically	install lightning protection system install metal roofing install roof windows keep personal administration keep records of work progress lay non-interlocking roof tiles maintain work area cleanliness monitor stock level operate forklift order construction supplies plan scaffolding process incoming construction supplies thatch roofs use sander work in a construction team	
ISCO-08 3123	here	**Technicians and associate professionals**	**3123.1.2- bridge construction supervisor**	*bridge construction project supervisor* *bridgebuilding supervisor* *bridge building supervisor* *bridge construction site supervisor*	**Educational background in construction and engineering /EQF 3-4**	Bridge construction supervisors monitor the construction of bridges. They assign tasks and take quick decisions to resolve problems.	check compatibility of materials conduct quality control analysis coordinate construction activities ensure compliance with construction project deadline ensure equipment availability evaluate employees work follow health and safety procedures in construction identify defects in concrete identify external risks to bridge integrity inspect construction supplies interpret 2D plans interpret 3D plans keep records of work progress liaise with managers manage health and safety standards monitor stock level plan resource allocation plan shifts of employees prevent damage to utility infrastructure process incoming construction supplies react to events in time-critical environments secure working area supervise staff use safety equipment in construction work in a construction team	advise on construction materials answer requests for quotation calculate needs for construction supplies drive mobile heavy construction equipment estimate restoration costs follow safety procedures when working at heights guide operation of heavy construction equipment identify wood warp inspect construction sites order construction supplies provide first aid provide technical expertise recognise signs of wood rot recruit employees report defective manufacturing materials train employees transport construction supplies use measurement instruments work ergonomically	construction product regulation cost management crane load charts machinery load capacity types of asphalt coverings types of wood cuts
ISCO-087115	here	**Craft and related trade workers: Carpenters and joiners**	**7115.5- window installer**	*window installation team worker window fitter* *window installation team member* *window technician*	**Educational background in Building and civil engineering/EQF 2**	Window installers place windows into structures and service them. They take out old windows if present, prepare the opening, mount the window, and attach it in place plumb, straight, square and watertight.	apply insulation strips apply proofing membranes apply spray foam insulation cut house wrap cut insulation material to size follow health and safety procedures in construction inspect construction supplies install sill pan manipulate glass set window transport construction supplies use measurement instruments use safety equipment in construction use shims work ergonomically	advise on construction materials apply house wrap assemble insulating glazing units assemble windows create architectural sketches follow safety procedures when working at heights inspect insulation inspect quality of products install construction profiles install frameless glass install insulation material interpret 2D plans interpret 3D plans keep personal administration keep records of work progress maintain work area cleanliness monitor stock level order construction supplies pack fragile items for transportation process incoming construction supplies use sander use squaring pole work in a construction team	energy performance of buildings types of insulation material
ISCO-087115	here	**Craft and related trade workers: Carpenters and joiners**	**7115.3-Kitchen unit installer**	*kitchen installation worker kitchen furniture fitter kitchen installation specialist kitchen fitter* *kitchen carpenter and joiner kitchen joiner and fitter* *kitchen refurbishment team member replacement kitchen installer kitchen refurbishment team worker kitchen fitting specialist kitchen installer*	**Educational background in Building and civil engineering/EQF 2**	Kitchen unit installers install kitchen elements in homes. They take the necessary measurements, prepare the room, removing old elements if necessary, and install the new kitchen equipment, including the connection of water, gas and sewage pipes and electricity lines.	check water pressure follow health and safety procedures in construction inspect construction supplies install PVC piping install construction profiles install cooktops install metal gas piping install oven install wood hardware interpret 2D plans interpret 3D plans load cargo replace faucets snap chalk line unload cargo use measurement instruments use safety equipment in construction work ergonomically electricity plumbing tools types of piping	attach PEX pipe cut wall chases demonstrate products' features dispose of non-hazardous waste handle customer complaints install electrical household appliances install plumbing systems keep personal administration keep records of work progress maintain work area cleanliness operate GPS systems operate grinding hand tools operate hand drill operate wood sawing equipment pack goods prepare copper pipes for use as gas lines process customer orders process incoming construction supplies protect surfaces during construction work sort waste take payments for bills use metal bending techniques use sander work in a construction team	manufacturer's instructions for electrical household appliances road transport legislation types of cooktops vehicle cargo capacity
ISCO-087115	here	**Craft and related trade workers: Carpenters and joiners**	**7115.4-staircase installer**	*stair builder* *staircase and balustrade installer stair installer balustrade installer* *staircase fitter stairway fitter staircase carpenter* *stairway carpenter* *staircase craftsman* *stairway installer*	**Educational background in Building and civil engineering/EQF 2**	Staircase installers put in place standard or custom designed staircases between the various levels in buildings. They take the necessary measurements, prepare the site, and install the staircase safely.	apply wood finishes clean wood surface fasten treads and risers follow health and safety procedures in construction inspect construction supplies install handrail interpret 2D plans interpret 3D plans join wood elements position carriage snap chalk line transport construction supplies use measurement instruments use safety equipment in construction work ergonomically work in a construction team	advise on construction materials answer requests for quotation apply restoration techniques calculate needs for construction supplies calculate stairs rise and run create architectural sketches create cutting plan create smooth wood surface cut stair carriages estimate restoration costs follow safety procedures when working at heights install newel posts install spindles keep personal administration keep records of work progress maintain work area cleanliness monitor stock level operate hand drill operate table saw operate wood router order construction supplies place carpet process incoming construction supplies protect surfaces during construction work select restoration activities set up temporary construction site infrastructure sort waste use CAD software	types of carpet types of wood wood cuts

ISCO-08 7123	here	**Craft and related trade workers: Plasterers**	**7123.1-ceiling installer**	*industrial ceiling installer* *domestic ceiling installer* *ceiling fixer* *commercial ceiling installer* *suspended ceiling installer* *suspended ceiling fixer* *ceiling tile fixer ceiling tile installer commercial ceiling fixer domestic ceiling fixer*	**Educational background in Building and civil engineering/EQF 2**	Ceiling installers install ceilings in buildings. They apply different techniques as the situation requires - for example when fire resistance is especially important, or when space is needed between the dropped ceiling and the next floor - or specialise in one.	clean painting equipment fit ceiling tiles follow health and safety procedures in construction inspect construction supplies install construction profiles install drop ceiling maintain work area cleanliness paint surfaces place drywall protect surfaces during construction work tape drywall transport construction supplies use measurement instruments use safety equipment in construction work ergonomically	advise on construction materials answer requests for quotation calculate needs for construction supplies install coffered ceiling install insulation material install stretch ceiling install wood elements in structures join wood elements keep personal administration keep records of work progress mix paint monitor stock level order construction supplies process incoming construction supplies snap chalk line use T-brace	types of ceiling
ISCO-087124	here	**Craft and related trade workers: Insulation workers**	**7124.1-Insulation workers**	*lagger* *cavity insulation installer* *energy saving materials installer* *insulation installation worker insulator* *loft insulation installer*	**Educational background in Building and civil engineering/EQF 2**	Insulation workers install a variety of insulation materials to shield a structure or materials from heat, cold, and noise from the environment.	apply adhesive wall coating apply house wrap apply insulation strips apply proofing membranes cut insulation material to size follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies install construction profiles install insulation blocks install insulation material interpret 2D plans interpret 3D plans transport construction supplies use measurement instruments use safety equipment in construction work ergonomically	advise on construction materials answer requests for quotation apply spray foam insulation build scaffolding calculate needs for construction supplies create infrared imagery inspect insulation install drop ceiling keep personal administration keep records of work progress maintain work area cleanliness monitor stock level order construction supplies process incoming construction supplies protect surfaces during construction work pump insulation beads into cavities set up temporary construction site infrastructure use sander use squaring pole work in a construction team	energy efficiency energy performance of buildings
ISCO-08 2143	here	**Professionals: Architects, planners, surveyors and designers**	**2143 Environmental engineers**	*air protection environmental engineer* *environmental engineering expert* *environment engineer* *industrial environmental engineer water pollution engineer* *environmental engineering adviser* *chemical environmental engineer* *environmental engineering specialist* *environmental engineering consultant* *sanitary engineer* *pollution engineer* *environmental analyst* *environmental specialist for water management* *agricultural conservation engineer*	**EQF 4-5**	Environmental engineers conduct research, advise on, design and direct implementation of solutions to prevent, control or remedy negative impacts of human activity on the environment utilizing a variety of engineering disciplines. They conduct environmental assessments of construction and civil engineering projects and apply engineering principles to pollution control, recycling and waste disposal.	Follow health and safety procedures in construction inspect construction supplies inspect electrical supplies install electric switches install electrical and electronic equipment install electricity sockets react to events in time-critical environments r	advise on mining environmental issues advise on pollution prevention advise on waste management procedures assess the life cycle of resources collect samples for analysis conduct field work conduct quality control analysis design strategies for nuclear emergencies develop hazardous waste management strategies develop non-hazardous waste management strategies ensure material compliance inspect compliance with hazardous waste regulations inspect industrial equipment investigate contamination manage air quality perform laboratory tests perform project management	consumer protection hazardous waste storage hazardous waste treatment hazardous waste types nuclear energy project commissioning project management wildlife projects
ISCO-08 2165	here	**Professionals: Architects, planners, surveyors and designers**	**2165.3geographic information systems specialist**	*geographic information systems consultant* *GIS mapping technician* *GIS application specialist* *GIS data specialist* *geomatics technician* *Earth Observation expert* *GIS technician* *specialist in geographic information systems* *geographic information systems expert*	**EQF level 4-5**	Geographic information systems specialists use specialised computer systems, engineering measures, and geological concepts to process land, geographic, and geospatial information into visually detailed digital maps and geo-models of a reservoir. They convert technical information like soil density and properties into digital representations to be used by engineers, governments and interested stakeholders.	apply digital mapping apply statistical analysis techniques collect mapping data compile GIS-data create GIS reports create thematic maps execute analytical mathematical calculations perform surveying calculations process collected survey data use databases use geographic information systems cartography geographic information systems geography geological mapping geomatics mathematics statistics surveying	analyse environmental data collect data using GPS collect geological data conduct land surveys develop geological databases interpret geophysical data operate surveying instruments perform image editing prepare visual data solve location and navigation problems by using GPS tools store digital data and systems use CAD software use an application-specific interface use presentation software use spreadsheets software write work-related reports	photogrammetry surveying methods topography

				GIS specialist *GIS mapping assistant* *geographic information systems adviser* *GIS analyst*					
ISCOISCO-08	here	**Technicians and associate professionals: Civil and engineering technicians**	**3112.1. Civil engineering technicians**	*civil engineering technical assistant* *earthworks civil engineering superintendent* *civil engineering technical officer* *civil engineering superintendent* *civil engineering design technician* *road engineering superintendent* *civils technician* *hydraulic engineering superintendent* *technician, civil engineering* *civil engineering services technician*	**Educational background in construction /EQF 3-4**	Civil engineering technicians help design and execute construction plans and take on organisational tasks, for example in the planning and monitoring, and in bidding and invoicing of construction work. They also calculate material requirements, and help with the purchasing and organising, and ensure the quality of the construction materials. Civil engineering technicians may perform technical tasks in civil engineering and develop and advise on policy implementing strategies for road works, traffic lights, sewerage and water management systems.	ensure compliance with safety legislation estimate duration of work follow health and safety procedures in construction inspect construction supplies keep records of work progress manage schedule of tasks operate drones in civil engineering perform field research prevent damage to utility infrastructure use measurement instruments use safety equipment in construction use technical drawing software BIM use building codes building information modelling civil engineering construction industry construction methods engineering principles engineering processes technical drawings	address problems critically adjust engineering designs advise on building matters advise on construction materials approve engineering design assess financial viability calculate needs for construction supplies conduct land surveys control of expenses create AutoCAD drawings define technical requirements design buildings design scale models ensure compliance with construction project deadline ensure gambling operational standards manage budgets manage engineering project manage health and safety standards monitor parameters' compliance in construction projects obtain relevant licenses oversee construction project promote environmental awareness set up temporary construction site infrastructure use CAD software work ergonomically work in a construction team	CAD software cost management design principles electrical engineering energy efficiency energy performance of buildings industrial design materials science mathematics mechanical engineering project management renewable energy technologies traffic engineering urban planning urban planning law zoning codes
ISCO-087126	here	**Craft and related trade workers: Plumbers and pipe fitters**	**7126.14-water network operative**	*water supply network operative* *pumping station operative* *water network maintenance technician* *pumping station worker* *water network worker* *water leakage technician* *water network operator* *pumping station operator* *water supply network worker water network technician water and sewerage operative* *leakage operative water network repair technician water supply network operator*	**Educational background in Building and civil engineering/EQF 2**	Water network operatives maintain pipes and pumping stations used for water supply, wastewater removal and sewerage. They perform planned maintenance and repair tasks and clear blockages in pipes and drains.	apply health and safety standards assemble manufactured pipeline parts detect flaws in pipeline infrastructure inspect pipelines lay pipe installation maintain water treatment equipment operate drilling equipment operate pumps operate sumps prevent pipeline deterioration repair pipelines use personal protection equipment	advise on equipment maintenance carry out cleaning of road drains collect samples for analysis consider the impact of material characteristics on pipeline flows document analysis results ensure regulatory compliance in pipeline infrastructures inspect drilling equipment interpret scientific data to assess water quality maintain drilling equipment maintain pipeline coating properties maintain septic tanks maintain water distribution equipment maintain water storage equipment measure water quality parameters mitigate environmental impact of pipeline projects	monitor water quality operate hydraulic machinery controls perform demarcation perform water treatments regulate the flow of substances in pipelines test samples for pollutants use water disinfection equipment
		Professionals: Architects, planners, surveyors and designers	**2144.1.8 heating, ventilation, air conditioning engineer**	*HVAC service engineer* *building services engineer* *heating, ventilation, air conditioning and refrigeration engineer* *heating, ventilation, air conditioning, and refrigeration engineer* *HVAC project engineer* *HVAC systems engineer* *air conditioning engineer* *HVACR engineers* *HVAC site engineer* *services engineer* *ventilation engineer* *refrigeration engineer* *HVACR engineer* *HVAC engineer*	**EQF level 4-5**	Heating, ventilation, air conditioning engineers design and develop heating, ventilation, air conditioning and possibly refrigeration systems for usage in residences, manufacturing sites, offices, commercial buildings, etc. They strive for solutions that serve the needs of clients and respond to architectural restrictions of sites.	adjust engineering designs advise on fitted ventilation systems approve engineering design assess energy consumption of ventilation systems assess financial viability assess heating and cooling systems design an electric heating system design district heating and cooling energy systems design heat pump installations design heating and cooling emission systems determine appropriate heating and cooling system execute feasibility study identify fitted source for heat pumps perform a feasibility study on district heating and cooling. perform a feasibility study on electric heating perform a feasibility study on heat pumps perform scientific research use technical drawing software district heating and cooling domestic cooling systems electric heating systems engineering principles engineering processes heating, ventilation, air conditioning and refrigeration parts hydraulics integrated design mechanical engineering mechanics solar thermal energy systems for hot water and heating technical drawings types of heat pumps	advise architects advise on machinery malfunctions analyse test data conduct performance tests create technical plans design a combined heat and power system design a solar absorption cooling system design solar heating system design geothermal energy systems design hot water systems design passive energy measures design prototypes design ventilation network determine internal air quality parameters draft design specifications install heating boiler install heating furnace install heating, ventilation, air conditioning and refrigeration ducts integrate biogas energy in buildings lead a team perform a feasibility study on solar absorption cooling perform feasibility study on solar heating perform test run record test data use CAD software	biogas energy production combined heat and power generation components of air conditioning systems design principles distribution of heating cooling and hot water domestic heating systems electrical engineering fluid mechanics geothermal energy systems industrial heating systems product data management refrigerants thermodynamics ventilation systems

				HVAC support engineer					

Belgium National Occupational Profiles						
GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
	SFMQ occupational profile	Work under the responsibility of a supervisor	**Bricklayer**	NQF 3 (Certificat d'apprentissage de maçon.ne)	A bricklayer is a skilled worker whose field of activity ranges from new construction to the renovation or conversion of existing buildings and structures. A bricklayer is a skilled worker responsible for part of the structural work on a building: - setting up the site/un-setting up the site - setting up the building - earthwork and foundations - install drainage and perimeter drainage systems - execute masonry (including pointing) - integrate elements into the masonry - installing thermal insulation - sealing walls - concreting, formwork and reinforcement of simple elements (slabs, beams, columns)	**Key professional activities** 1. Set up/dismantle the work site 2. Set up the building 3. Carry out the earthwork and the foundations 4. Install drainage and perimeter drainage systems 5. Execute masonry (including jointing) 6. Integrate elements into the masonry 7. Place the thermal insulation. 8. Sealing of walls 9. Forming, reinforcing and concreting elements **Transversal requirements** **Safety** - Apply, rigorously and permanently, the individual and collective safety rules: be vigilant with regard to dangers. - Use specific protective equipment (shoes, gloves, helmet, appropriate work clothes, dust mask, goggles, ear protection, etc.) - respect the requirements of the Code of Well-being at Work - Maintain the machines and tools: control, maintain and clean. - Place the personal protective equipment (PPE) against the fall of materials and tools. - Use equipment for working at heights according to current regulations. - Identify products that require special treatment or special precautions (asbestos, hazardous products, flammable products, etc.). **Hygiene :** Strictly apply the rules of hygiene. **Ergonomics :** - Respect the ergonomic rules of handling. - Implement and use lifting equipment and handling aids properly **Environment** : - Strictly apply the regulations in force on the respect of the environment - Clean the site and ensure the sorting of waste - To make an economic and ecological use of the equipment and materials. - Apply the regulations in force concerning the Energy Performance of Buildings

	SFMQ Occupational profile	Work under the responsibility of a supervisor	**Screed layer**	NQF 3 (Certificat de qualification de chapiste)	The screed maker provides the load-bearing slabs with adhesive layers, uncoupling layers, insulating layers and a finishing layer layers and a finishing layer: the screed. The screed is usually covered with a floor covering and/or a polished finish.	**Key professional activities** 1. Prepare the work 2. Lay a bonded screed 3. Lay an unbonded screed 4. Lay a floating screed 5. Lay a self-levelling screed **Transversal requirements** **Safety** - Respect the safety plan: - Install fencing and signage on site - Use and maintain collective and individual protective equipment specific to the work being carried out. - Identify dangerous products and take the appropriate measures - Read and understand the manufacturers' instructions displayed on products and tools (precautions for use) - Follows instructions for use of equipment and products - Maintain access areas - Apply the rules of prevention and the measures defined in case of first aid **Hygiene** : Comply with the requirements of the Code of Well-being at Work **Ergonomics** : Respect the ergonomic rules of handling. **Environment** : - Apply safety rules for the disposal of environmentally hazardous products - Use water and energy rationally - Sort and dispose of waste in accordance with the regulations in force and the rules of good practice in terms of environmental protection. the environment. - Make economic and ecological use of equipment and materials. - Comply with the regulations on the Energy Performance of Buildings (EPB). **Time management** : Respect the agreed schedule
	SFMQ Occupational profile	Work under the responsibility of a supervisor	**Tiler** (French : *Carreleur*)	NQF 3 (Certificat d'apprentissage de carreleur.euse)	The tiler proceeds, on the basis of a drawing or of indications, by respecting the instructions given by a manager, to cover interior and exterior walls (facades), floors stairs, thresholds, window sills and terraces with tiles. He places these tiles using mortar and/or adhesive. The tiler begins his work after all the structural work and plastering, the laying of heating pipes and sanitary equipment, the electrical installations, the laying of exterior joinery and the installation of home automation have been completed. Sometimes the tiler also has to cement the walls and make the screed. Tiling is only carried out after the surfaces to be tiled have been prepared. In principle, the walls are tiled first and then the floor. The tiler often works as an employee of a construction company, sometimes as a self-employed person.	**Key professional activities** 1. Prepare the work 2. Make the supports 3. Carry out the laying of floor tiles on fresh screed 4. Carry out the gluing of floor tiles. 5. Carry out the glued installation of a wall covering. 6. Tile a staircase 7. Carry out finishing and tidying tasks **Transversal requirements** **Safety :** - Apply, rigorously and permanently, the individual and collective safety rules - Use personal protective equipment (PPE): shoes, gloves, helmet, suitable work clothes, dust mask, goggles, hearing protection, etc.) - Comply with the requirements of the Workplace Welfare Code - Maintain machines and tools: check, maintain and clean. - Place and check collective protective equipment (CPE). - Use equipment for working at heights in accordance with the regulations in force. - Identify products requiring special treatment or special precautions (asbestos, dangerous products, flammable products, etc.) **Hygiene**: Strictly apply hygiene rules. **Ergonomics :** - Respect the ergonomic rules of handling. - Implement and use lifting equipment and handling aids properly, **Environment :** - Strictly apply the regulations in force on the respect of the environment - Clean your equipment. - Clean up the site - Sort and ensure the evacuation of waste.

						- Make economical and ecological use of equipment and materials. - Apply the regulations in force concerning the Energy Performance of Buildings (P.E.B.) **Time management**: Ensure work is completed within the time allocated.
	SFMQ Occupational profile		**Plasterer**	NQF 3 (Certificat d'apprentissage de plafonneur.euse - cimentier.ère)	The plasterer/cementer is the worker who applies a finishing coat to interior walls and ceilings (plaster, clay), as well as to facades (plasters, cements) in order to improve their physical and aesthetic characteristics ("wet plastering"). Insulation, repair and maintenance work is also part of the trade. The plasterer is also competent for the assembly and installation of false ceilings and interior walls made of coated plasterboard, as well as for the assembly of solid interior walls made of gypsum plasterboard ("drywalling"). He must also be able to fit prefabricated mouldings and ornaments on plastered surfaces (ceilings, etc.) or cemented surfaces (façades).	**Key professional activities** 1. Analyse the work requested and prepare the workstation 2. Prepare the supports 3. Apply the finishing coats interior : plaster, clay 4. Apply cement-based exterior finishes and plasters 5. Lay horizontal and vertical coated plasterboards 6. Install interior plasterboard partitions **Transversal requirements** **Safety** **Hygiene** **Ergonomics** Environment - Sort and dispose of waste according to regulations - The following are some of the ways in which you can use your skills and knowledge to improve your work environment. - Use water rationally - Dispose of water in accordance with the rules - Use machines that consume fossil fuels or pollute in a rational manner (electrical appliances and machines)
	SFMQ occupational profile	Work under the responsibility of a supervisor	**Roofer**	NQF 3 (Certificat d'apprentissage de couvreur.euse)	The roofer is the skilled worker who carries out the following work - participation in the organisation of collective and individual safety on the site in accordance with the safety, health and environment plan, - participation in the supply of materials to the site and the installation of machinery and specific equipment, - installation of the roofing complex (under-roofing, airtight film, insulation), - installation of various traditional or metal roof coverings, - installation of rainwater drains and their supports, - installation and waterproofing of various roofing elements (flashings, penetrations, etc.), - installation of various claddings, - installation of roofing equipment (solar panels, lightning rods, antennas, etc.) - removal of existing roofing elements and simple structural work in the context of in the context of conversion and renovation work.	**Key professional activities** 1. (De-)install and organise the site (access, supply of materials, security) 2. Analyse and prepare the roof 3. Make the roof complex 4. Make a traditional roof 5. Make a metal roofing 6. Make roof connections 7. Shape and install drainage and stormwater elements. 8. Carry out cladding 9. Install roofing equipment (solar panels, lightning rods, antennas, anti-pigeons, snow ladders,...) **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and effectively - Use machines and tools efficiently and effectively - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Ensure waste separation and disposal - Ensure protection against harmfulness of certain materials and substances - To identify dangerous, toxic or flammable products - Ensure traceability of products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. Time management **Time management** **Ergonomics**

	SFMQ Occupational profile		**Sealer**	NQF 3 (Certificat de qualification d'étancheur.euse)	The sealer is the skilled worker who carries out the following work - participation in the organisation of collective and individual safety on the site in accordance with the safety, health and environment plan, - participation in the supply of materials to the site and the installation of machinery and specific equipment, - installation of the roofing complex (under-roofing, airtight film, insulation), - waterproofing and coating of buildings (roofs, engineering structures, tanks, cellars, etc.) using hot or cold applied bituminous or synthetic products, either molten or in liquid form, - installation of rainwater drains and their supports, - installation and waterproofing of various roofing elements (flashings, penetrations, etc.), - installation and waterproofing of roofing accessories (support for photovoltaic panels, etc.), - removal of existing roofing elements and carrying out simple structural work in the context of conversion and renovation work, - preparation for the installation of extensive green roofs.	**Key professional activities** 1. (Un-)install and organise the site (access, supply of materials, security) 2. Analyse and prepare the roof (flat roof) 3. Make the roof complex (flat roof) 4. Installing a bituminous waterproofing layer (roofing, casing, structure) 5. Installing a synthetic waterproofing layer 6. Waterproofing of roofing equipment and finishes 7. Shape and install the drainage and stormwater elements **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and rationally - Use machines and tools efficiently and rationally - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Ensure waste separation and disposal - Ensure protection against harmfulness of certain materials and substances - Identify dangerous, toxic or flammable products - Ensure traceability of products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. Time management **Time management** **Ergonomics**
	SFMQ occupational profile		**Painter** (French: *Peintre décorateur*)	NQF 3 (Certificat d'apprentissage de peintre décorateur.rice)	The painter treats surfaces (floors, ceilings, interior and exterior walls) in order to protect and embellish buildings (new and/or renovation). He is therefore a skilled worker who completes the building by : - preparing the surfaces to be treated, - carrying out painting work (solvent-based paints, water-based paints, two-component paints) on various surfaces, - the use of spray techniques, - laying flexible wall coverings (wallpaper, painting canvas, wall fabric), - laying flexible floor coverings (plain carpet, vinyl), - laying moulded decorative elements	**Key professional activities** 1. Analyse the work to be performed and prepare the workstation. 2. Carry out painting work (solvent-based paints, water-based paints, two-component paints) on different surfaces. 3. Apply flexible wall covering (wallpaper, paintable canvas, wall fabric). 4. Install a flexible floor covering (plain carpet, vinyl). 5. Install moulded decorative elements (polystyrene). **Transversal requirements** **Safety/Hygiene** **Environment** - Strictly apply the regulations in force on the respect of the environment - Tidy up and clean up the site at the end of the activities - Sort and dispose of waste according to the rules. - Apply the safety rules for the disposal of certain environmentally hazardous products (solvents, etc.). - Use water and electricity rationally. - Use equipment and materials economically and ecologically. - Apply the regulations in force concerning the Energy Performance of Buildings (PEB). **Time management** **Ergonomics**

