



BUS4RoBOOST

BUILD UP SKILLS FOR MAINSTREAMING LONG-TERM
RENOVATION OF ROMANIAN BUILDING STOCK

FINAL PUBLISHABLE REPORT

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Universitatea Tehnică de Construcții București



Asociația Orașe Energie în România



TECHNOLOGY
ENABLED
CONSTRUCTION



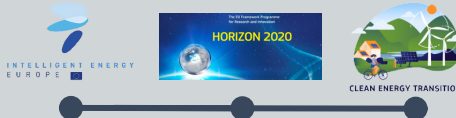
Business Development Group



About BUILD UP Skills



BUILD UP Skills is a strategic initiative initially supported by the Intelligent Energy Europe program and continued in Horizon 2020 and LIFE Clean Energy Transition, managed by CINEA. It aims at the continuing education and training of workers in the construction sector to increase the number of skilled professionals to deliver building renovations offering high energy performance as well as new Nearly Zero-Energy Buildings (NZEBS) in Europe.



The initiative's main objectives include **improving workers' skills in energy efficiency and the use of renewable energy supply systems**, thus supporting the European Commission's "A Resource Efficient Europe" and "An Agenda for New Skills and Jobs" strategies .



BUILD UP Skills supports the Pact for Skills, signed in 2022, which aims to reskill at least 25% of the construction industry workforce over the next 5 years, to reach a total of 3 million skilled workers.

This initiative is aimed at professionals in the construction value chain, employers, public authorities, the research and innovation sector, building owners and tenants. Priorities include skills development, supporting training and qualification systems, and measures that stimulate the demand for skills and skilled professionals.



To date, **BUILD UP Skills has funded more than 94 projects with an EU contribution of €58 million EUR**, developing national strategies, training and qualification schemes, and innovative tools for training workers.

About BUS4RoBOOST



The BUS4ROBOOST project, funded under the BUILD UP Skills initiative, aimed to deliver a renewed strategy and roadmap for qualifications in the construction sector, adapted to the requirements of energy efficiency and digitization, which would support the paradigm shift to achieve the targets assumed by Romania for 2030 and 2050 through an efficient and reliable renovation process of the building stock, as part of the national sustainable development objectives.

The project continues the previous ROBUST and QualiShell initiatives.

The **Build-Up Skills Romania – ROBUST** project was implemented between November 2011 and April 2013, financed by the Intelligent Energy Europe (IEE) program, with the objective of establishing a National Platform and developing a Roadmap for the qualification of the workforce needed in the field of energy efficiency and the use of renewable energy sources in buildings in order to fulfill the objectives assumed by Romania for the 2020 horizon.



The **BUILD UP Skills QualiShell** project was implemented between October 2013 and May 2015, its purpose being the development and implementation at national level of qualification schemes for installers of opaque thermal insulation systems of the building envelope and installers of thermal insulating carpentry systems, facilitating the introduction of knowledge and appropriate skills in the relevant qualifications.



Within the Human Capital Operational Program 2014-2020, launched on April 17, 2015, the construction sector became a priority for professional training thanks to the proposals of the BUILD UP Skills QualiShell project team. These proposals aimed to reduce the shortage of skilled labor necessary for Romania's development objectives for 2020. The program included training actions in energy efficiency, renewable resources, recycling and low-carbon technologies.

From November 1, 2022, the BUS4RoBOOST project continues the efforts of ROBUST and QualiShell, bringing together key players in the construction sector to relaunch the National Qualification Platform and develop a National Strategy for Qualification, ensuring the necessary skills in the field.

The mission of the BUS4RoBOOST project



Analysis of the existing situation – in-depth analysis of the current state of the market to identify key aspects for capitalizing on the skills perspective; the report presents the analysis of the current situation (year 2023) at the national level of the construction sector from the point of view of continuous professional training and the necessary training in the field of energy performance of buildings and the use of renewable energy sources in buildings, in the context of the commitments assumed by Romania for the horizon 2030.



Revamping the National Qualification Platform – The NQP refers to several organizations with a role and interest in increasing the skill level of the construction workforce. They are regularly consulted at key moments in the implementation of the project.



Stakeholder consultation – extensive stakeholder consultation sessions organized on different target groups and in different regions.