	SFMQ occupational profile	Work under the responsibility of a supervisor	**Carpenter** (In French : *Charpentier*)	NQF 3 (Certificat de qualification de charpentier.ière)	The carpenter is the skilled worker who, in accordance with the rules of safety, hygiene and the environment, carries out the following work independently for new or existing buildings - carries out dimensional surveys, an assessment of the condition of the building and the support ; - draws up/completes a schedule of timber and other materials for the structures to be installed; - On the basis of an execution plan, prepares the wood and panels, insulation products/waterproofing barriers and accessories required for manufacture and assembly; - On the basis of a working drawing, cut, mark out and assemble in the workshop and/or on site, manually or with the help of traditional and digital woodworking machines, the elements of the timber frame structure, consisting of prefabricated and usually pre-assembled elements pre-assembled elements; - participates in the organisation of collective and individual safety on the site; -participates in the supply of materials to the site and in the installation of specific machines and equipment specific machines and equipment; - on the basis of a layout plan, carries out the installation and final assembly of structures made on site or in the workshop -Reinforces/transforms and repairs structural elements with or without dismantling.	**Key professional activities** 1. Preparing for construction and assembly activities 2. Use the stock of materials in the workshop 3. Organising the workstation in the workshop 4. Carry out wood processing operations for carpentry 5. Assembling the structural elements 6. (Un-)installing the construction site for the assembly of a wood structure 7. Putting in place the elements of the wood structure 8. Reinforcing, transforming and restoring the elements of the wood structure **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and rationally - Use machines and tools efficiently and rationally - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Sort, store and dispose of waste in accordance with applicable laws, regulations and recommendations - Ensure protection against harmfulness of certain materials and substances - Identify dangerous, toxic or flammable products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. **Time management** **Ergonomics**
	SFMQ Occupational profile	Work under the responsibility of a supervisor	**Builder in timber structure** (French : *Constructeur monteur en ossature bois*)	NQF 3 (Certificat d'apprentissage de constructeur.rice-monteur.euse de bâtiments en structure bois)	The builder in timber structure is the skilled worker who, in accordance with the rules of safety, hygiene and the environment, carries out the following work independently for new or existing buildings - carries out dimensional surveys, an assessment of the condition of the building and the support ; - establishes a manufacturing order (draws up a schedule of timber) for the structures to be structures to be installed; - On the basis of an execution plan, selects the wood, panels, insulation products insulation/waterproofing products and accessories required for manufacture and and assembly; - On the basis of an execution plan, manufactures and assembles, in the workshop or on site, manually or with the aid of conventional and digital woodworking machines, the structural load-bearing elements and all non-load-bearing elements (structures) of buildings made of wood or composite materials, composed of prefabricated and usually pre-assembled elements; - participates in the organisation of collective and individual safety on the	**Key professional activities** 1. Preparing for construction and assembly activities 2. Use the stock of materials in the workshop 3. Organising the workstation in the workshop 4. Carry out wood processing operations for wood structure buildings 5. Fabricate load-bearing structural elements in the workshop or on site 6. (Un-)installing the construction site for the assembly of a wood structure building 7. Set up the load-bearing structural elements on site 8. Install the exterior woodwork cladding. **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and rationally - Use machines and tools efficiently and rationally - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Sort, store and dispose of waste in accordance with applicable laws, regulations and recommendations - Ensure protection against harmfulness of certain materials and substances - Identify dangerous, toxic or flammable products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. **Time management** **Ergonomics**

					site; - participates in the supply of materials to the site and in the installation of specific machines and equipment; - on the basis of a layout plan, carries out the installation and final assembly of structures made on site or in the workshop. - May be required to place exterior wood or composite cladding.	
	SFMQ Occupational profile	Work under the responsibility of a supervisor	**Indoor carpenter**	NQF 3 (Certificat d'apprentissage de menuisier.ère d'intérieur)	The indoor carpenter is the skilled worker who, in accordance with the rules of safety, hygiene and environment, carries out the following work independently for new or existing constructions - carries out dimensional surveys, assesses the condition of the substrate and draws up a production order for interior doors, panelling, false ceilings, skirting boards, stairs and various interior accessories; - On the basis of an execution plan, selects both wood and composite materials On the basis of an execution plan, selects both wood and composite materials (panels, etc.), as well as hardware and materials; - on the basis of an execution plan, manufactures and assembles by the unit or in small series, manually or with the aid of traditional and digital woodworking machines, of woodwork/parts for interior joinery; - participates in the organisation of collective and individual safety on the site; - participates in the supply of materials to the site and in the installation of machinery and machines and specific equipment; - on the basis of a layout plan, carries out the positioning, assembly and fixing of and fixing of the elements produced in the workshop; -fits elements/components on wooden structures (insulation, insulation, sealing, glazing, etc.); - carries out decoration and finishing operations (specify) on wooden structures/parts wood for interior joinery.	**Key professional activities** 1. Prepare construction and assembly activities 2. Use the stock of materials in the workshop 3. Organise the workshop workstation 4. Carry out woodworking operations for interior joinery 5. Assemble and fit out interior joinery elements 6. (Dis)install the interior joinery site 7. Place interior joinery **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and rationally - Use machines and tools efficiently and rationally - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Sort, store and dispose of waste in accordance with applicable laws, regulations and recommendations - Ensure protection of the environment - Ensure protection against harmfulness of certain materials and substances - To identify dangerous, toxic or flammable products - Ensure traceability of products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. **Time management** **Ergonomics**

	SFMQ Occupational profile	Work under the responsibility of a supervisor	**Outdoor carpenter**	NQF 3 (Certificat d'apprentissage de menuisier.ère d'extérieur)	The outdoor carpenter is a qualified worker who, in accordance with the rules of safety, hygiene and the environment, carries out the following work independently for new or existing buildings - carries out dimensional surveys on site and establishes a manufacturing order for all exterior joinery in wood, aluminium, PVC (examples: doors, windows, shutters, gates, blinds, fences, garage doors, joinery facades, verandas, exterior furniture, etc.); - On the basis of an execution plan, selects both the wood and the panels, as well as the hardware and materials; - on the basis of an execution plan, manufactures and assembles by the unit or in small series, manually or with the help of traditional and numerical machines, of works/parts wood, PVC and aluminium structures/parts for exterior joinery; - participates in the organisation of collective and individual safety on the site in accordance with the safety-hygiene-environmental plan ; - participates in the supply of materials to the site and in the installation of machinery and machines and specific equipment ; - dismantles the joinery and checks the condition of the support (frame, embrasure, etc.) - on the basis of a layout plan, carries out the positioning, assembly and on the basis of a layout plan, positions, assembles and fixes the elements produced in the workshop; - installs elements/components on wooden structures (insulation, sealing, glazing); - Checks the operation of mobile accessories, the watertightness or insulation of the structure; - installs and sets glazing on a carrier ; - installs exterior wood or composite material facings; - carries out decoration and finishing operations on exterior joinery parts/sub-assemblies.	**Key professional activities** 1. Prepare construction and assembly activities 2. Use the stock of materials in the workshop 3. Organise the workshop workstation 4. Carry out wood processing operations for exterior joinery 5. Carry out machining operations on exterior metal and synthetic joinery 6. (Dis)install the exterior joinery site 7. Assembling and fitting exterior joinery elements 8. Place elements of exterior joinery 9. Installing the exterior cladding joinery **Transversal requirements** **Safety/Hygiene** **Environment** - Use fluids and energy efficiently and rationally - Use machines and tools efficiently and rationally - Observe noise requirements - Take measures to prevent and protect against noise - Limiting dust emissions - Sort, store and dispose of waste in accordance with applicable laws, regulations and recommendations - Ensure protection against harmfulness of certain materials and substances - Identify dangerous, toxic or flammable products - Ensure traceability of products - Apply technical requirements to increase the energy performance of buildings (PEB) - Ensure the implementation of materials to meet the PEB requirements. **Time management** **Ergonomics**
	SFMQ occupational profile	Work under the responsibility of a supervisor	**Residential Electrical Installer** (French : NQF 3 (Certificat d'apprentissage d'installateur.rice électricien.ne résidentiel.le)		The residential electrical installer installs and connects residential electrical circuits. He puts the installation into service and ensures the correct functioning of his own work (new or existing residential installation).	**Key professional activities** 1. Install the conduits, electrical ducts and boxes of a built-in and/or exposed electrical installation. 2. Place and connect electrical equipment. 3. Put the electrical installation into operation. **Transversal requirements (Safety / Hygiene / Ergonomics / Environment / Time management) :** - Use the collective and individual protective equipment (PPE) specific to the work performed. - Respect the requirements of the Code on well-being at work - Comply with the General Regulations on Electrical Installations (RGIE). - Respect the ergonomic rules of handling. - Sort and dispose of waste in accordance with the regulations in force and the rules of good practice in

						environmental protection. - Make economic and ecological use of equipment and materials. - Comply with the Energy Performance of Buildings regulations. - Respect the agreed schedule.

Finland National Occupational Profiles						
GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
7111	Here	Building construction labourers	Building construction worker	Experience in Construction, EQF Level 4, VET training, possible trainings: degree in construction at a vocational school, Further Qualification in Building Construction, Bachelor of Science in Construction, apprenticeship	Building construction workers prepare and maintain building construction activities on construction sites. They perform preparation and clean-up work in order to assist specialised construction workers.	• apply finish to concrete • check compatibility of materials • dig soil mechanically • follow health and safety procedures in construction • inspect construction supplies • inspect masonry work • install construction profiles • install wood elements in structures • mix concrete • move soil • operate digging construction equipment • place drywall • pour concrete • prepare surface for painting • prepare surface for plastering • prepare wall for wallpaper • transport construction supplies • use safety equipment in construction • work in a construction team
7115	Here	Building construction labourers	Carpenter / Joiner	Experience in Construction, EQF Level 4, VET training, possible trainings: degree in construction at a vocational school, apprenticeship	Carpenter / Joiner prepares and maintain building construction activities on construction sites. They perform preparation and clean-up work in order to assist specialised construction workers, they are also multiskilled in all construction work.	Making, altering and repairing wooden structures and other wooden parts on a workshop or construction site, construction, erection and installation of heavy timber trusses on construction sites, installation, assembly and modification of internal and external fixed parts of buildings, such as walls, doors, door and window frames, upholstery and panelling, production, repair and installation of theatrical, cinematographic or TV sets, construction, assembly, alteration and repair of fixed wooden furniture and components for railway carriages, aircraft, ships, boats and other means of transport
7115	Here	Building construction labourers	measure carpenter	Experience in Construction, EQF Level 4, VET training, possible trainings: degree in construction at a vocational school, apprenticeship	The duties of a measure carpenter usually measure the work of a carpenter, so the professional title may also be that of a carpenter. The surveyor is responsible for all work related to the measurement of the building. Surveyors generally have the help of modern computer-based measuring devices that make the job easier.	Measuring and marking the lines, heights etc for a regular builders or carpenters. Making, altering and repairing wooden structures and other wooden parts on a workshop or construction site, construction, erection and installation of heavy timber trusses on construction sites, installation, assembly and modification of internal and external fixed parts of buildings, such as walls, doors, door and window frames, upholstery and panelling, production, repair and installation of theatrical, cinematographic or TV sets, construction, assembly, alteration and repair of fixed wooden furniture and components for railway carriages, aircraft, ships, boats and other means of transport

3123, 31122, 31121, 2142	Here	Technicians and Associate Professionals	Builder (Building foreman) (rakennusmestari)	Academic Background in technology or engineering/EQF 5	Construction general supervisors keep track of the proceedings of all stages in the building process. They coordinate the different teams, assign tasks, and resolve problems.	• BIM, conduct quality control analysis • coordinate construction activities • ensure compliance with construction project deadline • ensure equipment availability • evaluate employee's work • follow health and safety procedures in construction • inspect construction supplies • keep records of work progress • liaise with managers • manage health and safety standards • monitor stock level • plan resource allocation • plan shifts of employees • process incoming construction supplies • react to events in time-critical environments • secure working area • supervise staff • use safety equipment in construction • work in a construction team
8342, 9312	Here	Craft and Related Trade Workers:	asphalt worker	EQF4 (3 years)	preparation of asphalt mix by mixing or cooking, and paving and patching of passageways and special areas. The work often involves the refurbishment and levelling of the substrate to be paved	lay asphalt, cook asphalt, levelling
			Earthmover	Experience in Construction, EQF Level 4, VET training, degree in construction at a vocational school. Further Qualification in	a in construction are able to perform foundation stage tasks on a building construction site and know how to perform work on outer and partition walls as well as roof framing tasks, including laying insulation, following plans, and documents. They know how to use the basic tools of the construction site as well as correct working methods and materials.	competence area in infrastructure construction are able to perform foundation stage tasks on a building construction site, work phases of an ordinary infrastructure construction site, and municipal engineering work, such as building surface drainage and waste water systems as well as water supply systems and their equipment. operate machinery in excavation work. in earthmover operation measurement and marking tasks on excavation sites. basics of geology and excavation technology
5153	Here	Building construction	property maintenance man	EQF4 (3 years)	Take care of residential houses, hotels, offices, churches and other buildings, take care of them and maintain order. Can monitor other employees.	carpenter & joiner skills are good

7112	Here	Craft and Related Trade Workers: Building Frame and related trades workers	7112-Bricklayers	Educational background in Building and civil engineering/EQF 4, apprenticeship	Bricklayers assemble brick walls and structures by skilfully laying the bricks in an established pattern, using a binding agent like cement to bond the bricks together. They then fill the joints with mortar or other suitable materials. The mason's work includes brick and block masonry, which is used to make the foundations of buildings, masonry of external and internal walls and pillars. Masonry work may also include plastering and tiling work. Depending on the specialization, the professional titles of a mason may also include a fireplace mason, an oven mason, a technical mason, a wall mason, a tiler, a plasterer or a block mason.	check straightness of brick finish mortar joints follow health and safety procedures in construction follow safety procedures when working at heights inspect construction supplies install construction profiles interpret 2D plans interpret 3D plans lay bricks mix construction grouts secure working area snap chalk line sort waste split bricks transport construction supplies use measurement instruments use safety equipment in construction work ergonomically
ISCO-08711	here	Craft and Related Trade Workers: Building Frame and related trades workers	7111.1-House Builder, same as Building construction worker	Educational background in building and civil engineering/EQF 4	House builders construct, maintain and repair houses or similar small buildings using a range of techniques and materials of several construction building workers.	• assess construction compliance • check compatibility of materials • create floor plan template • create smooth wood surface • design floor • follow health and safety procedures in construction • follow safety procedures when working at heights • inspect concrete structures • inspect roofs • install construction profiles • install wood elements in structures • maintain construction structures • perform roof maintenance • plan construction of houses • prepare building site • prepare surface for hardwood floor laying • read standard blueprints seal flooring • use safety equipment in construction • work in a construction team • building codes • building materials industry • roofing techniques
7114	Here	Craft and Related Trade Workers: Building Frame and related trades workers	7114 -Concrete finisher	Educational background in Architecture, Geomatics, Construction and Real Estate/ EQF 4	Concrete finishers work with binding agents like cement and concrete. They put up any removable forms and pour concrete into the forms. They then execute one or several actions to finish the concrete: cutting, screeding or levelling, compacting, smoothing, and chamfering to prevent chipping.	• clean wood surface • follow health and safety procedures in construction • inspect concrete structures • inspect supplied concrete • mix concrete • monitor concrete curing process • place concrete forms • pour concrete • prevent damage to utility infrastructure • react to events in time-critical environments • recognise signs of corrosion • remove concrete forms • screed concrete • transport construction supplies • use measurement instruments

						• use safety equipment in construction • work ergonomically • work in a construction team
7114	Here	Craft and Related Trade Workers: Building Frame and	element installer	Educational background in construction/EQF 4	Erect reinforced concrete frames and structures, make concrete moulds, reinforce concrete surfaces, cement holes or well rings in walls, finish and level cement surfaces and pour mosaic concrete.	Construction and repair of concrete floors and walls and other concrete structures such as tanks and silos. Making formwork or installing ready-made moulds for concrete casting. Cementing openings in walls or well rings. Finishing and levelling of concrete structures. Pouring mosaic concrete (mixture of cement, aggregate, water and dyes) as a floor covering, etc.
7113	Here	Craft and Related Trade Workers: Building Frame and related trades workers	7113.1-Stonemason	Educational background in construction/EQF 4	Stonemasons manually carve and assemble stone for construction purposes. While CNC operated carving equipment is the industry standard, artisanal carving for ornamental stone is still done manually.	• create cutting plan • follow health and safety procedures in construction • inspect construction supplies • inspect stone surface • interpret 2D plans • interpret 3D plans • maintain work area cleanliness • mark stone workpieces • operate grinding hand tool • polish stone by hand • prepare stone for smoothing • regulate cutting speed • secure working area • transport construction supplies • use measurement instruments • use safety equipment in construction • use stonemason's chisel • work ergonomically
7131	Here	Craft and Related Trade Workers: Painters and related workers	7131.1-construction painter	Educational background in construction and building/EQF 3, degree in surface treatment at a vocational school vocational and specialist qualification in painting apprenticeship	Construction painters paint the interior and exterior of buildings and other structures. They may use standard latex-based paints or specialised paints for decorative effect or protective properties. Building painters are skilled in using brushes, paint rollers and paint sprayers for different applications.	• clean painting equipment dispose of hazardous waste • dispose of non-hazardous waste • follow health and safety procedures in construction • follow safety procedures when working at heights • inspect construction supplies • inspect paintwork • interpret 2D plans • interpret 3D plans • paint surfaces • prepare surface for painting • protect surfaces during construction work • remove paint • sand between coats • snap chalk line • transport construction supplies • use measurement instruments • use safety equipment in construction • work ergonomically • work safely with chemicals

1323	here	Managers: Construction managers	construction engineer	Educational background in construction/EQF 5, degree in engineering in the degree program in civil engineering at the University of Applied Sciences a master's degree in civil engineering from the University of Technology	Construction managers are responsible for the planning and coordination of the construction projects. They provide expertise in the design phase of construction projects by facilitating a better estimate of the costs and the functional implications. They participate on bid processes for construction projects and handle subcontractors to deliver the different stages of the construction process from beginning to completion. They strive to enhance the value of the projects both improving efficiency and creating value for customers.	• advise on construction materials • apply safety management • assess construction compliance • calculate needs for construction supplies • communicate with construction crews • ensure compliance with legal requirements • identify construction materials from blueprints • identify customer's needs • interpret technical requirements • manage contracts • oversee construction project • plan construction of houses • prepare construction documents • review construction projects • work in a construction team • budgetary principles • building materials industry • civil engineering • construction equipment related to building materials • construction industry • construction product regulation • cost management • project management • quality standards
ISCO-08 3112	here	Technicians and associate professionals	SIMILAR as BUILDER in Finland 3112.1.3-construction quality inspector	Educational background in construction /EQF 5	Construction quality inspectors monitor the activities at larger construction sites to make sure everything happens according to standards and specifications. They pay close attention to potential safety problems and take samples of products to test for conformity with standards and specifications.	• advise on construction materials • check compatibility of materials • ensure conformity to specifications • evaluate employees work • follow health and safety procedures in construction • inspect construction supplies • keep records of work progress • liaise with managers • maintain work area cleanliness • make time-critical decisions • monitor construction site • process incoming construction supplies • recognise signs of wood rot • supervise staff • test construction material samples • use safety equipment in construction • work ergonomically

7126	Here	Craft and related trades workers: Plumbers and pipe fitters	Plumbing installer	Experience in Construction, EQF Level 4, VET training, possible trainings: degree in construction at a vocational school, apprenticeship	Plumbers maintain and install water, gas and sewage systems. They inspect pipes and fixtures on a regular basis or make repairs as needed. They bend, cut, and install pipes. They test systems and make adjustments safely and following regulations. They place sanitary equipment.	• attach PEX pipe • check water pressure • clear out drains • follow health and safety procedures in construction • inspect construction supplies • install PVC piping • install metal gas piping • install plumbing systems • interpret 2D plans • interpret 3D plans • place sanitary equipment • prepare copper pipes for use as gas lines • replace faucets • snap chalk line • transport construction supplies • use measurement instruments • use safety equipment in construction • use welding equipment • work ergonomically
7411	Here	Craft and Related Trade Workers: Building Frame and related trades workers	7411.1.1-building electrician	Educational background in engineering/EQF 3-4	Building electricians install and maintain electricity cables and other electrical infrastructure in buildings. They make sure installed electrical equipment is isolated and presents no fire hazards. They understand existing situations and make improvements if called for.	• follow health and safety procedures in construction • inspect construction supplies • inspect electrical supplies • install electric switches • install electrical and electronic equipment • install electricity sockets • react to events in time-critical environments • resolve equipment malfunctions • splice cable • test electronic units • test procedures in electricity transmission • use measurement instruments • use precision tools • use safety equipment in construction • work ergonomically, wiring route planning = not possible to do as designed in the begin with
7122	Here	Craft and related trades workers: Floor layers and tile setters	7122.3-resilient floor layer	Educational background in construction/EQF 3-4, apprenticeship	Resilient floor layers place prefabricated tiles or rolls of flooring materials such as linoleum, vinyl, rubber or cork to serve as floor covering.	• apply floor adhesive • create floor plan template • cut resilient flooring materials • follow health and safety procedures in construction • inspect construction supplies • install laminate floor • interpret 2D plans • interpret 3D plans • lay resilient flooring tiles • lay underlayment • mix construction grouts • prepare floor for underlayment • transport construction supplies • use measurement instruments • work ergonomically

7122	Here	Craft and related trades workers: Floor layers and tile setters	Carpet and parquet installer	Educational background in construction/EQF 3-4, undergraduate degree in flooring at a vocational school vocational and specialist vocational qualification in flooring, apprenticeship	Hardwood floor layers install floors made of solid wood. They prepare the surface, cut parquet or board elements to size, and lay them in a predetermined pattern, straight and flush.	• clean wood surface • create floor plan template • create smooth wood surface • fill nail holes in wood planks • follow health and safety procedures in construction • identify wood warp • inspect construction supplies • install wood elements in structures • interpret 2D plans • interpret 3D plans • join wood elements • lacquer wood surfaces • lay underlayment • monitor processing environment conditions • pin parquet • prepare surface for hardwood floor laying • transport construction supplies • use measurement instruments • wax wood surfaces • work ergonomically
7123	here	Craft and related trades workers: Plasterers	Plasterers (normally same as bricklayer)	Educational background in Building and civil engineering/EQF 4, apprenticeship	Plasterers apply plaster made from gypsum, cement or other solutions to walls as a smooth finish. They mix dry plaster powder with water, then smear the resulting paste onto a wall. The plaster is then smoothed before it hardens and forms a solid coating on the wall.	• apply adhesive wall coating • apply proofing membranes • cut wall chases • follow health and safety procedures in construction • follow safety procedures when working at heights • inspect construction supplies • install insulation material • mix construction grouts • place drywall • plaster surfaces • prepare surface for plastering • transport construction supplies • use measurement instruments • work ergonomically • work safely with chemicals
7121	here	Craft and related trades workers: Building finishers and related trades workers	7121.1-roofer	Experience in Construction, EQF Level 4, VET training, possible trainings: degree in construction at a vocational school, Further Qualification in Building Construction, apprenticeship	Roofers cover structures with roofs. They install the weight-bearing elements of a roof, either flat or pitched, then cover it with a weatherproof layer.	• apply roll roofing • construct wood roofs • follow health and safety procedures in construction • follow safety procedures when working at heights • inspect construction supplies • inspect roof • install gutters • install insulation material • install roof flashing • interpret 2D plans • interpret 3D plans • lay interlocking roof tiles • perform roof maintenance • prepare roofing materials • recognise signs of wood rot • remove roofs • secure working area • sort waste • transport construction supplies • use measurement instruments • use safety equipment in construction • work ergonomically

7115	Here	Craft and related trade workers: Carpenters and joiners	Furniture Installer	Educational background in construction /EQF 4	Kitchen unit installers install kitchen elements in homes. They take the necessary measurements, prepare the room, removing old elements if necessary, and install the new kitchen equipment, including the connection of water, gas and sewage pipes and electricity lines.	• check water pressure • follow health and safety procedures in construction • inspect construction supplies • install PVC piping • install construction profiles install cooktops • install metal gas piping • install oven • install wood hardware • interpret 2D plans • interpret 3D plans • load cargo • replace faucets • snap chalk line • unload cargo • use measurement instruments • use safety equipment in construction • work ergonomically • electricity • plumbing tools • types of piping
8343	here	Craft and related trade workers: Plasterers	Construction crane operator	Educational background in construction /EQF 4	Operates and monitors permanently installed or mobile cranes, hoists and hoists.	use of fixed or mobile cranes for lifting, moving and positioning equipment and materials. Use of lifting equipment on construction sites or in mines and supervision of the operation of such equipment

France National Occupational Profiles

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
CFP	Here	Elementary	Machine Operator	CAP "Conducteur d'engins" - EQF 3	They drive a wide range of machines, from a few horses to several hundred, from a few tons to several hundred, from a few thousand to several million Euros.	**Technical and organisational skills necessary to carry out the following activities:** **-** Design access roads and temporary signage - Carry out stripping, scarification and fragmentation work - Carry out earthworks, trenches and shafts - Carry out compaction operations, platforms adjustments, embankments development - Carry out equipment transfers and routine / periodic maintenance - Record consumptions on site (materials, fuel, etc.) - Know how to limit energy and fluid consumptions (energy efficiency) - Know how to sort waste (circular economy) during and at the end of the work.

CFP 239354 245118 163524 076613 6381	Here	Elementary	Roofer	CAP Couvreur - EQF 3 BP Couvreur - EQF 4	Roofers carry out or repair roofs of apartment, buildings or individual houses. They intervene after the installation of the framework in order to allow the other trades to complete their work sheltered from bad weather. Roofers may also install thermal insulation under the roof, install roof windows or install solar collectors on the roof slope. They can also carry out restoration work: church towers, domes of historical monuments, etc.	**Technical and organisational skills necessary to carry out the following activities:** - Set up a scaffold with its protections; - Prepare the roof (laying and repairing battens, inserting insulation material, etc.) ; - Place and fix tiles, slates and other roofing materials; - Apply treatment and protection products; - Carry out zinc work, waterproofing or external insulation; - Sorting out materials; - Install scaffolding.
CFP 239212 247003 290197 310148 311305 328434	Here	Elementary	Electrician	CAP Electricien - EQF 3 BP Electricien - EQF 4 Bac Pro Métiers de l'_électricité et		**Technical and organisational skills necessary to carry out the following activities:** - Carry out an eco friendly installation - Implement "prevention, health and environment" measures - Check the characteristic values of the installation - Validate the operational running of the installation - Use digital tools in the professional context - Replace electrical equipment - Communicate with the client / user about the installation.
CFP 161724 731630 655151	Here	Elementary	Sealer	Titre Professionnel Etancheur – Bardeur - EQF 3 BTS Enveloppe du bâtiment : façades – étanchéité - EQF 5	Sealers create waterproof coatings to protect structures and buildings from water. They work on all walls that are particularly exposed to water or humidity: roof terraces, balconies, car parks, reservoirs, terraces, buried walls, bridge decks or tunnels. Their work must be technically impeccable to avoid any risk of damage. They intervene in new construction after civil engineering, structural work or structural work, as well as in rehabilitation to maintain the quality of the works. After checking the supports, they can carry out various tasks depending on the case: installation of thermal insulation, waterproofing and any protective coatings (gravel, slabs on blocks, vegetation, etc.) and treatment of special points such as rainwater drains and expansion joints.	**Technical and organisational skills necessary to carry out the following activities:** - Prepare and install the site by setting up the material and equipment (particularly safety equipment) - Implement activities related to support and load-bearing elements, thermal insulation, bituminous waterproofing coatings, protection of waterproofing coatings, standard cladding, - Carry out maintenance work (recognise and repair waterproofing defects) and site closure (site cleaning, waste management, equipment control)
CFP 244982	Here	Elementary	Crane operator	Titre Professionnel Conducteur de grue à tour - EQF 3	Crane operators are site technicians highly qualified in the driving and manoeuvring of tower cranes, lifting equipment at height or very great height. They supply the different parts of the site with materials: formwork-tools, skips filled with concrete, prefabricated elements, reinforcement for reinforced concrete, plaster, breeze blocks and bricks on pallets. From the top of their cabin, they communicate with the team leaders by radio and may have to move materials without visibility.	**Technical and organisational skills necessary to carry out the following activities:** 1. Operate a tower crane from the ground - Handle loads safely. - Carry out concreting operations safely. - Handle safely panels and prefabricated parts. 2. Operate a tower crane from the cab - Translate safely a track-mounted tower crane. - Handle loads safely. - Carry out concreting operations safely. - Handle safely panels and prefabricated parts.

CFP 239426 310365 310372 136339	Here	Elementary	Plumber (maintenance)	CAP Monteur en installation sanitaire - EQF 3 BP monteur en installations du	Plumbers install and replace sanitary equipment (toilets, washbasins, showers, kitchen sinks, etc.) as well as taps and pipes for the supply and distribution of water, gas and drainage (in steel, copper, PVC, etc.) They carry out repairs to these installations.	**Technical and organisational skills necessary to carry out the following activities:** - Decode a sanitary installation technical file - Determine the supplies needed for the project - Organise the intervention - Secure the intervention - Receive supplies - Equip the devices - Set up the sanitary installation - Install brackets and equipment - Assemble and connect networks - Check the achieved work
CFP	Here	Elementary	Heating Technicien (Maintenance) Technicien de maintenance chauffage ventilation climatisation	Titre professionnel Technicien de maintenance d'équipements de confort climatique - EQF 4 Titre professionnel Technicien Froid et	Heating technicians install and replace all appliances for the production of domestic hot water and heating: heat pumps, gas and oil boilers, renewable energies (wood, solar thermal, etc.). They install the pipes (steel, copper, PVC, etc.) and connect them to the sanitary elements and heating appliances. They commission the installations and may carry out maintenance.	**Technical and organisational skills necessary to carry out the following activities:** - Carry out corrective maintenance on a single-stage refrigeration and air conditioning installation. - Carry out preventive maintenance on a single-stage refrigeration and air conditioning installation. - Carry out preventive maintenance on complex and centralised commercial refrigeration installations - systematic maintenance (servicing) and predictive maintenance (predict the malfunction of a refrigeration installation). - Carry out corrective maintenance on complex and centralised commercial refrigeration installations - in site and remote diagnosis (using a supervision system)
CFP 162324000402446143101493103702395762446992454321363421363431363402490078	Here	Elementary	Locksmith-Metalworker	CAP Serrurier Métallier - EQF 3 BP Metallier - EQF 4 BTS Constructions métalliques - EQF 5	They manufacture, install, repair and commercialise metal enclosures and fittings (handrails, stairs, sun screens, etc.), locks, doors, windows, light facades and metal structures. They also install and commission alarms or access controls.	**Technical and organisational skills necessary to carry out the following activities:** - Carry out, from directives, manufacture and implementation in site of works which meet the thermal, safety, accessibility and aesthetic requirements of buildings. - Work in workshop and/or on site, in the context of new work, renovation or maintenance (metalwork, metal construction, metal joinery and decorative fittings).
CFP	Here	Elementary	Robotic Machine Operator	Titre professionnel Conducteur d'installation et de machines automatisées - EQF 3 (ext	By working on all types of construction sites, robots reduce the difficulty of work and increase productivity. Automated installation and machine operators adjust the machines by specifying the rates, the quantity to be produced and the quality standards to be met. Then they launch and control production and manage any contingencies.	**Technical and organisational skills necessary to carry out the following activities:** - Operate an automated production facility with or without robots: preparation for electrical clearance. - Prepare, start and stop and automated production installation equipped with or without robots.

CFP	https://www.afpa.fr/form	Elementary	Wood Manufacturer	CAP Menuisier de fabrication bois et dérivés - EQF 3	Make the outline: technical sketch of the structure from a plan. Choose the wood, draw and cut the different pieces. Assemble these elements to form the framework to be lifted onto the site. Lift and assemble structural, wall and insulation elements to create a timber frame.	**Technical and organisational skills necessary to carry out the following activities:** - Mass production of parquet flooring, panelling and decorative elements made of woods or derived panels. - Manufacture small series of joinery and furniture in wood or derived panels. - Assemble, fit out and construct joinery and furniture made of wood or derived panels.
CFP 238762 239237 239342 247001 136318	https://www.metiers-	Priority 2	Tiler	CAP Carreleur mosaïste - EQF 3 BP Carreleur mosaïste - EQF	Carry out the cutting of ceramic, stoneware, marble tiles or other similar decorative elements. Implementing sound and heat insulating underlays. Lay tiles on floors or walls, indoors or outdoors. Carry out renovation work.	**Technical and organisational skills necessary to carry out the following activities:** - Cover floors and walls both indoors (kitchens, bathrooms, etc.) and outdoors (facades, terraces, etc.) - Cut and lay tiles, lay a screed to prevent water infiltration or build a wall.
CFP 162239958 244848 245206 245243 774623995954 243846	https://www.metiers-btp.fr/entrant-	Priority 2	Carpenter (metal structure)	CAP Charpentier Bois - EQF 3 BP Charpentier Bois - EQF 4 Titre professionnel Technicien supérieur	Their missions are: To carry out a project study and calculate the structural elements and their adjustment. They are responsible for the design and calculation of the structural elements and their adjustment, as well as the cutting, bolting and welding of the structural elements (beams, columns), walls and insulation Install and assemble these elements in construction projects.	**Technical and organisational skills necessary to carry out the following activities:** - Identify and design roofing and cladding in steel construction - Know the regulations and standards in place - Identify the different designs of industrial buildings - Analyse a description and produce an overall plan of storage building - Analyse a tender document and produce a commercial building plan - Be aware of the thermal regulations and sustainable development for buildings
CFP 239350 239352	https://www.metiers-btp.fr/entrant-btp/fiche-metier/constructeur-	Priority 2	Builder of Civil Engineering Structures	CAP Constructeur en ouvrages d' art - EQF 3 CAP Constructeur d' ouvrages en béton armé - EQF 3	Civil Engineering Constructors work on construction sites for large structures (bridges and viaducts, dams and reservoirs, tunnels and galleries, nuclear power stations, industrial buildings, etc.), as well as on construction sites for specific structures (retaining walls, special foundations, etc.) They carry out 4 main operations: Formwork, or preparation of the mould into which the concrete will be poured; Reinforcement, or placing metal reinforcement in the mould to reinforce (consolidate) the concrete; Concreting, or pouring the concrete into the mould; Demoulding, or removing the formwork from the part, a delicate operation as the concrete must be kept intact without damaging the formwork.	**Technical and organisational skills necessary to carry out the following activities:** - Carry out an analysis of a professional situation in one's occupation and propose an organisation for the intervention. - Translate information graphically - Prepare professional execution drawings - Design a structural element in reinforced concrete for an engineering work - Organise one's workstation materially - Carry out / implement a formwork of structural element(s).

CFP 136338	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Bricklayer	CAP Maçon - EQF 3 BP Maçon - EQF 4 Titre professionnel Métiers bâtiment et du	Masons create the structure of a building - foundations, walls, floors - by assembling elements or pouring concrete. They carry out façade rendering, waterproofing and insulation of premises. They renovate and rehabilitate buildings and build special structures (swimming pools, landscaping, funeral monuments, etc.).	**Technical and organisational skills necessary to carry out the following activities:** - Receive the customer's request and the company's specifications, analyse and identify the needs. - Compile the project execution file for the construction of a building. - Establish the chronological order of fabrication and implementation activities and tasks on site. - Carry out masonry, formwork, reinforcement and concrete pouring operations. - Carry out the coating of walls (plaster, mortar) and floors (tiles, earthenware). - Carry out all the quality / conformity control operations of the work carried out regarding the initial specifications with a rigorous organisation taking into account material and environmental risks.
NSF Code 234	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Carpenter specialising in fittings (Technician)	BM Menuisier de bâtiment et d' agencement -EQF 5	Joiner fit out premises and spaces according to the specifications of the project manager (architect, interior designer, design office) by proposing, manufacturing and then installing interior joinery with its equipment (staircases, cupboards, doors, kitchens, parquet flooring, railings, distribution partitions, etc.), within the framework of the installation of kitchens, bathrooms, meeting rooms or even shops. They must master the acoustic, thermal, fire, air quality and accessibility regulations.	**Technical and organisational skills necessary to carry out the following activities:** - Design a joinery and/or fittings project based on a client's request / in response to a call for tenders -Organise and optimise the production of unitary and serial parts (e.g. doors, hotel room fittings, etc.) - Manufacture and supervise the manufacture of individual or series of complex works (curved in plan and in elevation) in building joinery and fittings - Set up, run and develop a joinery - Marketing of carpentry products and services in French and foreign languages - Manage financial issues of building joinery and fittings business when setting up, taking over or expanding the business - Manage human resources in the building joinery and fittings industry in accordance with the principles of labour law
CFP 244611 130509 136337 313085	https://www.metiers-btp.fr/entrant-	Priority 2	Air Conditioning Specialist (Maintenance)	BP Monteur dépanneur en froid et climatisation - EQF 4 Bac pro technicien en installation des	Air conditioning specialists install air-conditioning equipment that distributes hot or cold air in any type of building. They install all types of ventilation systems (single or double flow, hydro adjustable or not) and can set up a centralised air conditioning system.	**Technical and organisational skills necessary to carry out the following activities:** - Carry out any repairs on the circuits of the installations - Ensure preventive maintenance, installations maintenance, establish a diagnostic - Represent the company on technical topics at site meetings - Ensure the connection between the design office and the site - Understand the physical and thermodynamic phenomena of the refrigeration and heat engineer - Quickly interpret assemblies comprising electrical, hydraulic and air circuits
CFP 237971 238006 243118 247676 247863 249116 249281 15367	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Painter	CAP Peintre en bâtiment - EQF 3 Titre professionnel Façadier peintre - EQF 3 Titre professionnel Peintre en finitions - EQF 3	Painter advise and offer clients a choice of harmonies, material effects and materials. They carry out a diagnosis in order to propose the best recommendations for the work to be carried out. They carry out all the preparatory and finishing work.	**Technical and organisational skills necessary to carry out the following activities:** - Mark out and secure the site - Use the appropriate protection for the type of work and the structures to be protected - Install safety devices (decking, guardrails, access ladders) - Know how to read and interpret a product sheet - Master the characteristics of the different products - Identify specific risks of use - Identify the different types of equipment and master their parameters - Work at the right distance and in the right direction - Synchronise gestures

136347						- Respect the environment - Master the different modes of application (spraying, manual application) - Implement a wash water recovery system - Carry out waste management
CFP 239421 239856 310048 128758 238484 189254 189255 189256 233977 233978 309712	https://www.metiers-btp.fr/entrant-btp/fiche-metier/platrier/	Priority 2	Plasterer	CAP Plâtrier-Plaquiste - EQF 3 BP Métiers du plâtre et de l'isolation - EQF 4	Lining the walls with a layer of plaster. Gauging the plaster and applying it manually. Prepare the supports. Installing plasterboard partitions, lining complexes, plasterboard or clay ceilings and modular suspended ceilings. Take into account thermal and acoustic insulation and fire protection requirements.	**Technical and organisational skills necessary to carry out the following activities:** - Use wet products: bricks, brick tiles, plaster tiles and traditionally laid plaster - Implement dry products: plates and associated materials which imply very diversified assemblies with multiple functions (acoustic, thermal, safety)
CFP 239408 239418 238004 308051	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Flooring specialist	CAP Solier Moquettiste - EQF 3	Floor layers carry out all the work necessary for the installation of flexible floor coverings, whether textile, plastic (or similar, linoleum, rubber) or wood-based, glued or floating, on site, based on the instructions of their hierarchy, alone or as part of a team. They prepare the surfaces by carrying out all operations prior to the installation of the covering They cut and prepare the floorings They install the floor coverings according to the appropriate techniques. They are responsible for the proper execution of the work. They work with a certain degree of autonomy, under the supervision of the works supervisor and in compliance with the rules of implementation and safety.	**Technical and organisational skills necessary to carry out the following activities:** - Lay coverings (linoleum, rubber, plastics, textiles, carpets, glued mosaics) except tiles and parquet - Know insulation and fire protection materials and techniques - Adapt to new materials
CFP 239397 244529 310375 239586 290198	https://www.metiers-	Priority 2	Stonecutter	CAP Tailleur de Pierre - EQF 3 BP Métiers de la pierre - EQF 4	They collect information on the ground and on maps. Select, mark out, cut and transform ornamental or construction stones as part of a project to fit out, decorate or renovate a building. They must be familiar with different architectural styles and techniques. Know the main varieties of natural stone.	**Technical and organisational skills necessary to carry out the following activities:** In workshop: - Draw sketches of simple work elements; - Cut, trim, assemble, do finishings; - Operate machinery and equipment, and provide first-level maintenance and servicing. On site: - Carry out the installation of the elements of works prepared in the workshop;

247410 248184						- Carry out stone restoration work; - Carry out restoration work.
CFP 242535 238317 243511 330369	https://www.metiers-btp.fr/entrant-btp/fiche-	Elementary	Construction Equipment Mechanic	CAP Maintenance des matériels option B: Matériels de construction et de manutention - EQF 3 Bac pro Maintenance des matériels, option B :	Responsible for the maintenance and repair of machinery and equipment used on construction sites (hydraulic excavators, bulldozers, graders, etc.), mechanics are able to assemble and disassemble all types of machinery thanks to his perfect knowledge of their operation. They work on site and in the repair shop. They have excellent knowledge of hydraulics, pneumatics, electricity and on-board electronics. They are concerned about the safety of others, love mechanics and seek to overcome difficulties.	**Technical and organisational skills necessary to carry out the following activities:** - Organise interventions on machines (may involve maintenance, repair or adaptation) - Carry out and formulate the diagnosis, plan the necessary material resources, designate the person(s) involved - Plan operations from dismantling to recommissioning tests - Carry out interventions - Monitor and enforce safety regulations - Advise users on the conditions of use of equipment, modification of equipment, advise on a purchase - Be able to argue the benefits of a product or service
CFP 239351 241093	https://www.metiers-	Priority 2	Pipefitter	CAP Constructeur en canalisations des travaux publics - EQF 3	On site, they lay the pipes at the bottom of a trench. They then make the connections and checks the installation. Finally, they restore the roadway, pavements and gutters. Pipe fitters use state-of-the-art techniques to carry out delicate tasks due to the constraints of the site: laying pipes using lasers, laying pipes under a road junction using remote-controlled drilling tools, etc.	**Technical and organisational skills necessary to carry out the following activities:** - Set up and maintain pipe networks for drinking water supply, industrial water distribution and wastewater collection - Carry out small civil engineering works related to these networks - Install fountain accessories and hydraulic equipment at catchment and storage stations - Install pipelines for the passage of electrical conductors, television or video communication networks and for the transport of gas
CFP 239349	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Road constructor		Road builders lay various layers (base, bonding, finishing) and applies various coatings (concrete, bitumen, asphalt, gravel, etc.). They yake part in all the tasks of a roadworks site: signposting, layout, adjustments and use of the gravelling machine for surface coatings, driving machinery, laying kerbs and paving stones, carrying out small-scale masonry work, adjusting road structure materials, laying the various underground networks, adjusting and applying asphalt mixes. They work on sites of all kinds and sizes, in the open air. Skilled and precise, they must enjoy working in a team and accept the rhythm of the site.	**Technical and organisational skills necessary to carry out the following activities:** - Make the pavement body (base, binder and top layers) using binders (bitumen) - Design landscaping in urban areas (footpaths, kerbs, paving); any other surface for traffic or games (e.g. tennis courts); industrial floors (storage areas, loading bays, etc.) Although the road industry is highly mechanised, the quality of finishings of the work depends very much on manual skills.

CFP 245670	https://www.metiers-btp.fr/entrant-btp/fiche-	Priority 2	Electrical Network Installer	TP Chargé de travaux en réseaux électriques aériens et souterrains - EQF 4	Electrical network installers install and maintain the overhead or underground networks for the transport and distribution of electricity and, more generally, energy: the operation of lighting, telephones, computers, etc. depends on their work. They must be versatile and know how to deal with a variety of situations. This is why they have knowledge of electricity, masonry, the assembly of metal frameworks and the operation of machinery. They also know how to read and use plans. Careful and skilful, they are concerned about respecting safety instructions.	**Technical and organisational skills necessary to carry out the following activities:** - Carry out work on low voltage overhead electrical networks and manage a team - Carry out work on low-voltage underground and overhead electrical networks and manage a team - Carry out work on overhead and underground high-voltage (HV) electrical networks and supervise a team - Carry out work on low-voltage electrical networks for public lighting and supervise a team
CFP 159824000844451284112317751239578239579181 4	https://www.metiers-btp.fr/entrant-btp/fiche-	Elementary	Topographic Surveyor Technician	Bac Pro Technicien géomètre topographe - EQF 4 BTS métiers du géomètre-topographe et de la modélisation numérique - EQF 5	Surveyors are involved in: the development of a neighbourhood, the layout of a road, property boundaries, the design of a leisure centre, the calculation of flat surfaces, etc. They carry out ground surveys prior to work: altitude levels, trees, telegraph poles, walls, etc. They draw up plans and maps on a computer: quantity surveying software, computer-assisted drawing, geographical information systems, satellite images, etc.	**Technical and organisational skills necessary to carry out the following activities:** - Produce surveys of existing urban, peri-urban or rural environments (both outdoor and indoor) - Make three-dimensional captures of a field - Develop three-dimensional digital models - Design and write technical documents in two or three dimensions -Carry out pre-project and/or post-project progress reports for a design office - Participate in spatial planning or land ownership projects by promoting sustainable development solutions - Lead a multidisciplinary team - Implement strategies and means adapted to the collection of topographic data and their computer processing in three dimensions - Select methods and technologies appropriate to the task
CFP 239085242056244408244607244610244612165723807023825624350524509724543324570830669032793228248540	https://www.metiers-btp.fr/entrant-btp/fiche-metier/technicien-etudes-metres-devis/	Priority 2	technician for studies, metrics, quotation		The design technician evaluates the cost of a construction or renovation project. He examines the plans, the documents describing the work, the administrative and technical notes, etc. He/she takes part in drawing up proposals in response to invitations to tender. They define the quantity of materials and equipment required (structural work, roofing, carpentry, flooring, ceiling, plastering, etc.). They calculate the cost and consults suppliers, compares prices and draws up estimates. They draw up the specifications, prepares and monitors the site and manages the allocated budget. They may draw up the schedule for the completion of the project.	**Technical and organisational skills necessary to carry out the following activities:**

CFP 245431 248712 306706 306653 320349	https://www.metiers-btp.fr/entrant-btp/fiche-	Elementary	Business Manager	TP Chargé(e) d' affaires bâtiment - EQF 5 TP Chargé(e) d' affaires en rénovation énergétique du bâtiment - EQF 5	Business managers ensure the commercial function of the company and contributes to the analysis of its markets. They carry out sales in response to public and private markets (calls for tender) by drawing up work proposals. They promote the company's expertise and competitive advantages and ensures that their operating margin is maintained. Their represent the company's first and last contact with its customers, throughout the sales - production - after-sales process.	**Technical and organisational skills necessary to carry out the following activities:** - Ensure the technical, administrative and financial monitoring and validation of a building operation - Manage a building site with all trades - Prepare a commercial offer for a building construction project
CFP	https://www.metiers-btp.fr/entrant-btp/fiche-metier/chef-datelier/	Elementary	Workshop Manager	Certificat de qualification professionnelle Chef d' atelier en métallerie - EQF 4 (similar)	Workshop managers must integrate environmental constraints, ensure compliance with the procedures defined by the design office and manage the manufacture of increasingly elaborate structures. Responsible for the prefabrication of structures, they ensure compliance with the specifications, manage manufacturing times, supplies and delivery. They set up a dedicated team for each project, ensure that the work is carried out correctly and set up a skills transfer process for new recruits. They ensure that procedures and safety rules are applied in the workshop. Due to developments in the building and public works sector, the function of workshop manager is tending to move, depending on the company: -towards a function of head of methods with workshop application -towards a function associating the workshop and logistics: organisation of the construction elements for delivery to the site in the logical order of assembly.	**Technical and organisational skills necessary to carry out the following activities:** - Identify the characteristics of a manufacturing file / products - Plan production steps and allocate activities to workshops / teams and assign people to workstations - Select the appropriate machines and tools for the production and check their conformity - Ensure compliance with specifications, manage production deadlines, supply and stock - Handle safety in the workshop - Integrate environmental constraints - Conduct the manufacture more and more elaborate works
CFP 244608 162024 255132 676735 307157 247076 296732 328474 241095 249086 327366	https://www.metiers-btp.fr/entrant-btp/fiche-metier/chef-	Elementary	Worksite manager	Brevet de Technicien Encadrement de chantier génie civil - EQF 4 BTS Bâtiment - EQF 5	Site Managers supervise all site production staff, determine with team leaders the tasks assigned to them to complete the project. The human aspect of this position is essential: they are very good technicians, attentive to quality and deadlines, must know how to lead and animate a team. They lead one or more teams on a construction or renovation site. They combine their technical skills with complementary functions according to the trade in which they are specialised.	**Technical and organisational skills necessary to carry out the following activities:** - Knowledge of how to identify and categorize building projects. - Knowledge of how to manage projects of different sizes, different budgets, with constraints specific to each building. - Knowledge of how to prepare and optimize the worksite. - Understand the profile, size and complexity. - Ability to combine the constraints of old buildings with modern techniques (standards, materials, environmental compliance, etc.). - Ability to analyse the environment to identify the constraints to be considered. '- Relational ability to communicate with specialists from different trades working on renovation projects and to positively manage complex relationships with subcontractors. - Ability to organize the flow of information on the site,. - Sensitivity to cost control (equipment cost

2487 32 2473 66 2240 35 2470 23 2490 65						slippage is common). - Ability to implement sustainability standards : analysis of the thermal, seismic, and acoustic properties of older buildings for their upgrading. - Ability to organize waste management and resource savings on site with re-use of materials.
CFP 2407 65 2472 28 2485 72 2487 75 2489 16 2490 84 3279 14	https://www.metiers-btp.fr/entrant-btp/fiche-metier/conducteur-de-	Elementary	Operational Supervisor	TP Conducteur(trice) de travaux- bâtiment et travaux publics – tous corps d' Etat - EQF 5	Operational Supervisors supervise one or more site managers. In addition to his hierarchical responsibilities, they ensure the financial management of the site, organize supplies. Creative on a technical level, they dialogue with the master developer and architect as well as with the other partners of the act of building. They know how to decide and delegate. Operational supervisors organise, manage and control the execution of the works in accordance with the technical specifications and regulations. They have managerial responsibilities in terms of leading teams, meeting quality objectives, ensuring the economic balance of the site and improving working conditions. They play an increasing role in controlling the environmental impact of the site.	**Technical and organisational skills necessary to carry out the following activities:** - Identify business opportunities and make contact with customers to determine their needs - Study the different elements of a file to make a technical, administrative and legal analysis - Develop and maintain a network of contacts with the project owner, the project manager and the technical design office in order to agree on the rules and procedures to be followed for the smooth running of the site - Carry out a price study and establish the budget of a project at best economic conditions to meet the client's' requirements - Identify and analyse the constituent parts of the contract in order to prepare a detailed financial proposal for the client - Study scenarios and costed arguments to negotiate the contract with the client while preserving the company's interests - Check the conformity of the terms of the order / contract (legal, administrative, deadlines, penalties, etc.) with the call for tenders in order to conclude the contract and sign the documents

Germany National Occupational Profiles						
GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
32122 (according to KldB 2010)	here	Craft and related trades workers	**Mason** (Ger. *Maurer*)	EQF 4	Masons produce masonry from individual bricks or install prefabricated parts and assemble them. In some cases, they also carry out concrete work. They mainly work for companies in the construction industry such as construction companies, concrete construction companies, companies specialising in renovation or modernisation or builders of pre-fabricated houses.	• Build single-leaf and multiple-leaf walls using various types of block and slab and different bonding techniques, build masonry structures with piers and projections and natural stone masonry structures • Cover openings in masonry using artificial and natural blocks and pre-fabricated elements • Build walls and lintels using formwork bricks • Seal structures made of blocks against moisture and water pressure • Build, erect, brace and anchor formwork for foundations, right-angle supports and beams, and flat-run walls and ceilings • Build formwork for landings, straight stair flights and visible concrete • Make and install reinforcement members • Deliver, feed and compress concrete and treat the surface manually and mechanically • Install materials to insulate against heat, cold, noise and fire • Build composite heat insulation systems, prepare plaster and create plastered surfaces, prepare screeds and construction elements using dry construction techniques • Determine damage in connection with maintenance and renovation work, determine the causes and carry out maintenance and renovation work • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Carry out related works in the construction and civil engineering sectors • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work, coordinate work with those involved in the construction works, set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures, charge for services provided and conduct official handover of vacated job site

33112 **(according to KldB 2010)**	here	Craft and related trades workers	**Tile and mosaic layer** (Ger. *Fliesen-, Platten- und Mosaikleger*)	EQF 4	Tile and mosaic layers cover walls, floors and façades with ceramic, glass and natural or artificial stone tiles. They work for construction companies, for companies carrying out extension works and for craft trade companies such as those specialising in tiling.	• Lay tiles, mosaics, natural stone and hewn stone using the thin-bed and thick-bed laying methods • Select tiles, mosaics, natural stone and hewn stone taking account of design considerations for the surface to be covered • Prepare base surfaces using a range of techniques • Prepare plaster and screed • Make claddings and coverings for composite, vertical, horizontal and sloping surfaces • Clad structural elements, in particular pillars, stairs and arches • Build and fit casings and facings • Fit prefabricated elements, in particular sanitation system units, weight-carrying constructions and prefabricated walls • Seal joints in claddings and coverings comprising tiles or mosaics • Install materials to insulate against heat, cold and noise • Remove efflorescence, check claddings and coverings for damage, restore and repair claddings and coverings • Carry out related tasks in the field of building construction • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work, coordinate work with those involved in the construction works, set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work scaffolding and calibrate plant components and construction sub-assemblies
32222 **(according to KldB 2010)**	here	Craft and related trades workers	**Road builder** (Ger. *Straßenbauer*)	EQF 4	Road builders produce the substructure and the surface of roads, paths and squares and maintain traffic routes. They are mainly employed at companies within the construction sector such as building and road construction companies.	• Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work • Coordinate work with those involved in the construction works • Set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Carry out excavation works • Line construction pits and trenches • Fill in and compress earth and build embankments • Carry out open drainage for surface water,

						soil-course water and groundwater • Build drainage for traffic areas • Construct foundations for floorings and coverings and fit load-bearing structures • Install prefabricated construction elements • Build paving and slab paving in synthetic and natural stone • Build paving and slab paving in patterns for arches and cambers • Lay slab paving of different sizes • Build masonry structures in natural stone • Build surfaces in asphalt and concrete • Build special construction elements using blocks, prefabricated elements and concrete, for example manholes, surrounds and infillings • Check surfaces for damage and make maintenance preparations • Restore surface structures following excavation works • Carry out related tasks in building construction trades
33122 (according to KldB 2010)	here	Craft and related trades workers	**Screed layer** (Ger. *Estrichleger*)	EQF 4	Screed layers produce floors made of screed, which can either be provided with coverings as subfloors or serve as direct utility floors. They install heat, cold and insulation protection materials and lay floor coverings where necessary. They work in specialist floor technology companies, in mainstream construction companies and in the field of renovation of old buildings. They move from construction site to construction site.	• Prepare screeds from various materials and lay floor toppings • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work, coordinate work with those involved in the construction works • Set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of work for any errors in execution and document work • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Set up equipment and machinery and calibrate components and sub-assemblies • Prepare base surfaces using a range of techniques • Prepare screed mortar using different bonding agents • Produce various types of screed, including as sloping layers and levelling topping, with and without reinforcement members • Lay sandwich layers, screeds on separation layers and floating floor coverings both manually and mechanically • Lay prefabricated screeds based on different systems • Apply layers of synthetic resin • Create cavity floors and double floors • Build concrete floors • Select boards, sheeting and laminates for floor covering purposes taking account of the design of the surface to be covered • Lay coverings made of boards, sheeting and laminates • Build construction elements using dry construction techniques, for example special constructions for floors • Apply materials to insulate against heat, cold and noise, check screed and coverings for damage, restore and repair screed • Carry out related tasks in the field of building construction