Developing a new roadmap – renewing the national roadmap to stimulate market demand and support mechanisms to meet the needs of new skills and professions, as well as upskilling/retraining in the current occupational framework.

Status Quo Analysis (SQA)

To update the national strategy, the project started with the mapping of skills needs and recommendations for certification and training of construction workers and specialists in Romania. **The report details the current situation and estimated skill needs for 2030, barriers and gaps in workforce training, and provides data on the number of skilled workers needed in various occupations.** It also looks at continuing professional training, alignment with EU directives, and the necessary advice and funding, also presenting relevant EU-supported projects. The report examines the barriers to achieving energy efficiency targets and the use of renewable sources, offering solutions to overcome these obstacles.

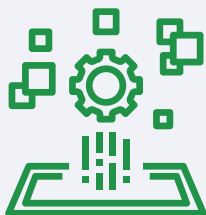


Project approach for the realisation of the report

Extensive review of existing literature, including academic papers, technical reports and government publications, to gather information on the current state of skills development in the Romanian construction market; this analysis helped to ground the current picture of the market and to identify the main trends and issues to determine the next steps.

Application of questionnaires to relevant stakeholders, such as construction companies, professional organisations, employers, associative structures of local authorities and trade unions, training institutions and government bodies etc. The aim of the survey was to obtain information on the challenges, needs and perceptions related to skills development in the construction industry. In addition to the online questionnaires, one-to-one interviews were conducted with key industry experts.

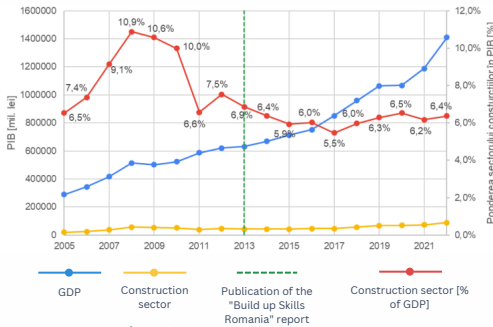
The use of the National Construction Qualification Platform, relaunched within the project in December 2022, as a tool for collecting direct information at the national level, for aspects of a qualitative nature, related to the identification of the main obstacles and barriers in the practical implementation of energy efficiency projects and the promotion the use of renewable energy sources in buildings.



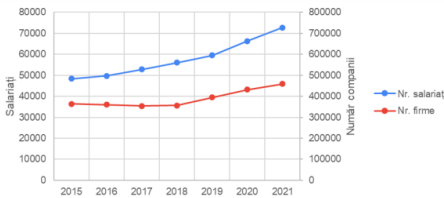
The main conclusion of the report is that skills shortages in the labor market are caused by **the inability of the education and training system to keep up with the rapid development of technology and market demands, and the large number of employees with a low level of education.** Increasing digitization has increased the demand for hard-to-find skills. The lack of continuing vocational training in construction companies and the limited involvement of employers in adapting the curricula contribute to this problem. Also, the institutional and regulatory framework does not sufficiently stimulate participation in vocational training. Most companies cite lack of time and high costs as reasons for not participating in training programs. Upskilling is urgent, but the existing framework is outdated and unadapted to new requirements.

SQA results

Evolution of the share of the construction sector in GDP



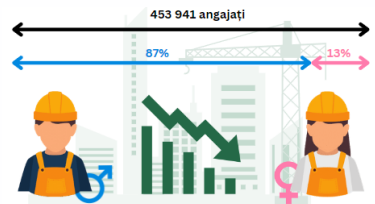
The evolution of the number of employees and the number of companies



In Romania, the construction sector contributed significantly to GDP, with an annual average of 379 million EUR between 1995 and 2021. Its contribution was 6.6% in 2020 and 2021, and 6.3% in 2022. The Ministry of Finance estimates a GDP growth of 5% by 2025, with the construction sector contributing 0.4% to this. The National Institute of Statistics anticipates a 7.1% increase in investment for new buildings in 2021, with 78.6% of investment coming from the private sector. Capital renovation and maintenance work decreased by 22.6% and 7.9% respectively. Inflation has put pressure on the sector, with increases of up to 121% in the cost of materials between April 2020 and April 2022. The INS reported a 10% increase in February 2023 compared to the same month in 2022. This underlines the need to reduce material use and implement an efficient resource management strategy to keep costs down and promote material reuse.