33312 **(according to KldB 2010)**	here	Craft and related trades workers	**Thermal and noise insulation fitter** (Ger. *Wärme-, Kälte- und Schallschutzisolierer*)	EQF 4	Thermal and noise insulation fitters insulate buildings and systems against heat and cold loss and noise and provide preventive fire protection. They are employed by specialist acoustic and noise protection installation companies. They also work for dry construction and decorative plastering firms or for other companies involved in the main construction trade.	• Plan and coordinate their work • Consult and coordinate with others working on the site and set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check quality of their work for any errors in execution, document work carried out and carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, protective and load bearing scaffolding and measure constructions and elements to ensure proper fit • Process materials to protect surfaces such as steel and non-ferrous sheeting and synthetics • Build and fit supporting and load-bearing constructions • Build models of fittings • Prepare elevations and developed views from templates for simple and complex fittings • Measure up system components and prepare isometric projections • Check site conditions for insulation purposes and select insulation materials • Build mattressing from insulating materials • Install materials to insulate against heat, cold, noise and fire • Build and install parts and fittings • Encase insulation materials with sheet metal, foil, sheeting, strapping, hard plastic jacketing and special-purpose fittings • Build and fit inner linings for cooling chambers • Build construction elements using dry construction techniques • Check insulation systems and assess their effectiveness • Identify damage in connection with restoration and refurbishment projects, determine the cause of the damage and carry out the corresponding restoration and refurbishment measures • Carry out related tasks in the building construction trades
32132 **(according to KldB 2010)**	here	Craft and related trades workers	**Furnace and chimney builder** (Ger. *Feuerungs- und Schornsteinbauer*)	EQF 4	Furnace and chimney builders build industrial furnaces, make refractory linings and erect chimneys. They work at companies within the construction industry, such as companies specialising in the construction of furnaces or industrial furnaces or companies dealing with chimney installation and chimney restoration.	• Build masonry structures using small and medium-sized blocks, build single-layer and multiple-layer masonry structures for furnaces and exit gas ducts, build refractory constructions, for example refractory arches made of shaped bricks • Build masonry chimneys, build linings for chimneys with thermal insulation • Build exit gas installations from prefabricated parts, in particular free-standing chimneys • Relocate prefabricated exit gas installations and ducts • Erect lightning protective systems for exterior lightning protection • Seal constructions against humidity • Build, erect, brace and anchor formwork for foundations, right-angle supports and beams, and flat-run walls and ceilings • Make and install reinforcement members • Deliver, feed and compress concrete and treat the surface manually and mechanically • Install materials to insulate against heat, cold, noise and fire, identify damage in connection with restoration and refurbishment projects, determine the cause of the damage and carry

						out the corresponding restoration and refurbishment measures • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Carry out related works in the construction and civil engineering sectors • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Carry out quality assurance measures
52522 (according to KldB 2010)	here	Craft and related trades workers	**Construction plant operator** (Ger. *Baugerätefüher*)	EQF 4	Construction plant operators operate construction equipment and machines in building construction, road construction and civil engineering. They mainly work for civil engineering firms and companies and are also employed in road construction and specialist underground engineering works.	• Set up and safeguard building sites • Erect and dismantle working and protective scaffolding • Process of building and auxiliary materials • Use construction technology • Work autonomously in carrying out duties as instructed within the respective field of deployment and using technical documentation • Accord due consideration to commercial and ecological aspects and evaluate work results on the basis of quality assurance • Plan work • Handle surveying devices • Use and process metals and synthetic materials • Handle construction plant components, sub-assemblies and construction machinery • Commission, operate and decommission construction machinery • Maintain construction machinery in accordance with operating regulations • Detect malfunctions in construction machinery and initiate measures to rectify such malfunctions • Repair construction plant components and construction machinery sub-assemblies • Accord due consideration to health and safety at work, health and environmental protection regulations
34322 (according to KldB 2010)	here	Craft and related trades workers	**Pipeline installation worker** (Ger. *Rohrleitungsbauer*)	EQF 4	Pipeline installation workers lay and assemble pressure pipes. They produce and maintain pipeline systems for water, gas, oil or district heating. They find employment opportunities mainly at craft trade and industrial companies operating in the construction sector. Depending on their training specialism, they work in various areas within the civil engineering sector, particularly in pipe installation work.	• Process and connect pressure pipes made of metallic and synthetic materials • Fit pressure pipelines and accessories and fittings made of different materials for the transportation of liquid and gaseous media • Carry out excavation work, line construction pits and trenches, fill in and compress earth, and build embankments • Carry out open drainage for soil-course water and groundwater • Build and install cable ducts and lay cables and cable pipes • Build manhole constructions using prefabricated parts, concrete and masonry • Carry out related tasks to restore the road surface • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work • Set up construction sites • Stipulate stages of work and initiate measures to safeguard the work process and ensure safety, health and safety at work and

						environmental protection at the construction site • Check the quality of the work for any errors in execution, document works and clear the workplace • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies
32232 (according to KldB 2010)	here	Craft and related trades workers	**Rail track builder** (Ger. *Gleisbauer*)	EQF 4	Rail track builders build, renew and maintain rail networks. They check track systems, lay tracks and points and renew track beds. They mainly find employment at companies within the railway construction industry. They also work at rail track construction sites operated by German National Railways.	• Carry out measurements relating to rail track construction, surface works and laying sleepers, laying ballast, lifting, setting and tamping track and making fish joints • Mount and lay points • Build railway crossings • Maintain track and points • Carry out excavation works • Fill in and compress earth and build embankments • Build drainage for railway substructures • Use site plans and gradient diagrams for track installations • Carry out flame-cutting and separation-cutting operations for related works for the creation of sett, slab and asphalt surfaces • Carry out flame-cutting and separation-cutting operations for related works in the field of building construction • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work, coordinate work with those involved in the construction works • Set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Set up equipment and machinery and calibrate components and sub-assemblies
32142 (according to KldB 2010)	here	Craft and related trades workers	**Roofer** (Ger. *Dachdecker*)	EQF 4	Roofers provide building roofs with covering materials, clad exterior walls and seal surfaces on roofs and structures. They carry out energy-saving measures on buildings, install roof windows, gutters and lightning protection systems and install solar systems. They work in companies in the roofing sector. In addition, they also work for façade coating and construction waterproofing companies, in wall and roof energy technology, as well as for construction companies. Likewise, they work in the production industry and specialist trade.	• tile roofs and clad exterior walls with various materials • seal surfaces on constructions • carry out repairs • build timber constructions, e.g. for roof frames and half-timbered walls • mount substructures and devices for diverting surface water • install energy collectors and implementers, e.g. sun collectors and photovoltaic elements, in roof and wall surfaces • erect lightning protective systems for exterior lightning protection • carry out energy-saving measures on roofs and walls • plan work processes • contribute to carrying out roof planting • waterproof constructions • carry out roof maintenance, renovation and modernisation • comply with the principles of work protection, health protection, environmental protection and work safety

33322 (according to KldB 2010)	here	Craft and related trades workers	**Carpenter** (Ger. *Zimmerer*)	EQF 4	Carpenters produce wooden structures and wooden buildings of all kinds, install prefabricated components, insulation materials and building elements. They also renovate and restore roof trusses and other wooden building parts. They find employment opportunities in the craft trades and industrial sectors at such companies as carpentry firms, companies involved in the main construction trade or prefabricated housing sector, roofing companies or companies specialising in the renovation of old buildings.	• Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work and coordinate work with those involved in the construction works • Set up construction sites and initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Build timber constructions for such elements as ceilings, roofs, half-timbered structures and timber-frame constructions using various techniques • Carry out trimming and joining work according due consideration to structural timber protection • Build and install doors, gates and straight and spiral staircases • Build claddings for external walls according particular consideration to rear ventilation • Use fixed timber processing machines • Build dry construction elements • Build sub-constructions and claddings • Process and treat timber surfaces • Install materials to insulate against heat, cold, noise and fire • Carry out preservation and maintenance works on timber constructions • Carry out related tasks in building construction trades
33222 (according to KldB 2010)	here	Craft and related trades workers	**Stuccoist** (Ger. *Stukkateur*)	EQF 4	Stockists plaster the interior and exterior of unfinished buildings, integrate light sources, roller shutters and ventilation systems and install drywall components. They also design or restore historical façades and decorative stuccowork. They work for craft trade companies specialising in decorative plaster works or for industrial companies within the finishing branch.	• Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work and coordinate work with those involved in the construction works • Set up construction sites and initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works, carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Section off areas according due consideration to design aspects • Prepare surfaces • Clad wall surfaces with dry plaster linings • Prepare plasters for different applications and carry out plastering on wire lathing • Design plaster surfaces • Build composite thermal protection systems • Prepare screeds and fit prefabricated screeds • Create stucco moulding sections at the

						workbench and at the job site, relocate sections and plaster sections into position • Build stucco moulding sections ready for application and carry out work using stuccolustro and stucco marble techniques • Erect stud walls made of plasterboard sections • Build prefabricated walls, casings, coverings and counter ceilings using dry construction techniques, and assemble and fit prefabricated construction elements • Install materials to insulate against heat, cold, noise and fire • Determine damage in connection with maintenance and renovation work, determine the causes and carry out maintenance and renovation work • Carry out related tasks in the building construction trades
32112 (according to KldB 2010)	here	Craft and related trades workers	**Concrete and reinforced concrete builder** (Ger. *Beton- und Stahlbetonbauer*)	EQF 4	Concrete and reinforced concrete builders produce and assemble structural components made of concrete and reinforced concrete as well as formwork and reinforcement. They also renovate damp or damaged concrete walls, ceilings, pillars or beams. They mainly work for construction companies and in prefabricated construction in such areas as housing developments, office developments, public-sector construction projects, and industrial building sites. They may also be employed in the manufacture of concrete and of prefabricated components.	• Build frame, large-panel and special formwork for foundations, right-angle supports and beams, multiform elements and for flat-run and curved walls and ceilings • Erect, brace and anchor sub-assemblies, build formwork for visible concrete, conical forms, support pillars, landings and straight and spiral stair flights • Build and install reinforcing members and prepare reinforcement elements • Install pre-stressed steel with anchor systems • Test fresh and hardened concrete • Deliver, feed and compress concrete and treat concrete and the surface manually and mechanically • Process concrete surfaces in accordance with design criteria • Underpin parts of buildings • build, store, transport and install prefabricated reinforced concrete units • Seal concrete and reinforced concrete constructions against moisture • Build interior and exterior walls using various types of block and slab and a range of bonding techniques • Install materials to insulate against heat, cold, noise and fire • Check concrete surfaces for damage and carry out maintenance and refurbishment work on concrete and reinforced concrete structures • Carry out related works in the construction and civil engineering sectors, • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work, coordinate work with those involved in the construction works • Set up construction sites • Initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document work • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies

32242 (according to KldB 2010)	here	Craft and related trades workers	**Well builder** (Ger. *Brunnenbauer*)	EQF 4	Well builders build or rehabilitate wells to pump groundwater. They are primarily employed by well building companies and work in the fields of subsoil exploration and geothermics. They are also employed in civil engineering and in specialist underground engineering works.	• Carry out excavation work, line construction pits and trenches • Fill in and compress earth and build embankments • Carry out water retention measures and investigate the site ground • Take, examine and label soil samples and keep soil course records • Create vertical and horizontal embankments for such purposes as examining the ground at the site, for extracting and in-feeding water and for lowering the groundwater and for geothermal purposes, using drilling equipment and applying a range of drilling techniques • Develop boreholes into wells, groundwater measuring positions and geothermal probes • Lay pipelines and attach the corresponding fittings • Fit prefabricated units used in well construction and pipeline installation • Build bulkheads • Carry out pumping tests • Install water transportation and treatment plants • Detect and document shortfalls in well performance and the causes of such shortfalls • Carry out restorative and regeneration measures on wells • Maintain equipment, plants and machinery and in particular repair pumping and transportation systems • Use and process metals and synthetic materials • Carry out related tasks in the field of building construction, • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work and coordinate work with those involved in the construction works • Set up construction sites and initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies

21222 (according to KldB 2010)	here	Craft and related trades workers	**Engineered stone technologist** (Ger. *Werksteinhersteller*)	EQF 4	Engineered stone technologists produce concrete, natural stones, terrazzo and artificial stones, process stones into facades, floor slabs, stairs and other building components and lay terrazzo floors. They predominantly produce concretes, natural stone and stone made from artificial material in concrete block businesses and terrazzo manufacturers and are engaged in the processing, laying and placement of these. Stone masons also work in precast concrete plants and in the stone and quarry industry.	• Preparation and use of technical documentation • Production and use of shuttering and moulds • Production and installation of reinforcements • Production and testing of concretes, decorative concretes and mortar • Planning, production and finishing of concrete, natural stone and stone made from artificial materials • Production of sealings, insulation and noise protection • Transportation, installation, laying, location and anchoring of concrete, natural stone and stone made from artificial materials • Production and installation of attachments • Structuring and treatment of concrete and natural stone surfaces as well as surfaces consisting of stone made from artificial materials • Working with, processing and laying slabs of artificial stone, concrete, tiles and natural stone • Planning, production, laying, processing and treatment of terrazzo floors and cement-bonded sanded floors • Overhaul of terrazzo applications as well as concrete, natural stone and stone made from artificial materials • Handling of hazardous substances • Use of information and communication technology • Planning and preparation of work processes • Operation, cleaning, maintenance and servicing of tools, devices and machines. • Implementation of quality assurance measures and documentation
33242 (according to KldB 2010)	here	Craft and related trades workers	**Woodwork and building protector – specialising in buildings protection** (Ger. *Holz- und Bautenschützer - Fachrichtung Bautenschutz*)	EQF 4	Woodwork and building protectors - specialising in building protection - examine damage to buildings and parts of buildings and repair them. For this purpose, they seal e.g. structures, carry out surface protection on wall and floor surfaces as well as preventive measures. Woodwork and building protectors work for companies in the wood and buildings protection branch.	• Identify and evaluate damage to wood and wooden construction components • Carry out preventative wood protection measures against animals (insects) and plants (fungi) which attack and destroy wood • Identify and combat insects and fungi which attack and destroy wood • Rectify damage caused by insects and plants which attack and destroy wood • Identify and evaluate damage to buildings constructed in concrete, brick and natural stone • Dry out damp buildings • Carry out external and internal sealing to construction components which are in contact with the ground • Apply investigative methods and testing equipment to identify damage to construction components which are in contact with the ground • Analyse damage to plasterwork and carry out renovation works to plasterwork • Prepare and carry out sealing works, in particular using injections • Carry out subsequent sealing works using chemical and mechanical horizontal blocks • Apply restorative plasters • Repair masonry works which have been damaged by damp and salt • Plan and document work • Initiate safety, health and safety at work and environmental protection measures in the workplace • Set up, secure and clear workplaces • Adopt a customer and business oriented approach to the execution of works on the basis of work orders working both alone and as part

						of a team • Carry out quality assurance measures
32252 (according to KldB 2010)	here	Craft and related trades workers	**Sewer builder** (Ger. *Kanalbauer*)	EQF 4	Sewer builders install sewage pipes that transport wastewater from buildings to a body of water or a water treatment plant. They dig trenches and lay the pipes. In the process, they ensure that the pipes have the right gradient and are connected watertight. Sewer builders also construct other elements of the sewage infrastructure, for example manholes, and maintain and repair the existing systems.	• Laying sewage pipes • Digging sewage pipe trenches • Secure work area • Transport equipment, materials and tools to the construction site • Inspect construction sites • Inspect construction materials • Check operation of pipeline infrastructure • Level earth surface • Observe health and safety precautions in the construction industry • Use measuring instruments • Locate defects in the pipeline infrastructure • Establish pipe bedding • Transport pipelines • Prevent damage to pipelines • Prevent damage to supply infrastructure • Use safety equipment on site • Work ergonomically • React to events in a time-critical environment
32202 (according to KldB 2010)	here	Craft and related trades workers	**Special civil engineering works builders** (Ger. *Spezialtiefbauer*)	EQF 4	Special civil engineering works builders create the conditions for large construction projects: They build foundations, anchorages and secure deep excavations. They find employment at companies within the construction industry, e.g. civil engineering, special civil engineering and water engineering companies.	• Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work and coordinate work with those involved in the construction works • Set up construction sites and initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works • Carry out quality assurance measures • Invoice for services provided and conduct official handover of vacated job site • Use equipment and machinery • Erect work, load bearing and protective scaffolding and calibrate plant components and construction machinery sub-assemblies • Carry out excavation works • Line construction pits and trenches • Fill in and compress earth and build embankments • Carry out water retention measures • Investigate the site ground, take, examine and label soil samples and keep soil course records • Create embankments for such purposes as preparation for load-bearing structures, examining the ground at the site, lowering the groundwater and in feeding water • Use drilling equipment and apply different drilling procedures • Excavate boreholes to form wells • Lay pipelines and attach the corresponding fittings • Fit prefabricated units used in well construction and special civil engineering works • Install water transportation systems • Construct bulkheads for ground water measuring systems • Construct piles and anchor systems • Carry out injection works • Carry out pile-driving, jolt-compaction and vibro-compaction works • Maintain the plants, equipment and machinery used for special civil engineering works • Improve the quality of the ground at the site

						• Carry out related tasks in the field of building construction
33302 (according to KldB 2010)	here	Craft and related trades workers	**Construction finishing worker – specialising in dry wall construction** (Ger. *Trockenbaumonteur*)	EQF 4	Construction finishing workers – specialising in dry wall construction – produce dry construction structures, e.g. lightweight walls, taking into account heat, cold, sound, fire and radiation protection for indoor and outdoor use. They also clad walls and ceilings, e.g. with plasterboard or wood, and install insulating materials. They are mainly employed at craft trade and industrial companies in the construction finishing sector, particularly in the dry wall construction trade.	• Prepare dimension sketches, elevations and setting drawings • Check and prepare surfaces • Fit sub-constructions • Clad wall surfaces with dry plaster linings • Erect stud walls made of plasterboard sections • Build prefabricated walls made of various materials and from different systems • Install prefabricated elements • Build counter ceilings and ceiling coverings • build and fit panelling and apron flashings • Install materials to insulate against heat, cold, noise and fire • Seal dry construction structures against moisture • Identify damage when carrying out maintenance and renovation works, identify causes of damage and initiate measures to limit such damage • Carry out related tasks in building construction trades • Work autonomously either alone or in conjunction with others to execute works on the basis of technical documentation and work orders • Plan and coordinate work • Set up construction sites • Stipulate stages of work and initiate measures to safeguard the work process and ensure safety, health and safety at work and environmental protection at the construction site • Check the quality of the work for any errors in execution, document works and clear the workplace • Use equipment and machinery • Erect and dismantle working, protective and load bearing scaffolding • Measure constructions and elements to ensure proper fit

Greece National Occupational Profiles

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
ESCO-2621.4	here		craftsman working on the restoration & maintenance of	EQF 4	The individuals under this title, work on the restoration, conservation and modernization of buildings that have specific technical or cultural characteristics of historic importance. In these buildings often specialised work is required to achieve the purpose of maintaining their physiognomy, using modern methods and	• restore or reinforce masonry, brickwork, wooden walls, • apply grouts, • fix or replace mortars and coatings, • reconstruct or conserve joints, • restore all kinds structural, decorative or functional parts of buildings, • knowledge of terminology, technology of various materials, principles of physics and chemistry, elements of architecture,

					techniques applied on various materials. The craftsmen perform maintenance and use the appropriate materials and techniques for restoration projects, according to the related studies, guidelines, procedures and specifications, that are specified by whoever has the legal right.	
	here		operator of mobile machines-machines of public and industrial works	EQF 3	The operator drives/operates, maintains the machine and by using it, they produce work. They adjust the settings of the machine in accordance to the environmental conditions, carry out the appropriate checks and conduct the tasks as instructed.	• respect the driving code and regulations, • know all functions of the machine and how to handle them, • monitor the indications, • supply with fuel or other consumables needed, • conduct visual check before use, clean machine, detect leaks, damages and malfunctions, • apply safety measures, • conduct checks, • inspect working environment, • deliver machine in good condition, • use the machine manual, • cooperate with workers on construction site, • work ergonomically, • ensure that is in physical condition to operate the machine
ISCO-087115 ESCO-7115.5 ESCO-7125.1	here	Craft and related trade workers: Carpenters and joiners	Glass technician - glazier	EQF 4	A glazier is a technician, who proses, repairs and installs glasses in building or any other kind of constructions. They work in order to create windows, glass doors, glass façade or any other formation for decorative, functional, protective purposes.	• contact clients and architect, • inspect construction, • suggest solutions, • order materials, • order glass panes, • measure dimensions, • choose materials for stabilization and insulation, • place the glass panes, • test functionality of mechanisms, • knowledge of appropriate glass processing, principles of thermal insulation, principles of sound insulation, recycling of materials, • interpret technical design, glassmaking, methodology of costing projects, • follow health and safety procedures in construction • inspect construction supplies • manipulate glass • transport construction supplies • use measurement instruments • use safety equipment in construction • use shims • work ergonomically
ISCO-087126 ISCO-087126 ISCO-087126	here	Craft and related trades workers: Plumbers and pipe fitters	Technician of plumbing installations	EQF 4	Plumbers maintain and install water, gas and sewage systems. They mainly work on pipes for fluids, most often cold water pipes but also central heating hot water pipes, drainage systems, swimming pools, irrigation systems, fire fighting networks and geothermal installations. They inspect pipes and fixtures on a regular basis or make repairs as needed. They bend, cut, and install pipes. They test systems and make adjustments safely and following regulations.	• install thermohydraulic pipelines, install air conditioning systems, • install ventilation systems, install heating system, attach PEX pipe • check water pressure • clear out drains, clean filters, • follow health and safety procedures in construction • inspect construction supplies • install PVC piping • install metal gas piping • install plumbing systems • interpret 2D plans • prepare copper pipes for use as gas lines • transport construction supplies • use measurement instruments • use safety equipment in construction • use welding equipment • work ergonomically, assemble manufactured pipeline parts • detect flaws in pipeline infrastructure • dig sewer trenches • inspect construction sites • inspect construction supplies

						• lay sewer pipe • prevent damage to utility infrastructure • prevent pipeline deterioration • provide pipe bedding • secure working area • test pipeline infrastructure operations • repair pipelines
	here		Aluminium and metal constructor	EQF 4	The specific occupation deals with the processing of aluminium architectural profile in order to manufacture and place in buildings frames and other custom made aluminium alloy constructions for the energy performance, the exterior appearance as well as the interior arrangement of a building. The scope of the specific occupation also includes the manufacture and placing of custom made metal constructions, mainly out of ferrous metal, intended to be used in buildings for architectural purposes. The person dealing with this occupation maintain, fix and replace the aluminium and iron constructions of according to energy saving, safety, protection, appearance and functionality need of the building.	• consult with engineers and architects, • suggest the optimal materials and constructions energy wise, • interpret 2D designs, • interpret 3D designs, measure dimensions, knowledge of the Greek Energy Efficiency Regulation (KENAK), • check products for CE markings, • choose materials, • inspect quality of materials, • collaborate with construction workers, • stabilizes construction, • cut aluminium plates and laminas, • place padlocks and other mechanisms in constructions, • assemble metal constructions, • conduct welding and screwing, • knowledge of metal materials standards and physical qualities
ISCO-08216 ESCO-2161.1.1 ESCO-3432.1.1	here	Professionals: Architects, planners, surveyors and designers	Interior Designer	EQF 4	The interior designer is the technician who is employed in the construction and the design of internal and external spaces in a functional and practical way the meets the needs of the clients and maintains the aesthetics of the modern environment. The professional interior designer studies, designs and supervises the projects, which has the responsibility to carry on, taking into account the needs and the preferences of the client.	• consult with client and propose solutions, • present designs, knowledge about materials, • design according to budget, • order materials, • prepare timetable for works, • inspect and supervise works, • assign tasks, • find workers and partners, • work ergonomically, • knowledge of history of arts and architecture, • use design software, • design open spaces, • design spatial layout of outdoor areas
ISCO-088211, ISCO-08 723	here	Plant and machine operators and assemblers: Craft and Mechanical machinery assemblers, related trades workers: Machinery mechanics and	Works machinery technician	EQF 3	Works machinery technicians service, repair and maintain engines and hydraulic, transmission systems among others. They perform routine maintenance checks on the machinery or are being informed by the operators about problems. They use equipment that vary from hand-held tools to sophisticated computer programs in order to diagnose and repair the machinery or replace components.	• visit construction site and inspect machinery, • identify need to intervene, • consult manual, order spare parts, • participate actively in creation and education of safety protocols on construction site, • adjust manufacturing equipment, assemble machines, • resolve equipment malfunctions, • understand technical terminology, • elements of mechanology, work ergonomically, • fix motors and engines, • interpret mechanological design, • hydraulics, • electrology, • automation systems

	here		Installer - superintendent of burners, central heating installer/engineer	EQF 4	Installers and superintendents of burners undertake the maintenance, repair or new installation of burners using oil, gas, and other fuels. They control, clean and maintain the boiler, the burner and the other parts of the central heating installation.	• estimate the optimal energy solution, • inspect the boiler room, • check ventilation, • check hydraulics technician's work and pressure levels, • check insulation of chimney and pipes, • check boilers standards and order appropriate one, • install boiler and burner, • connect equipment to electricity, • apply safety and hygiene tools, • diagnose malfunctions, • repair problems of burners, • materials technology, • thermodynamics, • automations, • insulations, • ELOT standards, • regulations of oil burners, • regulations of ventilation, • equipment standards, • energy efficiency
ISCO-083112 ESCO-3123.1 ESCO-3123	here	Technicians and Associate Professionals	foreman on construction sites, frontline supervisor	EQF 4	Foremen on construction sites are placed on the first step of the hierarchy, above all construction workers. They are present in the construction site communicating with the workers, allocating them in their posts and tasks and giving instructions.	• coordinate construction activities • ensure compliance with construction project deadline • evaluate employees work • follow health and safety procedures in construction • inspect construction supplies • keep records of work progress • liaise with managers • manage health and safety standards • monitor stock level • plan resource allocation • plan shifts of employees • secure working area • supervise staff • work in a construction team , plans employees allocation, • replace employees • in case of absence, • knowledge of product standards, • teach new employees, • communication skills, • create a positive environment for efficient team work, • human resources management, • employment and labour law, • human resources evaluation, • quality management system procedures

ISCO-089313, ESCO-9313.1, ISCO-08711, ESCO-7111.1, ESCO-7119.3, ISCO-07119, ISCO-08	here	Elementary Occupation: Building construction labourers, Craft and Related Trade Workers: Building Frame and related trades workers, Craft and related trades workers: Floor layers and tile setters, Craft and related	Carpenter craftsman	EQF 4	Carpenters work on the exploitation and conversion of sawn wood and wood-based products in exterior constructions and building construction demands. They construct shelters, kiosks, fences, frames for buildings, doors, windows, roofs and also façades, stairs, cabinets etc.	• treat wood properly, • install wood elements in structures, • construct wood roofs, • create smooth wood surface, • clean wood surface, • install insulation material, • install wood elements in structures, • build wood cabinets, • build wood staircase, • build wood frames, • install wood hardware, • join wood elements, • manipulate wood, • quality standards, • types of wood, • wood products, • woodworking processes, • woodworking tools, • fill nail holes in wood planks, • interpret 2D plans, • interpret 3D plans, • join wood elements, • lacquer wood surfaces, use measurement instruments, • knowledge of physical and mechanical properties of wood
ISCO-083112, ESCO-3123.1, ISCO-08 3112, ESCO-3112.4	here	Construction quality manager, Technicians and Associate Professionals, Technicians and associate professionals	Quality department executive	EQF 4	Quality department executives support the planning and development of the quality system, participate in its application, support the measurement, analysis and improvement of the system, as well as the process of internal inspection of the system application. In constructions they apply quality programmes of the works as well as quality standards of structural materials.	• check compatibility of materials, • communicate with external laboratories, • ensure conformity to specifications, • follow health and safety, procedures in construction, • inspect construction supplies, • use safety equipment in construction, • work ergonomically, • write specifications • review quality of supplies and raw materials, • are aware of legislation and ongoing changes, • organize and conduct internal inspections, • make up or contribute in setting the quality related goals, • use of electronic control tools, • technical specifications of products, • mathematics and statistics, • existing good practises in quality, • quality management, • conduct quality control analysis, • perform quality control of design during a run

ISCO-08 1323, ESCO 1323.1	here	Managers: Construction managers	Technical construction planner	EQF 4	The profession of the Technical construction planner aims at assuring the smooth and effecting performance of the structures and the erections of the technical constructions made, always abiding by the regulations, the policy and the processes being implemented in the premises of the work under construction, as well as the quality system that is intended to the contentment of the client's expectation.	• advise on construction materials • apply safety management, • assess construction compliance, • calculate needs for construction supplies, • communicate with construction crews, conduct administrative work, • ensure compliance with legal requirements, • identify construction materials from blueprints, • identify customer's needs, • interpret technical requirements, • manage contracts, • oversee construction project, • plan construction of houses, • prepare construction documents, • review construction projects, • work in a construction team, • budgetary principles, • building materials industry, • civil engineering, • construction equipment related to building materials, • construction industry, • construction product regulation, • cost management, • project management, • quality standards, • stays informed about developments in the field of constructions, material, equipment and software, • keeps backup file of all documents, collaborates with engineers when designing the structure, operates design software,
ISCO-087124, ESCO-7124.1,	here	Craft and related trade workers: Insulation workers	Insulation technician	EQF 4	An insulation technician is considered as the labour and technical personnel with the appropriate training in carrying out basic work on thermal insulation, sealing, acoustical insulation, passive fire protection and auxiliary work such as dry figuration, structural reinforcement and restoration, painting and incrustations of structural elements, roofing and side covering of buildings.	• work according to budget, • estimate costs, • assess work's demands, • order materials and supplies, • knowledge about materials standards, • apply adhesive wall coating, • apply house wrap, • apply insulation strips, • apply proofing membranes, apply proofing colouring, dry constructing, • cut insulation material to size, • follow health and safety, procedures in construction, • follow safety procedures when • inspect construction supplies, • install construction profiles, • install insulation blocks, • install insulation material, • interpret 2D plans, • transport construction supplies, • use measurement instruments, • work ergonomically, create and follow timetable of insulation procedures, • install passive fire protection, regulations about energy efficiency (KENAK) •
ESCO-7212.3.4, ESCO.731, ESCO	here		Welding and metal cutting technician	EQF 4	Welding and metal cutting technician is a person that uses and applies a series of actions and procedures, such as cutting of metals, the formation of the edges that need to be weld, assembling of metal parts and the final	• cut metals, assembling parts to be welded, • formation of edges, • operative welding equipment, • perform welding, • apply arc/spot/thermite welding techniques, • clean and check welding

					welding of metals. The specific profession is necessary in the construction of metal building.	
ESCO-3115.1.5	here		Refrigeration and air conditioning technician	EQF 4	Refrigeration and air conditioning technicians perform duties of installing, replacing, proving, supervising, inspecting and repairing heating, refrigerating and air conditioning systems in domestic, commercial, building, industrial and transportation sector.	• assemble and place refrigerating installations, • choose the optimal place for installation, • conduct construction works in building in order to place the equipment, • install automations • apply safety measures, • maintenance of equipment, • mechanological design, • architectural design, • electrological design, • basics of mechanology, • basics of electrology, • basics of physics • technical terminology • fluid mechanics, • Thermodynamics • energy efficiency
ESCO-7126.3	here		Gas technician, Combustion gas technician	EQF 4	The gas technician is a specialised technician capable to execute work that is related with the installation, the maintenance and the modification of networks and appliances of fuel gases for domestic, professional and industrial use.	• gather materials, • check isolation of the network under construction or conversion, • create connections, • extent network, • maintain transfer and distribution networks, • install measuring devices, • install equipment for adjusting pressure, • install shut-off valves, • install checking devices and equipment, • place pipes in construction site, • convert internal distribution networks, • install outside, • place gas burners, • check equipment standards, • use welding equipment, • cut pipes, • elements of automatic control, • safety measures, • firefighting techniques, • mechanology, • mechanics, • thermodynamics

ESCO-9313.1, ISCO-089313, ESCO-7112, ISCO-08711, ESCO-7122.3, ISCO-08 7122, ISCO-08	here	Craft and related trades workers: Plasterers , Craft and related trades workers: Floor layers and tile setters, Elementary Occupation: Building construction labourers, Craft and Related Trade Workers: Building Frame and related trades	Dry constructing systems technicians, Plasterers	EQF 4	Dry construction system technicians are employed in the development of internal areas through the utilization of gypsum by-products, gypsum planks, cinder planks, furred ceiling design, floor lodgements (wooden, plastic laminate), garnishments.	• talk to clients, order raw materials and prefabricated products, • understanding architectural design, • build suspended ceilings with plasterboard, • handle aluminium, • mineral fibres, • build fixed or movable space dividers, • install prefabricated window frames, • lay special floors, • apply wallpapers and other decorative, • form plaster decorative, • ceiling cornice, • knowledge of material qualities and standards, • use of building tools, communication with interior designers and decorators, • building techniques, • place drywall, • tape drywall, • install insulation material, • mix construction grouts, • apply floor adhesive, • cut resilient flooring materials, • apply floor adhesive, • cut resilient flooring materials, • finish mortar joints,
ISCO-087113, ESCO-7113.1, ISCO-08711, ESCO-7112	here	Craft and Related Trade Workers: Building Frame and related trades workers, Craft and Related Trade Workers: Building Frame and related trades workers	Stone technician	EQF3	Stone technicians recognize the structural elements of the modern or traditional architecture of the building and perform the typical structural applications according to the rules of correct construction, perform the work of stone and construction or repair of a roof, according to the provisions of the technical architectural plan,	• create cutting plan, • follow health and safety procedures in construction, • inspect construction supplies, • inspect stone surface, • interpret 2D plans, • operate grinding hand tools, • polish stone by hand, • prepare stone for smoothing, • regulate cutting speed, • secure working area, • transport construction supplies, • use measurement instruments, • use safety equipment in construction, • use stonemason's chisel, • work ergonomically, • carve stones, • use tools safely, • basic principles of technical design, • knowledge about modern architecture, • knowledge about traditional architecture, • knowledge of construction applications, • knowledge of construction applications in roofs, • distinguish masonry items according to the type of structural elements, • their processing and application, • knowledge of selection of building materials, • knowledge of technical design rules, • knowledge of safe use of tools, • tools and equipment, • knowledge of health and safety at work, • knowledge of modern and traditional building materials, • knowledge of technical application of building materials, • knowledge of stone types, • knowledge of each part of the stone, • knowledge of the use of the stone and its role in the whole construction, measurements, • stone processing,

						• debris shaping, • masonry openings shaping • mortar placement, • safe dismantling and transfer of structural elements, • shaping of wooden lattices for the construction of coatings, • machining of wooden sections, • joint cleaning, • knowledge of cost concepts, • environmental protection elements, • labour law, • check straightness of brick • finish mortar joints, • lay bricks, • split bricks
ESCO-3113.2, ISCO-08 3113	here	Technicians and associate professionals	Small hydroelectric power station operators	EQF 3-4	Small hydroelectric power station operators work as members of operation team, employed in a particular energy production small (of less than 15 MW) Electro hydraulic power stations, usually combined with renewable sun or wind power station of public or private or local authorities organisations. They work as "shift" or "stand by" workers or under the guidance of the engineers responsible for the stations.	• apply manufacturer's instructions for function of the station • apply standards, • apply safety measures, • apply fire protection rules, • apply daily routine of operations tasks, • inspect outside facilities, inform engineer, • inspect resources and supplies, • inspect mechanological facilities, • inspect electrological facilities, • inspect electronics, • check instruments and installations, • monitor electric generators, • operate scientific measuring equipment
ESCO-3111.2	here		Management and control technician of environmental protection systems	EQF 4	Management and control technicians of environmental protection systems are employed in the Private or Public sector and perform technical operative and maintenance works. They supervise and control in legal ways and with legal means, devices, instruments and installations composing Environmental protection systems, aiming to preventive pollution control, face and restore sudden or permanent pollution. They minimize any risk of any source dealing with human health and safety, in the operative scope of the pre-mentioned systems.	• control devices of environmental protection systems, • set function parameters, • collect, process and assess markings from devices and instruments • inspect functionality, • apply standards, • apply technical instructions, • inspect employees, participate in collection of CD Waste procedures, • participate in urban waste recycling procedures, • participate in urgent procedures of treating pollution, electrology, • basics in mechanology, • environmental physics, • environmental chemistry, • automations, • calibration

ESCO-2165.3			Geographic information systems (GIS) specialists	EQF 5	Geographic information systems specialists use specialised computer systems, engineering measures, and geological concepts to process land, geographic, and geospatial information into visually detailed digital maps and geomodels of a reservoir. They convert technical information like soil density and properties into digital representations to be used by engineers, governments and interested stakeholders.	•apply digital mapping •execute analytical mathematical calculations •perform surveying calculations process collected survey data •create thematic maps •use geographic information systems •create GIS reports •collect mapping data •apply statistical analysis techniques •use databases •statistics •surveying •cartography •geological mapping •geography mathematics •geomatics •geographic information systems •use CAD software •use presentation software •store digital data and systems •analyse environmental data •perform image editing •develop geological databases • write work-related reports • prepare visual data •use an application-specific interface •use spreadsheets software •operate surveying instruments
ESCO 2151.2, ISCO- 08 3113		smart home engineer, electrical engineering technician	Smart Building Programming Technician	EQF 5	The Smart Building Programming Technician is a specialised professional employed in construction companies or as a freelancer involved in the design, implementation and management of smart systems in buildings, by utilising modern systems, methods and smart technological tools for the management/maintenance of buildings and other infrastructure (Building Management Systems, Building Information Modelling, Building Information Management, etc.) in order to design modern smart energy networks and systems for the construction of infrastructure that fully satisfies the customer's requirements.	• Design and calculate the smart grid system, based on heat load, duration curves, energy simulations etc. • develop energy saving concepts • design electrical systems • assess integrated domotics systems • create AutoCAD drawings • perform ICT troubleshooting • develop software prototype • apply technical communication skills • design a domotic system in buildings design application interfaces cooperate with colleagues • design electronic systems communicate with customers provide advice to hatcheries
ESCO 2149.9.2		energy systems engineer	Executive of Energy Saving Applications in Buildings Based on BMS (Building Management	EQF 5	An Executive of Energy Saving Applications in Buildings Based on BMS (Building Management Systems) Protocols possess the necessary knowledge and skills to understand the concept of building management, to know the technology, materials and applications of automatic control systems, to evaluate and evaluate the measurements of energy parameters, to apply modern methods of control and inspection of building	• promote sustainable energy • identify energy needs • adapt energy distribution schedules • advise on heating systems energy efficiency • promote innovative infrastructure design • perform scientific research • determine appropriate heating and cooling system • carry out energy management of facilities manage engineering project inspect building systems troubleshoot • use technical drawing software

					installations and daily technical management and supervision of the operation of building infrastructure (BMS, BIM, BUS, etc.), to apply "smart" maintenance practices of facilities and infrastructure and technological methods of upgrading infrastructure by installing and switching to new energy saving systems.	

Italy National Occupational Profiles

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
		technician: engineers, architects, surveyors	Water Efficiency Expert	EQF 5	The water efficiency expert envisaged by this new qualification includes upskilled building water systems designers, engineers, architects, technical engineers, technical agents, energy and environmental performance auditors.	• design, select, propose and inspect water systems in buildings considering water efficiency requirements, • addressing the water efficiency and water-energy nexus measures in buildings, • considering site conditions, building type and the most adequate system types and design principles, including water and energy efficient home appliances, equipment, and devices, • planning for water efficiency in green areas and site based passive measures, water network performance and retrofit, systems for rainwater harvesting and greywater reuse, in line with legislation or standards.
ISCO-08 7126.13	here	worker	Water Efficiency Technician	EQF 4	The water efficiency technicians are upskilled plumbers, equipment installers, water supply and drainage maintenance technicians and energy systems installers	• install, maintain, and repair water systems in buildings in compliance with water efficiency requirements, • addressing the water efficiency and water-energy nexus measures in buildings, considering site conditions, • building type and the most adequate system types and layouts, including water and energy efficient home appliances, equipment and devices, water efficiency in green areas and outdoor environment, water network performance and retrofit, and installation of systems for rainwater harvesting and greywater reuse, in line with legislation or standards.

ISCO-08 2143.1.4	here	technician: engineers, architects, surveyors	CD waste treatment engineer	EQF5	Cd waste treatment engineer is a technician who design solutions and procedures for the recovery, recycling and reuse of waste from demolition and construction. He also conducts environmental impact assessments of civil engineering projects and works or other activities,	• know and apply the relevant national legislation • know the physical and chemical characteristics of materials in order to improve their disposal or reuse • Know the practices that need to be developed on site in relation to the valorisation of CD Waste • Estimate the materials present in the object in terms of volume and weight. Identify and assess the risks posed by hazardous waste • Demonstrate the implementation of best practice in waste management. Plan and manage demolition and reuse activities in order to reduce environmental and health impacts, while providing important cost benefits. • Know the Life cycle assessment methodology as the ideal method for estimating and countifying selective demolition benefits • know the CD Waste good practices already tested and adopted in other contexts and in other countries • know the costs of sustainable construction in its life cycle
ISCO-08 3122.5	here	Team leader and site manager	CD waste management supervisor	EQF 4	Waste management supervisor is a worker who supervises the work carried out on site to recover and recycle materials. He is in charge of ensuring that all procedures, that CD waste treatment engineer has established, are correctly implemented.	• ensure the correct organisation of waste management by the company and supervise the correct application of the relevant legislation • be aware of the risks associated with the activity and the environmental conditions of the site, • derived from the procedures, equipment and waste managed in accordance with the applicable regulations and adopt preventive measures • Apply the waste management regulations on how to load, unload and transport waste that can be reused, accepted and treated in recycling and/or land • fill plants and in accordance with the indications of the responsible technicians and the established work protocols. • Apply preventive and protective measures, using individual and collective protective equipment, reporting incidents, to avoid the risks associated with the workplace, in accordance with the applicable regulations and in accordance with the indications of the technicians in charge and the established work protocols.
ISCO-08 9612.1	here	worker	C&D reuse and recycling worker	EQF 3	C&D reuse and recycling worker is a worker engaged in the work of recovering and recycling construction and demolition waste on construction sites. This figure implements the instructions given to him by the site manager and team leader. He/she is able to recognise the materials and their physical and chemical characteristics and to understand their	• Perform basic waste characterisation and management operations, • complying with regulations on reuse, • recycling or landfill disposal. • Carry out the loading and transport operations of waste that can be accepted and in a safe deposit/landfill,

					recyclability or reusability within the construction site so that only unsuitable materials are sent to landfill.	• complying with the regulations on waste management. select materials and improve their disposal or reuse • know the demolition procedures and techniques
ISCO-08 7115.5	here	worker	window installation team worker	4	window installation team worker constructs and assembles wooden, iron and steel windows and doors and installs them inside and outside of buildings in order to ensure the protection of structures under construction or renovation and to insulate them from the weather.	• know the basic characteristics of efficient windows. • know the regulations for the installation of windows and doors. • know and apply the different installation techniques. • know the basic characteristics of efficient windows. • know the regulations for the installation of windows and doors. • know and apply different installation techniques. • know the basic characteristics of efficient windows and doors. • know and apply different installation techniques
ISCO-08 7124.1	here	worker	insulation installation worker	4	insulation installation worker is a skilled worker who installs insulation panels and carries out the necessary maintenance. They periodically check the efficiency of the panels. They clean the roofs in such a way that the energy-efficient interior of the roof is not damaged.	• know the available efficient insulation techniques/methods. • improve their technical skills. • know building insulation techniques and insulation materials. • know how to check the suitability of materials and equipment needed for installation
ISCO-08 3123.1.13	here	team leader and site manager	insulation installers supervisor	5	insulation installers supervisor is a Team Leader/site manager who supervises all work. He/she checks that the panels are correctly installed; he/she verifies that the fixing operations are carried out as indicated in the material sheets; he/she checks and controls that the operations are carried out in a safe manner. he/she manages all the operations necessary for energy efficiency: from the procurement of materials to the installation and handover of the work.	• know the different types of thermal insulation and the different requirements of insulation systems. • know the techniques of thermal insulation of buildings and insulation materials. • know how to apply them. • plan the work in relation to the work to be carried out. • know how to test the thermal insulation system
ISCO-08 1349.12	here	technician: engineers, architects, surveyors	energy manager	5	The energy manager promotes an optimisation of consumption through the analysis and monitoring of energy resources. One of the main tasks of the energy manager is to analyse, monitor and optimise the use of energy by companies and organisations, whether public or private, thus enabling them to achieve economic, energy and environmental benefits and to produce goods and services. It designs and manages every possible solution for energy recovery and saving. It adopts the LCCA (life cycle cost analysis) methodology for the purchase of products and services.	• demonstrate and explain to others the appropriate efficient insulation techniques/methods available. • know the basic principles of efficient windows. • demonstrate and explain to others the concepts of efficient windows. • know the different techniques of design and installation of windows and doors. • choose the window, in accordance with the production realities;

Lithuania National Occupational Profiles						
GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL [illegible]	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
LPK 312301	Here		The railway section foreman	NQF4	to guarantee the smooth operation of railway transport, safe train traffic.	• knowledge of technical provisions for the use of railways and their application in railway construction works; • knowledge of the specifics and technologies of the operation of railway stations and safe operation of railway station equipment; • knowledge and management of construction and railway construction machinery, equipment and mechanisms; • construction of new railway tracks and reconstruction of old ones; • upgrading of railway and engineering network infrastructure; • reconstruction of railway stations; • performance of necessary construction works on railway branches and platforms; • construction and reconstruction works of railway sections, bridges, viaducts; • ensuring road safety.
LPK 312304	Here		Construction works brigade leader	NQF5	to lead the construction team, organizing and coordinating the construction works, performing their supervision and ensuring compliance with the work safety requirements.	• classification and adjustment of building materials according to their resistance to the forces acting on the building; • reading construction drawings; • organizing the work of the construction brigade by delegating tasks to others; • inspection of equipment and construction sites, elimination of observed deficiencies; • performance of measurement work using various measurement methods and devices; • inspection of the performed construction works and assessment of their quality; • coordination of various construction works in consultation with colleagues and clients.
LPK 312303	Here		Road master	NQF4	to carry out maintenance and repair of roads in accordance with the requirements of work safety.	• installation of technical traffic control devices; • installation of road protection zones in cities and rural areas; • performance of works and construction of necessary structures in the road lane or road protection zone; • road mining works, construction of communications, installation of intersections, driveways, bypasses, planting of greenery, transportation of cargo during the ice rink, organization of sports or other mass events; • road restoration, landscaping, land reclamation works; • urgent repair works in the road lane in the event of an accident of the engineering networks on the road; • supervision of road works.
LPK 312305	Here		Building construction foreman	NQF4	to perform supervision and coordination of construction equipment, construction sites, performance of works, to ensure compliance with the requirements of work safety.	• application of properties of materials used in building construction works, work performance technologies; • management and use of equipment and machinery for individual construction works; • identification of the need for materials and workers required for construction work, their search; • monitoring and inspecting the progress of construction work; • inspection of equipment and construction sites, timely elimination of observed deficiencies; • determination of the need for the necessary materials and tools for the continuation of construction works, organization of their delivery to construction sites; • evaluation of the quality of the work performed; • reading construction drawings, work execution schemes.
LPK 7111	Here		House builders	NQF3 - NQF4	House builders erect, maintain and repair houses and similar small buildings using either traditional or modern techniques and materials.	• preparing ground for erecting building or other structures; • erecting structures to support roof, and building and covering walls with appropriate materials • fixing rafters to roof and covering with roofing material; • levelling floor to make it smooth and serviceable; • maintaining and repairing existing structures; • arranging for specialized work such as bricklaying, painting, plumbing and electrical wiring to be done by subcontractors; • coordinating and supervising the activities of subcontractors, labourers and other workers.

LPK 7112	Here		Bricklayers and related workers	NQF4	Bricklayers and related workers lay bricks, pre-cut stones and other types of building blocks in mortar to construct and repair walls, partitions, arches and other structures.	• laying stone, brick and similar building blocks to construct or repair walls, partitions, fireplaces and other structures such as smokestacks, furnaces, converters, kilns and ovens, piers and abutments; • laying footpaths, kerbs and pavements; • laying bricks or other masonry to build patios, garden walls and other decorative installations.
LPK 7113	Here		Stonemasons, stone cutters, splitters and carvers	NQF4	Stonemasons, stone cutters, splitters and carvers cut and shape hard and soft stone blocks and slabs for the construction and maintenance of stone structures and monumental masonry and carve designs and figures in stone.	• driving wedges into quarried stone to break it into slabs or blocks; • selecting and grading slabs and blocks of granite, marble, and other stone; • cutting, shaping and finishing building and monumental stone such as granite or marble using hand tools or hand-held power tools; • making patterns and marking shapes on stone for subsequent sawing, planning, drilling and other dressing and cutting operations; • cutting and carving characters, figures or designs on stone blocks used for monuments or memorials; • setting stone in the erection of monuments and memorials; • repairing and replacing stonework on old buildings, churches and monuments;
LPK 7114	Here		Concrete placers, concrete finishers and related workers	NQF3 - NQF4	Concreters, concrete finishers and related workers build reinforced concrete frames and structures, produce concrete molds, reinforce concrete structures, concrete wall openings or manhole frames, smooth and repair concrete surfaces, and perform mosaic finishing work.	• selecting and using the necessary tools; • knowledge of the properties of materials used in reinforcement, formwork preparation, concreting works; • reading simple working drawings and sketches; • preparation of concrete mix by mechanized and manual means; • performing waterproofing works on a horizontal surface; • installation and dismantling of formwork for the formation of walls, columns, foundations and other concrete structures; • performing simple reinforcement work by assembling reinforcement bars in formwork; • concreting, compaction and maintenance of concrete structures; • selecting and using the necessary tools; • concreting work in winter.
LPK 7115	Here		Carpenters and joiners	NQF3 - NQF4	Carpenters and joiners cut, shape, assemble, erect, maintain and repair various types of structures and fittings made from wood and other materials.	• wood processing by hand and mechanized by recognizing, categorizing, drying; • manufacture and repair of wood products; • installation of wood products; • manufacture of wooden scaffolding, strip and prefabricated formwork for foundations, columns, beams; • assembly of wooden scaffolding, joining of wooden elements in various ways for foundations, columns, beams; • installation of wooden partitions, simple roof constructions, windows, door blocks; • construction and repair of log houses, wooden buildings, including roof structures and building insulation.
LPK 711906	Here		The Mounter of prefabricated constructional	N/A	to perform the installation works of prefabricated structures on the construction site, safely and qualitatively performing the necessary installation operations.	• harmonization of the specifics of building parts, various prefabricated structures of reinforced concrete, metal and wooden buildings and their installation technologies; • reading drawings of simple constructions; • calculation of the area and volume required for prefabricated structures; • installation of reliable foundations for prefabricated structures and individual structural elements of the house; • temporary securing of individual mounting elements before disengaging them from the hook of the lifting mechanism; • installation of prefabricated buildings (foundations, walls, ceilings, individual supports, roofs, partitions, stairs, windows, doors, etc.); • demolition work on buildings.
LPK 711911	Here		Scaffolding builder	NQF3	to perform scaffolding installation works on the construction site, performing the necessary installation operations in a safe and high-quality manner.	• coordination of the peculiarities of scaffolding parts and their installation and dismantling works; • reading scaffolding assembly-disassembly diagrams and drawings; • construction of adjustable frames and protection of guards; • attachment of diagonal frames and horizontal supports; • construction of sites; • perpendicular alignment; • installation of passageways; • installation of frames and guards, fixing of diagonals and platforms at a higher level; • applying and removing scaffolding netting or film; • scaffolding earthing work.

LPK 711915	Here		Buildings repairer steeplejack	N/A	to perform repair works of buildings, towers, chimneys and other high-rise structures; to install scaffolding, to carry out demolition works.	• management of the work equipment and mechanisms of a building repairman; • inspection and measurement of individual building structures before starting repair works; • installation of temporary metal or wooden scaffolding; • installation and repair of concrete and reinforced concrete structures; • roof repair work; • repair of windows and doors; • facade finishing and repair works; • building insulation work; • demolition and wrecking work; • reading working drawings.
LPK 711919	Here		Roadman	NQF1	to manage road maintenance equipment, to build and maintain main, regional and regional roads, to perform their repairs.	• knowledge and management of road maintenance techniques; • inspection and assessment of road condition; • construction of roads, footpaths and cycle paths; • installation of intersections at different levels; • Reconstruction works of underground pedestrian crossings and roads: pavement strengthening, distribution, installation of traffic safety means; • construction of pedestrian overpasses, installation of partitions and lighting; • strengthening of the road surface, installation of acceleration-deceleration lanes, fencing of the network restricting the passage of ungulates; • loading the salt and sand mixture into the spreaders; • road and curb cleaning; • road sprinkling of salt during the winter.
LPK 7121	Here		Roofer	NQF2-NQF4	Roofers cover and repair all types of roofs with one or more types of materials.	• general construction work, including work with basic construction tools, reading drawings, material accounting; • assembly and installation of pitched roof structures; • installation of partition roof structures; • sloping roof coverings; • installation and coating of flat roof foundations; • flat and pitched roof repair. • measuring and cutting the roof covering to match edges, angles and protrusions such as chimneys; • use of natural materials such as straw for roofing; • installation of temporary equipment such as scaffolding and ladders.
LPK 712203	Here		Paving laying operator	N/A	laying paving blocks, installing lawns, roads, paths, sites and their curbs both manually and mechanically.	• knowledge of materials, tools used in the work of the paver; • knowledge and application of paving and tile laying technologies; • performance of screed laying, paving, paving; • determination of the height and contours of the paved floor area; • scraping of the top layer of soil; • execution of paving works from natural stone paving; • concrete paving; • clinker paving works; • construction of curbs and curbs; • construction of granite slabs and other large road bricks.
LPK 712206	Here		Parquet layer	N/A	laying new, restoring old parquet; varnish, oil, tint parquet both manually and mechanically.	• coordination of materials and tools used in the work of the parquet paver; • implementation of parquet laying and restoration technologies; • laying a concrete screed, chipboard or subfloor base under the parquet; • determination of dryness, smoothness, strength, cleanliness of the parquet base, removal of existing dirt; • stacking, forming a gap between the walls and the parquet; • laying parquet in a running way or in a herringbone way; • laying of two-layer parquet; • placing loads on the parquet to level the base; • parquet varnishing, oiling and tinting works.
LPK 712207	Here		Tiler	NQF3	glue horizontal and vertical surfaces with various tiles, fill the joints with putty and sealing materials.	• coordination of the main parts of buildings, the purpose of their constructions, surface preparation, plastering and tiling; • selection of construction materials, calculation of the required amount; • use of construction materials for their intended purpose; • preparation of various surfaces for tiling work; • preparation of adhesives and mortars for gluing tiles; • gluing of surfaces with various tiles, filling the joints with putty and sealing materials; • safe performance of tiling and impregnation work at height; • arrangement of the workplace at the end of the laying work.

LPK 712302	Here		Plasterer	NQF3	to perform plastering works mechanically and manually, using mortar mixers and plastering units, as well as scaffolding and high-altitude work.	• selection of building materials, calculation of the amount of materials required for the production of mortars by manual and mechanized means; • surface preparation for plastering; • mechanized preparation of plastering mortars; • plastering of surfaces, edges, edges, niches, openings, girders, columns and facades according to the technology by manual and mechanized means; • dosing of materials according to the design of mortar mixers and plastering units; • insulation of various surfaces; • safe use and management of various plastering units (mortar mixers, pumps, mortar supply machines); • scaffolding installation and dismantling works; • plaster repair work at height; • maintenance of plastering mechanisms and workplace arrangement (collection and storage of rubbish, tools, materials).
LPK 712401	Here		Insulator	NQF3	to perform insulation works of planes, pipelines, pipe fittings and tanks and channels; to manufacture parts used for insulation.	• knowledge of insulation materials, their properties and application technologies; • manufacture of components used for insulation and their assembly according to drawings, sketches and templates; • cutting of parts and welding of seams; • selection of insulating materials; • marking and marking of parts according to drawings, sketches, templates; • performance and assembly of technological quality control of parts; • insulation of flat element surfaces, tanks, containers, channels; • insulation of pipes of various diameters; • insulation of flange joints and pipe fittings.
LPK 712501	Here		Glass cutter	N/A	select glass, cut glass sheets of the required size and shape, place windows inside and outside buildings, vehicles and other objects.	• height, width and other measuring works of the objects submitted for glazing; • production of modern glazing systems; • preparation of glass, its measurement and marking, glass cutting works; • reading simple working drawings; • glazing of aluminium frames, general glazing works; • installation of new openable and non-openable windows, window glazing; • installation of ventilation mechanisms in windows; • replacement of scratched or cracked windows or wall mirrors; • window installation and finishing work; • window cleaning, workplace arrangement.
LPK 712504	Here		Dormer glass cutter	N/A	select skylights according to the size and purpose of the premises, install them according to the angle of incidence of light.	• performance of measurement work required for roof window glazing; • selection of skylights according to the angle of entry of light from above into the premises; • a thorough inspection and assessment of the installation of skylights in the ceiling or sloping wall (depending on the purpose of the room); • height above the floor, window size measurements, accurate determination of the location of the skylight; • reading simple working drawings; • installation of roof windows; • installation of ventilation mechanisms in skylights; • replacement of scratched or cracked roof windows; • finishing work for roof windows; • roof window cleaning, workplace arrangement.
LPK 712602	Here		Pipefitter	NQF3	to install pipes for gas, drainage, heating, ventilation, water supply and sewerage systems.	• examination of project drawings and technical conditions of pipeline installation, main pipelines and network schemes; • installation of outdoor and building water supply, building sewage gas, drainage, heating, ventilation, fire water supply pipelines; • manufacture of pipeline fittings, simple metal structures according to drawings, sketches and measurements by manual and mechanized means; • measurement and cutting of pipes for gas, drainage, heating, ventilation, fire water supply, water supply and sewerage systems; • connection of pipes for gas, drainage, heating, ventilation, fire-fighting, water supply and sewerage systems; • pipe fastening and insulation.
LPK 712614	Here		Plumber	NQF3 - NQF4	plumbing installation, repair and maintenance.	• assembly, installation, adjustment and repair of plumbing fixtures, pipes and piping systems; • cutting, welding, bending, joining, assembling, installing, maintaining and repairing plumbing and sewerage, plumbing and heating equipment; • installation of water supply and sewerage systems in ships, aircraft, buildings, factories and elsewhere;

						• ditching of clay, concrete or cast iron pipes in the form of drainage pipes, sewers or supply lines or for other purposes.
LPK 712622	Here		The Plumber	NQF2	to install plumbing appliances, installing water supply, sewerage, indoor gas pipeline, central heating systems.	• manufacture of pipeline fittings, simple metal structures; • installation of building water supply, ventilation, sewage disposal systems, metering units; • installation of fire water supply and rainwater drainage; • installation, insulation, testing of low (up to 100 kw) boilers, heating devices and systems; • installation of outer and inner rings of heat pumps; • regulation of parameters of heating and water supply systems and devices; • inspection, washing, hydraulic testing, repair of plumbing devices and systems; • preparation of building structures, work tools, plumbing system parts for installation.
LPK 712702	Here		Refrigeration and air-conditioning equipment mechanic	NQF4	installation, adjustment, maintenance and operation of refrigeration and air conditioning equipment, its supporting mechanisms and their systems.	• analysis and selection of refrigeration and air conditioning equipment and machine designs; • installation and adjustment of refrigeration and air conditioning equipment; • maintenance of refrigeration and air conditioning equipment and identification of possible causes of failure; • analysis of the causes of failures in refrigeration and air conditioning equipment; • timely rectification of defects; • systematic inspection of refrigeration and air conditioning equipment; • selection of repair technology for refrigeration and air conditioning equipment; • preventive, medium and major repairs of refrigeration and air conditioning equipment.
LPK 713101	Here		Building painter	NQF3	paint or spray the surfaces of buildings, equipment and accessories with paint, varnish and similar materials.	• application of the properties of paints, glues or varnishes, painting tools and painting methods; • reading working drawings or sketches; • cleaning the walls and other surfaces of buildings before painting; • preparation of plastered, wooden, metal surfaces for painting with water and oil paints; • selection and mixing of dyes, pigments and additives of the required colours; • painting or spraying of surfaces, facades, installations and their accessories with paints, varnishes and similar substances; • painting of reinforced concrete buildings, metal structures; • identification and elimination of the causes of defects; • tidying up your workplace (collecting and storing rubbish, tools, materials).
LPK 713115	Here		Decorator, mosaic maker	NQF3	perform interior and exterior decoration of the building with tiles or stone, creating a mosaic; to perform general construction work.	• knowledge of mosaic creation technologies; • knowledge of the properties of tiles, stone and other materials needed to create mosaics; • preparatory construction work for mosaics; • selection of necessary materials and tools for composing mosaics; • tiling, machining and shaping by hand tools; • machining and shaping the stone with hand tools; • laying tiles on horizontal and vertical surfaces both inside and outside the building, composing mosaics; • glazing of mosaics; • renovation of mosaics of historical value.
LPK 713116	Here		Decorator	NQF3	to perform general construction works, insulating and plastering the building, painting the exterior and interior surfaces of the building, gluing upholstery, tiles, fixing finishing panels and linear elements.	• installation of climbing equipment before starting work; • masonry of simple structures; • woodworking with hand tools; • installation of a concrete base; • insulation of the building with thermal insulation panels; • plastering by hand and mechanized; • laying tiles on horizontal and vertical surfaces; • manual and mechanized painting; • preparation and gluing of upholstery; • fixing of plasterboard and finishing panels.

LPK 721206	Here		Welder	NQF2	to weld plastic or metal parts with gas and electricity, to cut, solder, eliminate welding, cutting or soldering defects in different ways and modes.	• arc welding with coated electrodes; • gas welding and soldering; • semi-automatic welding in shielding and inert gases; • metal cutting; • provision of welding services to customers in various environmental conditions, regardless of the location of the object to be welded, in a high-quality manner and in compliance with occupational safety standards.
LPK 721311	Here		Tinsmith	NQF3	cutting and marking sheet metal, tinning parts of the house, household utensils, vehicles and aircraft, tanks and other containers.	• sheet metal preparation, detail measurement and marking; • sheet metal cutting, cutting, shearing, riveting, soldering, abrading, drilling, threading works; • reading simple working drawings; • design of simple details; • manufacture of simple tinplate articles; • manufacture of closures, round or rectangular tubes, transitions, elbows, fittings; • manufacture of roofs, gutters, drainpipes and their fittings; • tinning of roofs, chimneys, ventilation openings, skylights, window sills; • installation and repair of sheet metal parts for vehicles and aircraft.
LPK 721419	Here		Steel constructions fitter	NQF3	to assemble, construct and dismantle metal structures of buildings and other structures in accordance with technical requirements and specifications.	• preparation of metal structures for installation; • marking, cutting, drilling and shearing of metal with hand and power tools; • selection of devices for hanging metal structures; • reading drawings and sketches of building parts, metal structures; • use of flammable gas and oxygen equipment for cutting and welding metal structures; • operation and maintenance of hand and power tools; • assembly of assemblies and fastening of assembled metal structures; • knowledge of occupational safety and health, fire safety and electrical safety requirements and their practical application at work.
LPK 741101	Here		Electrician	NQF4	to install, maintain and repair electrical equipment and appliances.	• maintenance, assembly, adjustment, installation and repair of electromechanical and electronic (operating when connected to electricity) equipment and devices, their inspection; • assembly, inspection and repair of lighting and power equipment; • operation and repair of overhead power and cable lines; • installation of electric motors and other electrical devices, their phasing (phase matching) and connection via switching (overload protection) equipment; • fault finding and troubleshooting of electrical appliances; • preparation and installation of junction boxes without forks; • grouting electrical wires into grooves, plastic or metal pipes; • electrical installation (installation), connection of electrical appliances; • inspection, installation, repair and control of electricity metering devices.

Portugal National Occupational Profiles

GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL BACKGROUND	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE

ANQEP	Here	QNQ/QEQ level 2 profession	Bricklayer	Level 2 Professional Certification	Carry out masonry and finishes, assembly of structures and roofs and carry out different settlements, taking into account the established construction standards and safety, hygiene and health measures at work.	Prepare and organize the work, execute direct foundations of structural elements, masonry and floors, execute construction elements in concrete, execute structural masonry and masonry, execute coverings, execute coatings on floors, walls and ceilings, execute dismantling and demolitions, carry out sanitation and other infrastructure work, carry out laying of complementary elements, check the quality of work in accordance with pre-defined technical specifications and proceed with the cleaning and conservation of machines and work tools. Notions of Mathematics, Physics, Technical Design, Specific Design, Information Technology from the user's perspective and Environment, knowledge of Construction Technology, Materials Technology, Standardization and quality applied to the activity, Organization and productivity at work, Safety, Hygiene and Health in the Work, Processes and technologies for the preparation and execution of concreting, Conservation of machines and tools specific to the profession, in-depth knowledge of the Typology and use of machines, tools and auxiliary means inherent to the profession, Processes for the execution of structures and roofs, Processes for the execution of settlements and coatings, Processes for the execution of masonry, plastering and sanitation, Processes for the execution of dismantling, demolition, shoring and shoring.
ANQEP	Here	QNQ/QEQ level 2 profession	Tiler / Tile	Level 2 Professional Certification	Carrying out coatings on walls, floors and ceilings, using natural or artificial tiles and boards.	Preparing and organizing the work, preparing the materials to be applied, preparing the mortars, glue and bitumen, treating the materials to be applied, preparing the surfaces to be coated, performing stitches and masters, performing the plastering and screeds, make the marking of levels, plumb lines and other reference lines, test and implement the coatings to be applied, lay the pieces on the surface to be coated, place auxiliary guides for the execution of the work, apply the appropriate glue to the way and place of fixation of the tiles, lay the pieces in rows, mark, cut and drill the pieces, fix metal accessories for laying cladding plates, lay cladding plates, assemble and fix cladding plates with metal accessories, accompany natural stone plates, grout together with appropriate putties and clean and protect the coated surfaces, dismantle cladding parts, mark the cladding parts accordingly. with the reference criterion, dismantle the cladding parts, clean and pack the disassembled cladding parts, clean and maintain the machines and work tools. Notions of Mathematics, Physics, Technical Drawing, Measurements, Computing from the user's perspective, Environment, knowledge of Civil Construction Technology, Standardization and quality, Organization and productivity at work, Safety, Hygiene and Health at work, Conservation of machines and specific tools of the profession, in-depth knowledge of Typology and use of machines, tools and auxiliary means, Techniques for executing markings, Technology of materials, Techniques for executing coatings on floors, walls and ceilings and Techniques for executing the dismantling of cladding parts.
ANQEP	Here	QNQ/QEQ level 2 profession	Civil Construction Painter	Professional Certification Level 2	Carry out finishes, on the outside and inside of buildings, as well as on wood and metal surfaces, preparing and coating surfaces with paints and varnishes, taking into account safety and health measures at work.	Preparing and organizing the work, preparing the materials to be applied, preparing and repairing the surfaces to be coated, coating surfaces with paints and varnishes, disassembling and assembling components of construction elements, retouching the painting and varnishing carried out, making the necessary corrections and proceeding cleaning and conservation of instruments and work tools, using the appropriate products. Notions of Mathematics, Physics and Chemistry, Technical Drawing, Computing from the user's point of view, Environment, Techniques for assembling and disassembling glass, hardware, electrical appliances and lighting devices, knowledge of Construction Technology, Measurements and

						costs applied to works of painting, Standardization and quality applied to the activity, Organization and productivity at work, Safety and Health at work, Conservation of machines and tools, Sustainability applied to Civil Construction, in-depth knowledge of Typology and use of tools, machine tools and auxiliary means, Execution techniques of markings, Technology of materials, Techniques for preparing surfaces, Techniques for executing paintings, Techniques for executing varnishing.
ANQEP	Here	QNQ/QEQ level 2 profession	Plumber	Professional Certification Level 2	Carry out the assembly, conservation and repair of networks, devices and equipment for water and sewage, central heating and compressed air, in accordance with existing regulations and safety and health measures at work.	Prepare and organize the work, in accordance with the guidelines received, the project, the technical specifications and the characteristics of the tasks to be performed, perform the cold and hot water installations, execute the compressed air installations, execute the drainage installations of rainwater and wastewater, perform central heating installations, assemble accessory equipment and devices according to the provisions specified in the execution plan, repair anomalies or make changes to the networks, repair or replace sanitary equipment, faucets and accessories, replace equipment in the water systems. heating water, cleaning and preserving work instruments and tools using the appropriate products and cleaning the workplace using the appropriate products. Notions of Mathematics, Physics and Chemistry, Technical Drawing, Computing from the user's perspective, Environment, knowledge of Portuguese Language, Construction technology, Materials technology, Measurements and costs applied to the activity, Fluid mechanics, Standardization and quality applied to the activity , Organization and productivity at work, Maintenance of machines and tools specific to the profession, Specialty projects for the profession – reading and interpretation, Technology of current installations, Technology of installations with special characteristics, Safety, hygiene and health at work, applied to civil construction and the profession, In-depth knowledge of Typology and the use of tools, machine tools and auxiliary means inherent to the profession, Techniques for implementing and marking networks, Techniques for performing the opening of trenches, Techniques for executing installations of water and sanitation building networks, Techniques for performing network installations p techniques for water and sanitation, Techniques for the assembly of sanitary and other equipment, Techniques for the execution of installations of central heating networks, Techniques for the execution of installations of networks for compressed air, Typology and use of central heating equipment, Typology and use of automation and control devices for central heating networks, Inspection and maintenance techniques for central heating networks, Legislation and regulations relating to installations to be carried out.
ANQEP	Here	QNQ/QEQ level 2 profession	Earth Moving Equipment Driver / Operator	Level 2 Professional Certification	Conduct and maneuverer different types of industrial equipment for the movement of earth and other materials, including loading, transport, demolition, dismantling, spreading, pushing, levelling, dumping, compacting, excavating and drilling operations.	Prepare the work to be carried out, in accordance with instructions received, make reports of the work performed and communicate superiorly any anomalies detected, drive and maneuverer earth moving equipment, taking into account the work to be carried out, the characteristics of the soil, the conditions and the soil -climate and the risk framework, namely inclined planes, confined spaces and work at heights, carry out parking operations of the equipment in compliance with the existing rules for this purpose, carry out the basic maintenance of the equipment and its accessories, carrying out simple repairs and carrying out the respective records. Knowledge of the Portuguese language, notions of mathematics, physics, mechanics and electromechanics, safety, hygiene and health at work, environmental protection, soil typology and its geotechnical

						characteristics, characteristics and use of materials, notions of technical design, productivity, infrastructure technology structures or other specific technologies, building technology, earth moving equipment technology and other materials, driving and manoeuvring earth moving equipment, parking materials, legal circulation rules, maintenance of earth moving equipment, technical legislation specific.
ANQEP	Here	QNQ/QEQ level 2 profession	Lifting Equipment Driver	Level 2 Professional Certification	Driving and handling different types of industrial equipment for lifting, transporting and placing different materials or equipment.	Prepare the work to be carried out in accordance with instructions received, move, maneuverer and operate lifting, transport and stacking equipment, specific to the sector in which the professional works, taking into account the risk framework, namely, instability of the equipment, fall of transported materials, collisions or collisions with pedestrians, obstacles, structures and vehicles, carry out equipment parking operations, respecting the existing rules for this purpose, carry out basic maintenance of the equipment and its accessories and carry out the respective records, carry out reports of the work performed and communicate superiorly the detected anomalies. Notions of Mathematics, Physics, Mechanics and Electricity, Productivity, knowledge Portuguese language, Labour legislation and professional activity, Safety at work, Calculation and geometry, Environmental protection. In-depth knowledge of infrastructure technology or other specific technologies of the sector where the professional works, Building technology or other specific technologies of the sector where the professional works, Mechanical load handling, Technology of lifting equipment, Handling, manoeuvring and operation of cranes, Handling, manoeuvring and operating front forklifts, Handling, manoeuvring and operating multipurpose telehandlers, Handling, manoeuvring and operating lifting platforms, Parking of lifting equipment, Legal circulation rules, Maintenance of lifting equipment, Specific technical legislation .
ANQEP	Here	QNQ/QEQ level 2 profession	Earth Moving Equipment Mechanic	Level 2 Professional Certification	Carry out the diagnosis, repair and verification of mechanical, hydraulic and pneumatic systems of earth moving equipment, in accordance with the parameters and technical specifications defined by the manufacturers and with the applicable safety and environmental protection rules.	To analyse technical documentation of mechanical systems of earth moving equipment, namely, technical instructions from the manufacturer in order to carry out maintenance, diagnosis of anomalies, repairs and tests. Carry out maintenance, diagnosis of anomalies and repairs in diesel engines of earth moving equipment, using the appropriate techniques and procedures, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Carry out the diagnosis of anomalies and repairs in steering, suspension and braking systems of earth moving equipment, using the appropriate techniques and procedures, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Carry out the diagnosis of anomalies and repairs in manual and automatic, hydrostatic and final transmission systems of earth moving equipment, using the appropriate techniques and procedures, according to their technology and the parameters and technical specifications defined by the manufacturers . Carry out the diagnosis of anomalies and repairs in clutches and torque converters of earth moving equipment, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Carry out the diagnosis of anomalies and repairs in power and overfeeding systems for earth moving equipment, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Carry out the diagnosis of anomalies and repairs in hydraulic and pneumatic systems of earth moving equipment, according to their technology and the parameters and technical specifications defined by the

						manufacturers. Carry out the diagnosis of anomalies and repairs in earthmoving equipment power take-off systems, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Check the operation and state of conservation of the different components of loading and start-up systems of earth moving equipment and carry out the diagnosis of malfunctions and replacement of damaged parts, according to their technology and the defined technical parameters and specifications by the manufacturers. Carry out the diagnosis of anomalies and repairs in systems and cabin organs of earth moving equipment, in accordance with their technology and the parameters and technical specifications defined by the manufacturers. Check the state of conservation of the rolling stock – wheels and crawlers – of earth moving equipment, diagnose any anomalies and carry out its repair or replacement, in accordance with its technology and the parameters and technical specifications defined by the manufacturers. Carry out the maintenance of your work area, carrying out the conservation and cleaning of equipment, appliances and tools used. Fill in technical documentation related to the activity performed. 1. Notions of English, Technical Drawing, Mathematics, Auto mechanics, Electricity (batteries, alternators and electrical circuits), Physics and Chemistry (matter, combustion and mechanics), Electronics, Quality norms and standards, Environmental protection, Computing applied to activity, communication and interpersonal relationships. Knowledge of safety, hygiene and health applied to professional activity, Technical standards (interpretation of technical instructions from manufacturers), Metrology, Mechanical technology, Material technology, Technology of equipment used in the diagnosis of damage to earth moving equipment, Types of equipment and tools used in the repair of earthmoving equipment.
ANQEP	https://catalogo.anqep.gov.pt/qualificacoesDetalhe/7251	QNQ/QEQ level 2 profession	Facility Electrician	Professional Certification Level 2	Carry out electrical installations in buildings, as well as carry out the inspection, commissioning and maintenance of electrical, electronic and home automation devices, in accordance with health and safety and environmental standards and the regulations in force.	Preparing the work relating to the installation and/or maintenance of electrical installations of riser columns and entrances, lighting and power and motive power, Perform electrical installations of riser columns and entrances to buildings, using the procedures and equipment, Carry out electrical installations of lighting and power in buildings, using the appropriate procedures and equipment, Carry out electrical installations of motive power, using the proper procedures and equipment, Carry out the installation of a TV signal, Carry out a home automation installation using X10 technology , Perform preventive and corrective maintenance of electrical installation circuits and equipment of riser columns and entrances to buildings, Perform preventive and corrective maintenance of lighting and power electrical installation circuits and equipment in buildings, Perform preventive and corrective maintenance of facility circuits and equipment electric motors, Register information of a technical nature, related to its activity. Knowledge of Mathematics, Technical Drawing, Welding, English Language (use of specific technical vocabulary). Knowledge of Telecommunications, Mechanics, Electricity, Electronics, Home Automation, Safety, hygiene, health and environmental protection applied to the professional activity, Legislation applied to the professional activity, Typology and characterization of materials relating to the execution and maintenance of electrical installations of riser columns and inputs, Typology and characterization of materials relating to the execution and maintenance of electrical installations for lighting and power, Typology and characterization of materials relating to the execution and maintenance of electrical power installations, Typology and

						characterization of materials relating to the execution and installation of infrastructures associated with TV antennas, Typology and characterization of tools applied to the execution and maintenance of electrical installations, Typology and operation of electrical installation equipment for upstream columns and inputs, Typology and operation of electrical installation equipment for lighting, Typology and operation of electrical installation equipment for motive power. In-depth knowledge of installation and testing techniques for electrical installations of risers and entrances, Installation techniques and testing of electrical installations for lighting and power, Installation techniques and testing of electrical installations of motive force, Preventive and corrective maintenance techniques of electrical installations of risers and entrances, Preventive and corrective maintenance techniques for electrical installations for lighting and power, Preventive and corrective maintenance techniques for electrical installations of motive power.
ANQEP	https://catalogo.anqep.gov.pt/qualificacoesDetalhe/179	QNQ/QEQ level 4 profession	Measurement and Budget Technician	Level 4 Professional Certification	Determine the quantities and costs of materials, labour, equipment and services required to carry out a work.	Perform measurements with a view to the execution of a work, Make budgets establishing the quantities of materials, labour, equipment and services and the costs necessary for the execution of the work, Monitor the preparation and execution of the work, Participate in the preparation of proposals for tenders, collecting, from the different services of the company, the documentation requested in the tender programs, proceeding with its organization and representing the company in the public act of opening of proposals. Knowledge of technical English, Mathematics, Notions of physics, Technical design of Civil Construction, Notions of topography, Project organization, Preparation and planning of works, Materials, equipment and construction processes, Measurements, Budgeting, Informatics applied to measurements and budgeting, Planning and organization of shipyards, Notions of organization of companies, Safety and hygiene at work, Standards and legislation applicable to the sector, Communication and interpersonal relations
ANQEP	Here	QNQ/QEQ level 4 profession	Civil Construction Design Technician	Level 4 Professional Certification	Execute drawings related to Civil Construction projects.	Read and interpret projects, drawings, sketches and other technical information relating to Civil Construction, Make drawings for the realization of Civil Construction work projects, manually or with specific IT support, Monitor the preparation and execution of works, Elaborate and/or update the technical process of existing buildings. Knowledge of technical English, Mathematics, Notions of Physics, Geometric Design, Descriptive Geometry, Technical design of civil construction, Notions of computing in the user's perspective, Computer aided design, Notions of layout, Notions of topography, Organization of civil construction projects , Notions of technical archive, Notions of preparation and planning of works, Notions of materials, equipment and construction processes, Notions of strength of materials, Notions of measurements and budgets, Notions of safety, hygiene and health at work, Communication and interpersonal relationships, Standards and legislation applicable to the sector.

ANQEP	Here	QNQ/QEQ level 4 profession	Construction Technician / Construction Conductor	Level 4 Professional Certification	The Work Technician/Conductor of the Work is the professional who, in the field of techniques and procedures, as well as safety and hygiene standards, carries out the analysis of the project, the specifications, the work plan for a work, and collaborates in determining the sequence of the different construction phases, as well as in their budgeting. Guides the execution of work with inherent cost control.	Cooperate with those responsible for the work in the planning and preparation of the work, Collaborate in the implementation of the shipyard and the work, Coordinate and supervise the construction of the work, according to the established work plan, Coordinate and supervise the work of the team(s)) of production allocated to its area(s) of intervention, in order to ensure compliance with the production plan. Notions of Mathematics - numerical calculation, geometry, Geology - constitution and dynamics of soils, Physics - strength, dynamics and statics, Technical drawing of civil construction, Topography, Measurements and budgets. Knowledge of Work Planning and Organization, Technology and Construction Processes, Construction Site Planning and Organization, Special Installations - Electricity, Gas, Water and Sewage, Construction Materials, Reinforced and Prestressed Concrete, Strength of Materials, Stock Management, Standards and legislation applicable to the sector, Quality Control, Management and coordination of teams, Safety and Health at Work, Communication and presentation techniques, Project organization.
ANQEP	Here	QNQ/QEQ level 4 profession	Occupational Safety Technician	Professional Certification of Level 4	Develop prevention and protection activities against professional risks, autonomously or as part of a team, applying specific instruments, methodologies and techniques, with a view to internalizing a true safety culture in the company and safeguarding the safety and health of employees. workers, in accordance with the legislation and regulations in force.	Collaborate in the planning and implementation of the company's prevention management system, Collaborate and carry out risk assessment, preparing the respective reports, Develop the professional risk prevention plan, as well as detailed prevention and protection plans required by specific legislation , Collaborate in the design of the workstation, places, methods and organization of work, as well as in the choice and maintenance of work equipment, Operationalize the implementation of prevention measures, promoting their efficiency, Participate in the preparation of the internal emergency plan , including specific plans for firefighting, evacuation of facilities and first aid, Collaborate in the selection of the most appropriate personal protective equipment, verify their supply, validity and conservation, as well as the installation and maintenance of signage of security, Collaborate in the integration of prevention in the internal and external communication system. in the company, Collaborate in the training processes of workers and other stakeholders in the workplace, to promote safety at work, Support the information and consultation activities of workers' representatives for safety at work or, in their absence, workers themselves, Identify the causes of accidents at work or the occurrence of occupational diseases, Collect and organize statistical elements related to safety and health at work, Collaborate in the process of using external resources in prevention and protection activities. Notions English or French language (interpretation of technical documentation), Computing from the user's perspective, Chemistry, electricity, mechanics, acoustics and thermodynamics, Industrial ventilation, Toxicology, Technical design, Interpersonal relations and group dynamics. Knowledge of Statistics and Probabilities, Information and Communication, Pedagogy, Psychosociology of Work, Work Organization, Ergonomics, Emergency Procedures, Legislation, Regulations and Rules on Occupational Health and Safety, Occupational Safety, Occupational Hygiene, Professional Risk Assessment , Prevention Management, Prevention and protection measures

ANQEP	Here	QNQ/QEQ level 4 profession	Technician Installer of Solar Photovoltaic Systems	Level 4 Professional Certification	Program, organize and carry out the installation, maintenance and repair of photovoltaic solar systems, in accordance with applicable standards, safety regulations and rules of good practice.	Scheduling and organizing the work to be carried out, Carrying out the installation of photovoltaic solar systems, ensuring compliance with applicable standards, safety regulations and rules of good practice, Carrying out the repair of photovoltaic solar systems, ensuring compliance with the rules, safety regulations and applicable good practice rules, Ensure the maintenance of photovoltaic solar systems, in accordance with the defined maintenance plans and carry out tests after intervention, in order to ensure their proper functioning, Provide technical assistance to customers, advising on the different options and clarifying doubts about the operation of photovoltaic solar systems, Prepare reports and fill in technical documentation related to the activity carried out. Knowledge of Solar Energy, Mathematics, Technical Drawing, Chemistry, Physics, Heat Transmission, Pneumatics and Hydraulics, Electricity, Automatism, Thermodynamics, Health and safety at work, Environmental protection, Quality (standardization and certification), Informatics from the user's perspective. Knowledge of organization, planning and scheduling of work, Installation design of photovoltaic solar systems, Measuring equipment (features and applications), Testing and monitoring processes of solar photovoltaic systems, Operation and regulation of components of solar photovoltaic systems, Materials technology (Mechanical characteristics, metallic alloys, plastic materials, welding technology), Technology of photovoltaic solar systems, Communication and interpersonal relationships. In-depth knowledge of small-scale solar photovoltaic systems installation project, Small-scale solar photovoltaic systems installation, Repair and maintenance of photovoltaic solar systems, Standards and procedures applicable to the installation, maintenance and repair of photovoltaic solar systems.
ANQEP	Here	QNQ/QEQ level 4 profession	Environmental Management Technician	Level 4 Professional Certification	Carry out operations relating to the management of the environment and sustainable development, respecting the standards and regulations of quality, occupational health and safety, and environmental protection.	To inventory and characterize biophysical and socioeconomic environmental variables. Carry out the survey, organization and processing of information in environmental studies. Propose preventive measures and sustainable solutions to solve environmental problems. Propose and support the development of measures to enhance the environment and the territory. Participate in monitoring and control programs for the general quality of the environment: water; ground; waste; energy, air and noise. Promote the use of renewable energy and sustainable mobility and present measures for the efficient use of energy with an emphasis on renewable production technologies. Support the design, organization and operation of information, awareness and environmental education campaigns. Participate in nature conservation projects, promoting biodiversity, forests, fauna, flora and habitats. Support the implementation of environmental management systems. Design and plan tourist activities to be developed in protected areas. Design proposals for the construction and enhancement of a parcel of territory, integrating the concepts of territorial planning instruments. Notions of History of the relationship between Man and Nature Knowledge of the Structure and Functioning of Ecosystems, Ecological Efficiency, National Natural Environments, Surface and/or Underground Water Availability, Norms for the Prevention, Protection and Defence of the Forest against Fire, Forest Sustainability Indicators, Forest Distribution Parameters, Climate, relief, exposure, altitude,

						Environmental assessment, Environmental impact, Climate factors and their influence on agriculture, Renewable production, Waste disposal, recovery and treatment processes, Waste types: urban, hospital, industrial, hazardous solids, Types of disposal and collection, Classification of waste according to the European waste list (LER), Rules for handling hazardous waste, Composition of the atmosphere and characteristics of the various layers, Animals at risk of extinction or threatened, Appropriate management of natural spaces and faunal populations, Energy resources, Environmental impacts associated with energy fossil fuels, Sustainable tourism, Organs and treatment systems of a water treatment plant (ETA) and a waste water treatment plant (WWTP) In-depth knowledge of Environmental Quality, Pollution and Receptor Environment, Sustainable Development, Ecology, Biophysical Variables and Land Use, Water Resources Management, Water, Soil, Air Pollution Factors, Pollution Indicators, Floristic Inventories, Environmental Quality, Energy and climate change, Sources of greenhouse gases, Nature conservation policies, Air pollution and sources of pollution, Good environmental practices, Spatial planning and cartography, Biophysics of a territory, Biophysical variables, Green spaces in humanized territory, Legal framework for spatial planning instruments, Global Positioning System (GPS), Terrestrial reference systems, Nature conservation network, Water quality control, Legislative framework applicable to water quality, Elements that make up a soil, Characteristics of the main types of soil, Soil, Physical and chemical properties of d different types of soils, Causes and factors of soil degradation and pollution, Good soil management and conservation practices, Factors influencing its productivity and soil conservation, Sustainable agricultural production, Parameters and quantities used in acoustics and noise measurement, Sound pressure levels, Applicable legislation and standardization of noise, Environmental management and nature conservation, Environmental education and animation, Atmospheric pollution sources, Air quality, Environmental management and environmental quality, Legislation and programs for the implementation of environmental management systems , General rules on the environment, safety and health at work as a means of preventing accidents, Basic sanitation.
ANQEP	Here	QNQ/QEQ level 4 profession	Management Support Technician	Level 4 Professional Certification	Ensure the application of technical - administrative procedures necessary for the preparation, application and updating of general management instruments in the company or public service.	Collect, select and prepare accounting and financial information, for further analysis and compliance with management obligations.1.1. Select forecast information from and for the functional departments in order to allow the preparation of activity plans, operating and financial budgets, Collaborate in the identification of supply needs and the choice of equipment and materials necessary for the development of the company's activity or public service, Collaborate in the development of the marketing policy, Collaborate in the organization and control of the procedures defined for the application and maintenance of the Quality Management, Execute and/or ensure the execution of administrative tasks in support of human resources management. Knowledge of Commercial Law and International Trade, Industrial Licensing, Procedures for the preparation of financial projects, Management of interpersonal relationships. Knowledge of Archive Organization and Maintenance, Portuguese Language, Foreign Language, Work Organization and Time Management, Information Technology from a User's Point of View - Computer Management Applications, Labour Law, Tax Law, Human Resources Administrative Management, General Accounting, Analytical Accounting and Budget Control,

						Commercial and Financial Calculation, Stock Management and Supply, Marketing and Advertising, Safety, Hygiene and Health at Work, Quality Management System, Materials and Equipment for the Administrative Area. In-depth knowledge of organizational structure and functioning of the company/public service.
ANQEP	Here	QNQ/QEQ level 4 profession	Renewable Energy Thermal Systems Installer Technician	Level 4 Professional Certification	Plan, organize and implement thermal systems based on renewable energy, within the scope of installation, maintenance and repair for energy purposes, taking into account the application of technical rules and standards, as well as safety and health at work and environmental protection.	To plan and organize the activities to be carried out in the context of the installation, maintenance and repair of thermal systems based on renewable energies, in accordance with the technical standards and specific regulations in force, on environmental protection and health and safety at work. Carry out installations of thermal systems based on renewable energies, complying with technical standards and regulations, as well as good practice rules. Execute preventive and corrective maintenance plans on thermal systems based on renewable energy. Carry out repairs to thermal systems based on renewable energies. Provide technical assistance to customers, advising on the different options and clarifying the operation of thermal systems based on renewable energies. Knowledge of Solar Energy, Bioenergy, Geothermics, Thermodynamics, Fluid Mechanics, Pneumatics and Hydraulics, Environmental Protection, Electricity, Environment, Safety and Health at Work, Welding, Technical Drawing, Quality - Standardization and Certification, Mathematics, Chemistry, Physics, Automatism , Metrology, Materials science. Knowledge of organization, planning and work programming, Technical drawings with connecting elements and single-line diagrams - interpretation, Technical catalogues - interpretation, Material mechanics - mechanical characteristics, metal alloys, plastic materials and welding technology, Metal-mechanical constructions, Electrical installations - protection, command and control devices, Electric motor installations - operation, verification and testing, Operating characteristics of thermal systems based on renewable energies, Operating principle of components of thermal systems based on renewable energies, Modes of operation and materials in the installation of thermal systems based on renewable energies, Technologies for the operation and regulation of components of thermal systems based on renewable energies, Surface geotherm and types of application, Measuring equipment - characteristics and applications, Testing and monitoring processes systems implementation, Anomalies in system components - interpretation, Communication and interpersonal relationships, Legislation and regulations applicable to thermal systems based on renewable energies and professional activity. In-depth knowledge of design of thermal systems based on renewable energies - interpretation, Installation of solar thermal systems, Installation of bioenergy systems, Installation of geothermal heat pump systems, Maintenance and repair of solar thermal systems, Maintenance and repair of thermal systems bioenergy, Maintenance of geothermal heat pumps, Connection techniques and tools and welding technologies, Standards and procedures applicable to the installation, maintenance and repair of thermal systems based on renewable energies.

ANQEP	Here	QNQ/QEQ level 4 profession	Electronics, Automation and Command Technician	Professional Certification of Level 4	Carry out the installation, maintenance and repair of electrical/electronic, electromechanical and automation and control equipment, ensuring the optimization of its operation, respecting the safety standards of people and equipment.	Preparing and organizing the work, in order to carry out the installation, maintenance and/or repair of electronic equipment and systems, automation and control systems and telecommunications installations in buildings, Carry out the installation of equipment and electronic systems and systems of automation and control, using the appropriate technologies, techniques and instruments, in order to ensure its correct functioning, respecting the safety standards of people and equipment, Carry out preventive and corrective maintenance on electronic, automation and control equipment and systems, using technologies , appropriate techniques and instruments, in order to optimize its operation, ensuring the quality of the service provided, respecting the safety standards of people and equipment, Carry out the installation of telecommunications equipment and systems in buildings, using appropriate technologies, techniques and instruments , according to technical instructions, specific regulation and manufacturer's manuals, respecting the safety standards of people and equipment, Carry out preventive and corrective maintenance of telecommunications equipment and systems in buildings, using the appropriate technologies, techniques and instruments, in order to ensure their correct functioning, respecting the standards of security of people and equipment, Provide technical assistance to customers, clarifying possible doubts about the operation of electronic systems and equipment intervened, Prepare reports and fill in technical documentation related to the activity performed. Notions of technical English, Electromechanics, Budgeting, Computing from the user's perspective, Computer numerical control, Process control. Knowledge of Mathematics, Physics and Chemistry, Schematic Drawing, Low Voltage Electrical Installations, Electrical Machines, Measurement and Instrumentation Techniques, Welding Techniques, Machine Tools, Maintenance Techniques, Automation Installation with Automata, Installations with Home Automation Circuits, Hydraulics and Pneumatics, Automation and Robotics, Microcontrollers, Optoelectronics, Home Automation, Safety, hygiene, health and environmental protection, applied to professional activity, Legislation applied to professional activity, Quality norms and standards, Testing and measuring devices - characteristics and applications , Calibration of electronic equipment, Technology of electrical and electronic materials, Planning and organization of work, Typology and operation of electronic, automation and control equipment and systems, Typology and characterization of materials and tools applied to the installation, repair and maintenance of equipment and electronics systems, automation and command, Typology and operation of telecommunications equipment and systems in buildings, Typology and characterization of materials and tools applied to the installation and maintenance of telecommunications equipment and systems in buildings. In-depth knowledge of Electricity, Analog Electronics, Digital Electronics, Power Electronics, Control Technology, Standards and procedures applicable to the installation, maintenance and repair of electronic automation and control equipment and systems, Technology of equipment and tools used in installation, maintenance and repair of electronics, automation and control systems, Installation and testing techniques for electronic, automation and control equipment and systems, Repair techniques for industrial electronic automation and control equipment and systems, Preventive and corrective maintenance techniques for equipment and systems of electronics, automation and control, Principles of operation and regulation of electronic and automation and control

						equipment and systems, Repair techniques for electronics and automation and control equipment and systems, Typology and operation of elementary electronic home automation equipment and systems , Type ology and characterization of materials and tools applied to the installation and maintenance of elementary electronic home automation equipment and systems, Operating principles and regulation of electrical/electronic equipment and telecommunications installations in buildings, Technologies of equipment and tools used in the installation, maintenance and repair of electrical/electronic equipment and telecommunications installations in buildings, Installation techniques and testing of telecommunications equipment and systems in buildings, Preventive and corrective maintenance techniques for telecommunications equipment and systems in buildings.
ANQEP	Here	QNQ/QEQ level 4 profession	Electrical Installation Technician	Professional Certification of Level 4	Organize, guide and execute, the installation, maintenance and repair of electrical installations for the use of low and medium voltage, telecommunications installations in buildings, command, signalling and protection, industrial and electricity distribution, in accordance with the standards of hygiene, safety and environmental protection and the specific regulations in force.	Preparing and organizing the work in order to carry out the installation, maintenance and/or repair of electrical installations for the use of low and medium voltage, command, signalling and protection, industrial, electrical energy distribution and telecommunications installations in buildings, Guide and/or carry out the installation of electrical/electronic equipment and electrical installations for the use of low and medium voltage, command, signalling and protection, industrial and electricity distribution, in accordance with the technical instructions and installation plan, Guide and/or perform preventive and corrective maintenance on electrical/electronic equipment and electrical installations for the use of low and medium voltage, command, signalling and protection, industrial and electrical energy distribution, using appropriate technologies, techniques and instruments, in order to optimize its operation, ensuring the quality of the service provided, respecting the safety standards of foot. people and equipment, Carry out the installation of telecommunications equipment and systems in buildings, using appropriate technologies, techniques and instruments, in accordance with the technical instructions, specific regulations and manufacturer manuals, respecting the safety standards of people and equipment, Carry out maintenance preventive and corrective measures of telecommunications equipment and systems in buildings, using appropriate technologies, techniques and instruments, in order to ensure their correct functioning, respecting the safety standards of people and equipment, Make budgets for the execution, maintenance and/or repair of electrical installations, making, in particular, the calculations of materials, equipment, labour and working times, Provide technical assistance to customers clarifying possible doubts about the operation of electrical/electronic equipment and intermentioned electrical installations, Prepare reports and fill in technical documentation on the activity performed. Notions of technical English, electromechanics, budgeting. Knowledge of Mathematics, Physics and Chemistry, Schematic Design, Analog and Digital Electronics, Lighting, Optoelectronics, Optical Fibres, Electrical Machines, Automation and Control, Maintenance Techniques, Telecommunications Infrastructures in Buildings (ITED), Production, Transport, Transformation and Distribution of electrical energy, Planning and organization of work, Measurement systems and techniques, Team management, Quality norms and standards, Testing and measuring devices - characteristics and applications, Technology of electrical and electronic materials, Safety, hygiene, health and environmental protection applied to professional activity, Legislation applied to professional activity. Projects of electrical installations in buildings, industrial, power supply and distribution of electrical energy, Typology and operation of electrical installations and electrical and

						electronic systems, Typology and characterization of materials and tools applied to the installation, maintenance and repair of electrical installations and electrical and electronic systems. In-depth knowledge of Electricity, Technology of materials used in electrical installations, Technology of equipment and tools used in electrical installations, Standards, regulations and procedures applicable in the installation, maintenance and repair of electrical/electronic equipment and building and industrial electrical installations, Equipment technology and tools used in the installation, maintenance and repair of electrical/electronic equipment and building and industrial electrical installations, Installation and testing techniques for electrical/electronic equipment and building and industrial electrical installations, Preventive and corrective maintenance techniques for electrical/electronic equipment and building and industrial electrical installations, Principles of operation and regulation of electrical/electronic equipment and building and industrial electrical installations, Principles of functioning and regulation of electrical/electronic equipment and installations telecommunications in buildings, Technologies of equipment and tools used in the installation, maintenance and repair of electrical/electronic equipment and telecommunications installations in buildings, Installation techniques and testing of telecommunications equipment and systems in buildings, Preventive and corrective maintenance techniques of telecommunications equipment and systems in buildings.
ANQEP	Here	QNQ/QEQ level 4 profession	Hotel Facilities Maintenance Technician	Level 4 Professional Certification	Program and carry out small and medium maintenance interventions, which do not require specialized resources, in order to minimize the consumption of resources necessary for the operation of hotel buildings, taking into account the standards of environmental protection, safety and health at work.	Scheduling and organizing the work related to carrying out maintenance interventions. Carry out preventive and corrective maintenance to the construction elements and technical installations that make up the buildings, namely, in water and sewage networks, in wooden, metallic and masonry structures, in low voltage electrical installations and in heating and cooling installations and ventilation. Detect faults in water and sewage networks, low voltage electrical installations and heating, cooling and ventilation installations. Prepare reports and fill in technical documentation related to the activity performed. Manage the supplies and storage of materials and accessories necessary for the maintenance operations of hotel buildings. Notions of Portuguese Language and Culture, English Language (use of specific technical vocabulary in customer relations), Mathematics, Electrotechnics, Schematic drawing, Symbology. Knowledge of Materials, elements and construction processes, Reading and project interpretation, Materials and techniques for the execution of electrical installations, Materials and accessories for supply and drainage networks of waste and rainwater, Equipment and construction processes for gas distribution networks , Components of ventilation installations, Components of heating and water treatment installations, Equipment and processes in cooling installations. Elements of HVAC systems, Planning and organization of work, Safety in construction work, Stock management. In-depth knowledge of Methods and techniques for the maintenance of buildings, Systems and safety plans for water, buildings and technical installations.

ANQEP	Here	QNQ/QEQ level 5 profession	Technician/a Specialist in Construction Conduction	Level 5 Professional Certification	Plan and coordinate works on site in order to ensure the quality of materials, production processes and organization.	Planning and scheduling the execution of works in shipyards, Elaborating specifications and work plans, Coordinating the quality control of materials and production processes, Coordinating and supervising the execution of Civil Construction and Public Works in order to ensure compliance of the project, Coordinate and supervise the work of the production team(s) allocated to their area(s) of intervention, in order to ensure compliance with the production plan, Organize and implement Health and Safety at Work plans. Knowledge of Statistics, Geology, Topography, Law (administrative, labour), Urban Planning, Sizing of structures and foundations, Statics, Hydraulics, Legislation applicable to the sector (contracts, licensing of works, safety, hygiene and health at work, environmental protection and of heritage), Interpretation of Civil Construction and Public Works projects and drawings, Technical Drawing of Civil Construction, Techniques and existing construction processes (rough, finishes, special, non-current installations), Civil Construction Materials and Public Works (their use, strength, advantages, disadvantages, application conditions), Materials and techniques for maintenance and rehabilitation of built heritage, Analysis of structural structures and systems, Computer aided design tools, project management and spreadsheets, Stock management, Communication and inter-personal relationships, leadership techniques and team management. In-depth knowledge of techniques for planning and organizing the site, techniques for planning work, calculation of income from labour, materials and equipment, measurements and budgets, techniques for controlling the execution of works, techniques for controlling the quality of materials and the production process, Safety, hygiene and health at work in civil construction and public works.
ANQEP	Here	QNQ/QEQ level 5 profession	Technician Specialist in Energy Rehabilitation and Infrastructure Conservation - Buildings	Professional Certification at level 5	Dimensioning and implementing energy rehabilitation solutions, scheduling and coordinating the execution of small and medium maintenance interventions, in order to minimize the consumption of resources necessary for the functioning of the infrastructures.	Size and install energy rehabilitation and infrastructure conservation solutions, Manage the maintenance of infrastructure, Schedule and organize the work related to carrying out the interventions, Draw up terms of reference and work plans, Coordinate and supervise the work of the) production team(s) assigned to their area(s) of intervention, Carry out preventive and corrective maintenance to the construction elements and technical installations that make up the buildings, Elaborate and implement safety plans , Hygiene and Health at Work, Prepare reports and fill in technical documentation related to the activity performed. Knowledge of oral and written expression techniques, English in a socio-professional context, General mechanics, Physical activity of military application, Introduction to organizational management, Military organization, Labour law, Military law, Geology, Topography and cartography, Construction materials, Processes construction, Statics, Sizing of structures and foundations, Water distribution and drainage installations, Pavements, Aerodromes, Metal structures, Construction design, Infrastructure survey techniques, Building pathologies, Workshop construction techniques, Materials and maintenance techniques and rehabilitation of built heritage, Construction legislation, Ventilation installations, Heating installations, Cooling installations, Indoor air in buildings, Energy efficiency, Special mechanical installations, Computer aided design tools, project management and spreadsheets. In-depth knowledge of Safety, Hygiene and Health at Work, Planning and programming of rehabilitation interventions, Measurements and budgets, Specifications, Maintenance of infrastructure, Use of natural resources, Energy rehabilitation and conservation of infrastructure - specifications, design and planning, Rehabilitation energy and infrastructure conservation – construction activities,

						Energy rehabilitation and infrastructure conservation – installation and presentation.

Slovenia National Occupational Profiles								
ISCO-08	EN TERM	SLO TERM	EQF3-5 (SQF 3-6)	SQF	EQF	DIG. SKILLS	EE SKILLS	CE SKILLS
1323	Construction managers	Menedžerji/menedžerke za proizvodnjo v gradbeništvu	Gradbeni delovodja/gradbena delovodkinja, Inženir gradbeništva/inženirka gradbeništva, https://www.nok.si/kvalifikacije/gradbeni-tehnik-gradbena-tehnica-0	5+all higers SQFs	4++all higers SQFs	*	*	*
2142	Civil engineers	Inženirji/inženirke gradbeništva	Inženir gradbeništva/inženirka gradbeništva many other qualifications on higer level and higer	6	5	*	*	*
2161	Building architects	Arhitekti/arhitektke	ONLY O LEVEL EQF 6 and higher, SHOULD NOT BE IN THE FILE SENT TO PPs	7	6			
3112	Civil engineering technicians	Tehniki/tehnice za gradbeništvo, geodezijo ipd.	https://www.nok.si/kvalifikacije/gradbeni-tehnik-gradbena-tehnica-0	5	4	*	*	*
3123	Construction supervisors	Gradbeni nadzorniki/gradbene nadzornice	Gradbeni delovodja/gradbena delovodkinja, Gradbeni tehnik/gradbena tehnica	5	4	*	*	*
7112	Bricklayers and related workers	Zidarji/zidarke ipd.	Suhozidar/suhozidarka, Zidar/zidarka, Zidarski mojster/zidarska mojstrica	3	3			*
7113	Stonemasons, stone cutters, splitters and carvers	Kamnoseki/kamnosekinje	Montažer kamna/montažerka kamna, Strojni obdelovalec kamna/strojna obdelovalka kamna, Kamnosek/kamnosekinja	4	4			*
7114	Concrete placers, concrete finishers and related workers	Betonerji/betonerke ipd.	Pomočnik/pomočnica pri tehnologiji gradnje	3	3			*
7115	Carpenters and joiners	Tesarji/tesarke ipd.	Tesar/tesarka, Tesarski mojster/tesarska mojstrica	5	4			*
7119	Building frame and related trades workers not elsewhere classified	Gradbinci/gradbinke ipd., d. n.	WE DO NOZ HAVE ANY SUCH QUALIFICATION IN SLOVENIA					

7121	Roofers	Krovci/krovke	Skodlar/skodlarka, Klepar-krovec/kleparka-krovka, Mojster klepar-krovec/mojstrica kleparka-krovka	4	4			
7122	Floor layers and tile setters	Polagalci/polagalke podov ipd.	Polagalec/polagalka talnih oblog	4	4		*	*
7123	Plasterers	Izvajalci/izvajalke suhomontažne gradnje, štukaterji/štukaterke ipd.	Izvajalec suhomontažne gradnje/izvajalka suhomontažne gradnje	4	4		*	*
7124	Insulation workers	Izolaterji/izolaterke	WE DO NOZ HAVE ANY SUCH QUALIFICATION IN SLOVENIA					
7125	Glaziers	Zastekljevalci/zastekljevalke	Monter/monterka stavbnega pohištva	3	3		*	*
7126	Plumbers and pipe fitters	Monterji/monterke in serviserji/serviserke vodovodnih, plinskih inštalacij in naprav ipd.	not appropriate for BLUEPRINT AND construction sector qualifications we do a researh for					
7127	Air conditioning and refrigeration mechanics	Monterji in serviserji/monterke in serviserke klimatskih in hladilnih naprav	not appropriate for BLUEPRINT AND construction sector qualifications we do a research for					
7129	Building finishers and related trades workers not elsewhere classified	Gradbinci/gradbinke zaključnih del ipd., d. n.	Pomočnik/pomočnica pri tehnologiji gradnje	3	3			*
7131	Painters and related workers	Pleskarji/pleskarke ipd.	Slikopleskar–črkoslikar/slikopleskarka–črkoslikarka	4	4			*
7312	Sheet-metal workers	Kleparji/kleparke	Klepar-krovec/kleparka-krovka	4	4		*	*
7314	Potters and related workers	Keramiki/keramičarke ipd.	Izvajalec/izvajalka keramičarskih del, Pečar–polagalec keramičnih oblog/pečarka–polagalka keramičnih oblog	4	4			*
9312	Civil engineering labourers	Delavci/delavke za preprosta dela pri nizkih gradnjah	Izvajalec/izvajalka del nizkih gradenj	3	3			*

9313	Building construction labourers	Delavci/delavke za preprosta dela pri visokih gradnjah	Izvajalec/izvajalka del visokih gradenj	3	3	-	-	*

Spain National Occupational Profiles						
GENERAL CODING	AVAILABLE HERE	PRIORITIZATION	TITLE	EDUCATIONAL	DESCRIPTION/TASKS	CORE SKILLS & KNOWLEDGE
ESCO 7112.1		Craft and related trade workers	Bricklayer	EQF 4 /NQF 2	Professional who efficiently and safely carries out masonry work (walls, enclosures and partitions) in brick, block or stone, exposed or for cladding, and auxiliary masonry operations, for example, building skirts for roofs, making pastes, mortars, adhesives and concretes, and carrying out assistance work for other trades (placing pre-frames for carpentry, opening up chases and receiving pipes). He also occasionally carries out other activities corresponding to other occupations or specialities, such as: horizontal drainage networks, tile roofing and simple plastering and trimming.	Lay bricks Check that the walls are vertically level Cutting bricks Examine building materials Install building profiles Interpreting 2D plans Interpreting 3D plans Marking lines with chalk dusting boots Mixing building materials Protect work areas Finishing mortar joints Transporting construction materials Using safety equipment on construction sites Use measuring instruments **Operate power saws for masonry work** **Maintaining the cleanliness of the work area** **Mixing concrete** **Reinforcing concrete** **Operating hand tools** **Using power tools** Follow health and safety procedures in construction Follow safety procedures when working at heights Segregate waste Work ergonomically
7122.3	https://www.boe.es/diario_boe/txt.php?id=BO	Craft and related trade workers	resilient floor layer	EQF 3-4 /NQF 2	Professional who installs, efficiently and safely, light laminate flooring (linoleum, PVC, vinyl asbestos and rubber) and cork, after preparation of the substrate and subsequent fixing with suitable adhesives	Applying floor adhesive Laying resilient tiles Cutting flexible floor coverings Examining building materials Install laminate flooring Interpret 2D plans Mixing building materials Preparing floors for insulation Transport building materials Use measuring instruments Operate hand tools Using power tools **Handling chemicals safely** Respecting health and safety procedures in construction Work ergonomically **Use appropriate protective equipment**

ESCO 7113.1		Craft and related trade workers	Stonemason	EQF 3-4 /NQF 2	Professional specialist in the efficient and safe laying of paving and other urbanisation elements such as kerbstones, discontinuous paving, cobblestones and tiling.	Examine building materials **Prevent the surface from drying out earlier than planned** Inspecting the stone surface Interpreting 2D plans Interpreting 3D drawings Operate hand tools for grinding Protect working areas Regulate cutting speed Transport construction materials Use measuring instruments **Lay paving stones** **Mixing building materials** **Finishing mortar joints** **Screeding concrete** **Cutting tiles** **Filling tile joints** **Lifting heavy objects** **Using power tools** **Mixing concrete** **Laying tiles** **Preparing substrates for paving** **Laying or applying screed and tile installation compounds** **Types of tiles** Building regulations Maintain the cleanliness of the work area Respecting health and safety procedures in construction Work ergonomically Use safety equipment on construction sites **Segregate waste** **Work as a team in construction crews** **Implement work instructions**
3123.1.20	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EOCO0212.pdf	Technicians and associate professionals	Road construction supervisor	EQF 5 /NQF 3	Professional who, in coordination with the site manager and under his command, is responsible for supervising the execution of linear works for the construction of roads and railways, controlling that they are carried out on time and with the required quality, in accordance with the project specifications.	Coordinating construction activities Evaluate the work of employees Examine construction materials Inspecting construction sites Ensuring compliance with health and safety regulations Ensuring compliance with construction deadlines Ensure availability of equipment Manage orders for construction materials Keep records of work progress Plan resource allocation Plan work shifts Perform quality control analysis Monitor stock levels Monitor personnel **Provide technical expertise** **Supervise each stage of site execution** **Interpret 2D drawings** **Interpret 3D drawings** Communicate with bosses and managers React appropriately in emergency situations Follow construction health and safety procedures Work as a team member on construction crews Use safety equipment on construction sites **Follow safety procedures when working at heights** Types of asphalt Road traffic laws **Building regulations** **Load-bearing capacity of machines** **Cost management** **Bituminous mixes** **Construction product standards**

ESCO 3123.1	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EOCO011	Technicians and associate professionals	Construction general supervisor	EQF 5 /NQF 3	Professional who, in a building site, in coordination with the site manager and under his/her command, is responsible for the execution, control and organisation of the teams and works in progress, supervising the works with respect to deadlines, quality and application of the necessary preventive measures.	Checking the compatibility of materials Coordinating construction activities Evaluate the work of employees Examine construction materials Ensuring compliance with health, safety and hygiene standards Ensuring compliance with construction deadlines Manage orders for construction materials Keeping records of work progress Planning work shifts Supervise construction sites Supervise personnel **Monitor stock levels** **Provide technical expertise** **Supervise each phase of construction site execution** **Building regulations** Communicate with construction crews Communicate with bosses and managers React appropriately in emergency situations Follow construction health and safety procedures Work as a team member on construction crews Use safety equipment on construction sites Building materials industry **Energy efficiency of buildings** **Cost management** **Building product standards**
ESCO 8114.5	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EOCE0211.pdf	Plant and machine operators and assemblers	Precast moulder	EQF 3-4 /NQF 2	Professional responsible for the safe organisation and execution of the assembly of different formwork systems.	Prevent the part from sticking to the mould Ensure uniformity of the moulds Remove finished parts Emptying containers Check compatibility of materials Examine materials of construction Interpret 2D drawings Interpret 3D drawings Maintain equipment Use measuring instruments **Install formwork** **Remove formwork** **Operate concrete pump hose** **Pour concrete** **Handle chemicals safely** Work as a team member on construction crews Communicate with managers and supervisors Use safety equipment on construction sites Work ergonomically Follow health and safety procedures on construction sites Use personal protective equipment **Follow safety procedures when working at heights** **React appropriately in emergency situations** **Implement work instructions** Construction materials industry **Construction product standards** **Building regulations** **Types of formwork** **First aid**
ESCO 7214.3	https://sede.sepe.gob.es/es/	Craft and related trade	Structural ironworker	EQF 3-4 /NQF 2	Professional who prepares and installs the reinforcement necessary for the efficient and safe construction of reinforced concrete elements (passive reinforcement).	Align components Apply arc welding techniques Apply spot welding techniques Perform MAG welding Perform MIG welding Install steel reinforcement for concrete Observe faults in metal parts Examine construction materials Interpret 2D drawings Interpret 3D drawings Operate portable rebar tying equipment

						Use electric metal saws Fasten reinforcing steel reinforcing bars for reinforcement **Detect signs of corrosion** Work with metal Welding metals Using metalworking tools Ionizing components Cutting metal parts Operating welding equipment Assemble metal parts Lift heavy objects **Securing loads** **Preparing parts for splicing** **Transporting construction materials** **Sorting waste** Follow health and safety procedures in construction Follow safety procedures when working at heights React appropriately in emergency situations **Work as a team in construction crews** Implement work instructions Work ergonomically Use safety equipment on construction sites Metal joining technologies Types of saw blades First aid Construction product standards Building regulations
ESCO 8219.8	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/FMEC01.pdf	Plant and machine operators and assemblers	Metal products assembler	EQF 3-4 /NQF 2	Professional specialised in the efficient and safe installation of metal carpentry and lock smithery elements in construction with an enclosure or ornamental function, such as enclosures for verandas, galleries and clotheslines; railings for stairs, balconies, roofs or terraces; grilles, gates, etc.	Use technical documentation Working with metal Assembling metal parts Perform quality checks prior to assembly Troubleshoot malfunctions Joining components Welding metals Using metal processing tools **Lift heavy objects** **Using power tools** **Preparing parts for splicing** **Applying a protective coating** **Installing construction profiles** **Transporting construction materials** **Cutting metal parts** **React appropriately in emergency situations** **Using suitable protective equipment** **Work ergonomically** **Implement work instructions** **Follow health and safety procedures on construction sites** **Use safety equipment on construction sites** **Follow safety procedures when working at heights** **Segregate waste** **Maintain the cleanliness of the work area** **First aid** Metal joining technologies Types of metal

ESCO 7124.1	https://incual.educacion.gob.es/documents/20195/94271/IMA569_2+-	Craft and related trades workers	Insulation worker	EQF 3-4 /NQF 2	Professional who efficiently and safely installs thermal and acoustic insulation systems in construction.	Apply wall adhesive Applying insulation strips Applying membrane to exterior walls Cutting insulation material to size Examine building materials Install insulation blocks Laying insulation materials Installing construction profiles Interpreting 2D drawings Interpreting 3D drawings Transporting construction materials Using safety equipment on construction sites Use measuring instruments **Install polyurethane foam insulation** **Filling cavities with expanded polyethylene beads** **Laying insulation material** **Prepare floors for laying insulation material** **Handling chemicals safely** **Preparing the substrate** Working as a team on construction crews Follow health and safety procedures in construction Follow safety procedures when working at heights Work ergonomically **Maintain the cleanliness of the work area** **Segregate waste** Types of insulating materials
ISCO 7193		Craft and related trades workers	Installer of waterproofing systems in buildings	EQF 3-4 /NQF 2	Professional specialised in the efficient and safe execution of waterproofing works using sheets for different construction elements (roofs, foundations, enclosures, etc.)	Laying asphalt membranes Laying water-repellent membranes Interpret 2D drawings Operate oxygen-fuelled welding torches Handle chemicals safely Transport construction materials Use measuring instruments Prepare the surface to be treated Work as part of a team in construction crews Follow safety procedures when working at heights Segregate waste Work ergonomically Use safety equipment on construction sites Implement work instructions Maintain the cleanliness of the work area Follow health and safety procedures on construction sites Materials and products used in waterproofing Waterproofing techniques and systems
ESCO 7119.1	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/esp	Craft and related trades workers	Construction scaffolder	EQF 3-4 /NQF 2	Professional who efficiently and safely erects and dismantles façade scaffolding made of prefabricated supported components and tubular metal scaffolding, as well as other structures made of tubular material - such as access towers and work towers.	Erecting safety fences and toeboards Constructing working platforms Dismantle scaffolding Examine building materials Interpret 2D plans Interpret 3D plans Erect scaffolding **Positioning scaffolding base plates** Position scaffolding base plates Use measuring instruments **Erect loads** **Positioning scaffold stabilisers** Working safely with machines Transporting building materials Keeping records of work progress Follow health and safety procedures in construction Follow safety procedures when working at heights Work ergonomically Work as a team on construction crews Use safety equipment on construction sites

						Parts of scaffolding First aid **Health and safety regulations** **Power tools** **Construction product standards**
ESCO 7121.1	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EO	Craft and related trades workers	Roofer	EQF 3-4 /NQF 2	Professional specialised in the safe installation and maintenance of tile roofs (ceramic, concrete, etc.).	Laying moulded tiles Examining building materials Install roof flashings Interpreting 2D drawings Interpret 3D drawings Perform roof maintenance tasks Prepare materials for roofing Protect work areas Recognise signs of wood rot Transport construction materials Use measuring instruments **Mixing building materials** **Handle chemicals safely** **Maintain equipment** **Cut tile (shingles)** Follow health and safety procedures in construction Follow safety procedures when working at heights Segregate waste Work ergonomically Use safety equipment on construction sites **Maintain the cleanliness of the work area** **Implement work instructions** Working as a team on construction crews Roof construction techniques **Types of tiles (roofing tiles)**
ESCO 7214	https://incual.educacion.gob.es/documents/20195/94271/FME350_2+-	Craft and related trades workers	Structural-metal preparers and erectors	EQF 3-4 /NQF 2	Professional specialised in preparing, assembling and disassembling, efficiently and safely, metal structures for the construction of buildings and civil engineering constructions.	Observing faults in metal parts Supervise the operation of heavy construction equipment Examine construction materials Guide cranes Interpreting 2D drawings Interpret 3D drawings Keep records of work progress Recognise signs of corrosion **Apply welding techniques** **Apply arc welding techniques** **Handle metal** **Welding metals** **Use metal processing tools** **Joining components** **Cut metal parts** **Operate welding equipment** **Assemble metal parts** **Operate riveting and screwing machines** **Interpret technical drawings** **Constructing metal constructions** Adhering to health and safety procedures in construction Work as a team on construction crews Use safety equipment on construction sites **Follow safety procedures when working at heights** **Work ergonomically** **React appropriately in emergency situations** **Implementing work instructions** **First aid** Thermal conductivity of metals Technologies for metal joining Types of saw blades Types of metal Types of rivets

ESCO 7123.2	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EOCJ0110.pdf	Craft and related trade workers	Plasterer	EQF 3-4 /NQF 2	Professional who efficiently and safely assembles laminated plasterboard systems in partitions and false ceilings.	installation of false ceilings installing plasterboard panels examining building materials installing construction profiles interpreting 2D plans interpreting 3D drawings operate hand tools handling chemicals safely mark lines with chalk powder marking boots mix building materials tape joints in plasterboard panels prepare surfaces for plastering protecting surfaces during construction work transporting building materials using power tools using measuring instruments use plaster sanders Cutting material to size Types of plasterboards and applications. Types of profiles and fixing systems Tapes, pastes and joints Maintain the cleanliness of the work area follow health and safety procedures in construction follow safety procedures when working at heights segregate waste work as a team in construction crews work ergonomically use safety equipment on construction sites
ESCO 7411.1.4	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/ENAE020	Craft and related trade workers	Solar energy technician	EQF 3-4 /NQF 2	Professional specialised in the safe and efficient installation and maintenance of solar thermal energy systems.	Check the compatibility of materials Comply with legal regulations Examine construction materials Install electrical and electronic equipment Interpret 2D drawings Interpret 3D drawings Transport construction materials Use measuring instruments **Install solar water heaters** **Lift heavy objects** **Using power tools** **Keeping records of work progress** **Install piping systems** Check water pressure **Maintain solar energy systems** Commissioning and checking the operation of the installation. Follow health and safety procedures in construction Follow safety procedures when working at heights Work ergonomically **Implement work instructions** **Segregate waste** **Maintain the cleanliness of the work area** **Use safety equipment on construction sites** **Solar energy** **building regulations** **Solar panel mounting systems**
ESCO 8343		Plant and machine operators	Crane, hoist and related plant operators	EQF 3-4 /NQF 2	Professional who efficiently and safely operates the mobile elevating platform for people working at heights.	Operate mobile elevating work platforms Perform regular mobile elevating work platform inspections Operate heavy mobile construction equipment Maintain the equipment Check ground loading capacity Mechanical systems Mechanics Load-bearing capacity of machinery Health and safety Working as part of a team on construction

						crews Ability to concentrate Be alert Perform well in hazardous environments Follow procedures stipulated on the job Follow work instructions Follow signalling instructions Respect the principles of health, welfare and safety Maintain a safe and hygienic working environment Prepare the personal working environment Comply with health and safety procedures in construction
ESCO 7115.5	https://www.sepe.es/eu/SiteSepe/contenidos/eu/personas/formacion/certificados	Craft and related trade workers	Window installer		Professional specialised in the efficient and safe installation of glazed joinery elements in openings in the thermal envelope of buildings, such as: windows, skylights, skylights, glazed doors, etc.	Laying polyurethane foam insulation Laying insulation strips Laying water-repellent membranes Cutting insulation material to size Cutting exterior wall membrane Examine building materials Install windows Transporting building materials Use wedges Use measuring instruments **Install insulating glass units** **Interpret 2D drawings** **Check the quality of products** **Handling chemicals safely** **Lift heavy objects** **Remove glass from windows** **Use power tools** **Energy efficiency of buildings** Follow health and safety procedures in construction Work ergonomically Use safety equipment on construction sites **Maintain the cleanliness of the work area** **Follow safety procedures when working at heights** **Work as a team member on construction crews** **Implement work instructions** **Segregate waste**
ESCO 7212.3		Craft and related trade workers	Welder	EQF 3-4 /NQF 2	Electric arc welders with coated electrodes weld metal parts in accordance with welding procedure specifications (WPS), with criteria of quality, safety and respect for the environment.	Align components Apply precision metalworking techniques Apply arc welding techniques Check gauges Detect imperfections in metal parts Remove burrs Ensure equipment availability Interpret 2D drawings Interpret 3D drawings Operate welding equipment Recognise signs of corrosion Solve operational problems Remove defective parts Select filler metal Test products Joining metals **Apply welding techniques** **Consult sources of technical documentation** **Examine construction materials** **Operate precision measuring tools** **Operate welding tools** **Prepare parts for joining** Thermal conductivity of metals Quality standards Metal types Brazing techniques Use appropriate protective equipment

						Respecting health and safety procedures in construction
ESCO 7212		Craft and related trade workers	Welders and flame cutters		Oxyfuel welders and oxyfuel cutters weld and cut metal parts, welding or melting with a gas flame, according to the specifications of welding and oxyfuel cutting procedures, with quality, safety and environmental criteria.	Align components Apply precision metalworking techniques Checking gauges Detect imperfections in metal parts Remove burrs Ensure equipment availability Interpret 2D drawings Interpret 3D drawings Operating welding equipment Operate oxygen-fuelled welding torches Handle fuel Recognise signs of corrosion Solve operational problems Remove defective parts Select filler metal Test products Joining metals Ensure proper temperature **Apply welding techniques** **Consult sources of technical documentation** **Examine materials of construction** **Ensure adequate gas pressure** **Operating precision measuring tools** **Operating welding tools** **Operating oxygen cutting torches** **Operating oxygen-fuelled cutting torches** **Handling gas cylinders** **Prepare parts for splicing** Thermal conductivity of metals Combustion gas Flammable liquids Quality standards Torch temperature for metal working Types of metal Brazing techniques Use appropriate protective equipment **Follow construction health and safety procedures**
ESCO 7114.2	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidades/EOCB0310.pdf	Craft and related trade workers	Terrazzo setter	EQF 3-4 /NQF 2	A professional who efficiently and safely performs the covering of floors and walls by placing pieces joined to the substrate and to each other by means of a bonding paste or mortar or an adhesive.	Polish surface with abrasive material Prevent the surface from drying earlier than expected Examine building materials Handling chemicals safely Transporting building materials Using measuring instruments Screeding concrete Laying tiles Apply tile adhesive Cutting tiles Marking lines with chalk powder marking boots Mixing building materials Planning tile laying Filling tile joints Sealing expansion joints Tile types **Drilling tiles** **Interpreting 2D plans** **Apply flooring adhesive** **Check that walls are vertically level** Prepare surfaces for screed or tiling Laying or applying tile adhesive for laying floor and wall tiles Types of adhesives for tile fixing Sanding techniques Following health and safety procedures in construction Working ergonomically Use safety equipment on construction sites **Maintaining the cleanliness of the work area**

ESCO 8332.2		Plant and machine operators and assemblers	Cargo vehicle driver		Operator of a highly manoeuvrable dump truck suitable for off-road use, especially on building sites in poor condition, for the transport of loads of up to 75 tonnes. In civil works, this truck can be rigid, articulated, for road transport or not (off-road, larger). It is very robust, with highly durable components, all-terrain tyres and its weight is 3 or 4 times greater than that of a normal truck, achieving a high production in the loading of material. The dumper is usually fitted with a mechanism that allows the box to be lifted or rotated for side, front or rear unloading.	Drive a dump truck Understanding traffic signs Parallel park vehicles Maintain heavy construction equipment in good condition Interpret maps Stay alert Practising emergency stops Monitor vehicle performance Monitor the loading of goods Monitor the unloading of goods Use communication devices Use various methods of communication **Perform minor checks on equipment** Anticipate foreseeable road problems Be able to concentrate **React appropriately in emergency situations** **Apply safety rules in the workplace** **Follow health and safety procedures on construction sites** **Use safety equipment on construction sites**
ESCO 8342	https://www.boe.es/boe/dias/1996/10/12/pdfs/A3062	Plant and machine operators and assemblers	Earthmoving and related plant operators	EQF 3-4 /NQF 2	Self-propelled machine driver fitted with a frame and front bucket linkage, which loads or excavates in forward motion and lifts, transports and unloads materials. The wheel loader is used for loading transport vehicles, landfill dumping, slope excavation, long excavation, dumping of materials and slope profiling. It can be mounted on tyres or tracks: - On tyres: it consists of a frame on tyres, a main engine for propulsion and drive of the hydraulic system and a loading bucket, located at the front of the machine. - Tracked: is tracked.	Fitting the right tools to machines Operate heavy mobile construction equipment Prevent damage to utility infrastructure Examine construction sites Excavate land by mechanical means Digging sewer trenches Operate excavators Maintain heavy construction equipment in good condition Levelling ground Power tools Mechanical systems Excavation techniques Machine load capacity React appropriately in emergency situations Follow health and safety procedures in construction Be aware of the risks of dangerous goods Use safety equipment on construction sites Work as part of a team on construction crews
ESCO 8342.3	https://www.boe.es/boe/dias/1996/10/12/pdfs/A3062	Plant and machine operators and assemblers	Excavator operator	EQF 3-4 /NQF 2	Operator of a vehicle specially designed for the excavation or clearing of land by means of a front-mounted bucket, coupled to a rotating superstructure in a horizontal plane. The excavator can be coupled on tyres or tracks: - On tyres: It consists of a frame on tyres, a main engine for propulsion and drive of the hydraulic or electric system, boom and excavation element (front, back, clamshell and dragline, etc.) located at the front of the machine. An essential characteristic is the rotation of the boom around a vertical axis. - On crawler: It differs from the previous one in that it has a crawler track.	Fitting the right tools to machines Operate heavy mobile construction equipment Prevent damage to utility infrastructure Examine construction sites Excavate land by mechanical means Digging sewer trenches Operate excavation machines Maintain heavy construction equipment in good condition Levelling ground Power tools Mechanical systems Excavation techniques Machine load capacity React appropriately in emergency situations Follow health and safety procedures in construction Be aware of the risks of dangerous goods Work as part of a team on construction crews Use safety equipment on construction sites

ESCO 8342.1	https://www.boe.es/boe/dias/1996/10/12/	Plant and machine operators and	Bulldozer operator	EQF 3-4 /NQF 2	The bulldozer operator operates a crawler tractor, moving at low speed, with a steel blade attached perpendicular to the direction of travel, although in some cases this blade may form an angle with the direction of travel. This allows the bulldozer to push the material forward or to one side, and is used for clearing land, moving materials over short distances, cutting slopes, clearing rubble, levelling land, pushing or pulling loads. It usually has a scarify at the rear, with several heavy-duty teeth, to break up hard materials.	Operate heavy mobile construction equipment Avoid damage to utility infrastructure Inspecting construction sites Excavate land by mechanical means Operate bulldozers Maintain heavy construction equipment in good condition Mechanical systems Mechanical tools Excavation techniques React appropriately in emergency situations Follow construction health and safety procedures Be aware of the hazards of dangerous goods Work as part of a team on construction crews Use safety equipment on construction sites
ESCO 8342.8		Plant and machine operators and assemblers	Scraper operator	EQF 3-4 /NQF 2	Operator of a self-propelled wheeled vehicle, which carries out starting, loading, transferring, unloading and spreading of soil, and can do all of this in a single trip. The vehicle consists of a frame on tyres, a main engine that drives the propulsion system and the movement of the load box; a self-loading box with three loading positions: loading, transport and unloading. It generally runs on pneumatic tyres. It can level the ground, which is generally more precise than that of a bulldozer, at a maximum speed of 50 km/h.	Operating scrapers Driving heavy mobile construction equipment Prevent damage to utility infrastructure Examine construction sites Excavate land by mechanical means Maintain heavy construction equipment in good condition Loading and unloading soil Levelling ground Mechanical systems Mechanical tools Machine load capacity Excavation techniques React appropriately in emergency situations Comply with construction health and safety procedures Be aware of the risks of dangerous goods Work as part of a team on construction crews Use safety equipment on construction sites
ESCO 8342.4		Plant and machine operators and assemblers	Grader operator	EQF 3-4 /NQF 2	Motor grader operators work with this self-propelled, wheeled machine with an adjustable blade located between the front and rear axles, which cuts, moves and spreads material, generally for levelling surfaces. The motor grader is used for removing, spreading and shaping materials, refining bases and slopes, profiling ditches and gutters, distributing materials from the breaking up of the road surface, etc. It sometimes carries out scarifying work, for which it has a scarifier at the rear, consisting of three or more slightly oscillating, straight or curved, highly resistant teeth, which can break up very hard materials.	Operating levelling machines Operating heavy mobile construction equipment Inspect construction sites Maintaining heavy construction equipment in good condition Work as a team member on construction crews Prevent damage to utility infrastructure Levelling ground Power tools Machine load capacity Mechanical systems React appropriately in emergency situations Follow health and safety procedures in construction Be aware of the risks of dangerous goods Use safety equipment on construction sites
ESCO 8342.7		Plant and machine operators and	Road roller operator	EQF 3-4 /NQF 2	Road roller operators safely handle machinery to compact a variety of materials, such as soil, gravel, cement or asphalt, in road and foundation construction.	Operate compactors Driving heavy mobile construction equipment Prevent damage to utility infrastructure Inspect construction sites Maintain heavy construction equipment in good condition Compaction techniques Mechanical systems Mechanical tools React appropriately in emergency situations Follow construction health and safety procedures Be aware of the hazards of dangerous goods Work as part of a team on construction crews Use safety equipment on construction sites

ESCO 7233.2	https://sede.sepe.gob.es/es/portaltrabaja/resources/pdf/especialidad	Craft and related trade workers	Crane technician	EQF 3-4 /NQF 2	Professional who has the knowledge and authorisation to handle and operate the tower crane directly, efficiently and safely.	Inspect cranes Read standard drawings Maintain cranes Carry out regular checks of machinery **Operate tower cranes** **Operate cranes** **Write repair reports** **Solve operational problems** **Secure loads** **Crane load charts** Mechanics Project **Machine load capacity** **Health and safety** Follow safety procedures when working at heights **Follow standard operating procedures** **Implement work instructions** **Follow signalling instructions** **React appropriately in emergency situations** **Follow health and safety procedures on construction sites** **Use safety equipment on construction sites** **Cope well in hazardous environments** **Be able to concentrate**
ESCO 7411.1.4	https://incual.educacion.gob.es/documents/20195/94271/ENA261_2_RV+-	Craft and related trade workers	Solar energy technician	EQF 3-4 /NQF 2	Professional specialised in the efficient and safe installation and maintenance of photovoltaic solar energy systems.	Check the compatibility of materials Comply with legal regulations Examine building materials Examine electrical supplies Install electrical and electronic equipment Install photovoltaic panels Interpret 2D plans Interpret 3D drawings Test electricity transmission networks Transport construction materials Use measuring instruments **Install electrical power converters** **Maintain solar energy systems** **Maintain photovoltaic systems** **Lift heavy objects** **Use power tools** **Keeping records of work progress** Electricity Mechanics Electrical wiring plans **Building regulations** **Solar panel mounting systems** **Types of photovoltaic panels** Follow health and safety procedures in construction Follow safety procedures when working at heights Work ergonomically **Use safety equipment on construction sites** **Maintain the cleanliness of the work area** **Implement work instructions** **Segregate waste**