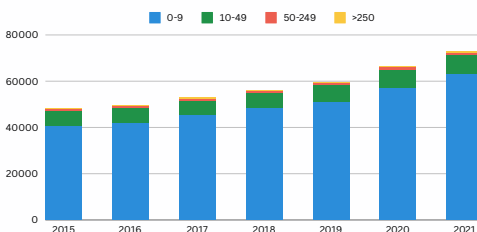
It should be noted that out of the total of 453,941 employees working in the construction sector, only 59,137 are women, which represents a percentage of 13% of the total employees in the sector. Regarding the form of ownership, from the total of 453,941 employees in construction, 17,217 of which 4,197 women work in publicly owned companies and 436,724 employees of which 54,940 women work in privately owned companies.

The number of employees in the field of construction

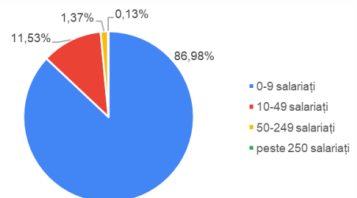


At the level of 2021, there were 72,707 enterprises operating in the construction sector in Romania, representing 11.7% of the total number of enterprises. The number of employees in the sector was 459,218 (11.4% of the total), and the total turnover of the sector was 14,354.5 billion lei (7.2% of the total).

Number of companies operating in the building construction sector by company size



Companies active in construction



National Qualification Platform

The National Qualification Platform (NQP) is the product that could be updated and supported during the implementation of the BUS4RoBOOST project in order to develop market mechanisms and demand for unskilled workers in the construction sector by bringing together all relevant stakeholders from the vocational training sectors in constructions. The objective of this platform is to communicate between all stakeholders, define and then implement a coherent and realistic strategy and roadmap for integrating training on smart energy solutions for buildings into mainstream training programs and into the practice of those active in the field. constructions.

- NQP was created to develop tools and policies for its members, including the main players in the construction market in Romania, selected for their contribution to the quality of works by investing in the qualification of workers.
- One of the main results of the project is the activation of this platform, bringing together stakeholders from construction vocational training. The NQP facilitates the certification and recognition of workers' skills by standardizing the necessary qualifications.
- Originally launched through BUILD UP Skills Romania (2011-2013), the NQP has been updated and relaunched through the BUS4RoBOOST project, expanding the range of qualifications to meet new construction requirements and covering the needs of the white & blue collar workforce.
- Through the activities carried out, the NQP supported the definition of a coherent strategy, embodied in a roadmap for professional qualifications and skills in construction, including new skills in digital technologies and smart buildings.

NQP aims to:

To support the process of aggregating old or new, local or regional strategies, by reformulating the objectives defined by the construction market, at the level of current requirements, but also regarding the activities that are expected in the perspective of the 2030s. NQP members were the main partners who contributed to the reformulation of the construction qualifications market analysis, as it was defined for the first time in 2012. The new analysis carried out within the BUS4RoBOOST project represents a comprehensive and effective vision to be considered as the basis of the new roadmap.

To direct (based on the results obtained from the local, regional and national consultations) the flow of data and information necessary to update the new roadmap in order to achieve the national strategic objectives, as well as those agreed at the European level.

To initiate the working framework (on various levels both at legislative and market level) for the easiest possible implementation of the objectives that are mentioned in the new roadmap, resulting as the main objective of the BUS4RoBOOST project, taking into account both harmonizing strategies in different fields, as well as discussing the main barriers discovered in the construction sector qualifications market.

National Qualification Platform

The reset and activation of the NQP in the new version of 2023 (completed in 2024) included the support of partners from the Romanian market, with over 350 active members. Partners from construction and support fields such as administration and media were included to support the qualifications partnerships.



<https://buildupskills.ro/platforma-nationala/>



Platforma Națională

Unul dintre rezultatele majore ale proiectului propus îl constituie activarea platformei de calificare din România, prin inventarierea și reunirea tuturor...

[Build Up Skills Romania /](#)



The NQP database contains information from public sources, respecting confidentiality, and includes members from all fields relevant to the improvement of construction qualifications. The NQP, a dynamic community, allows invitations of new members according to future needs, and serves as a catalyst for an effective national framework, aligned with European policies and programs in workforce training and certification.

Public consultations

Within the project, a number of **8 regional events and 2 of national interest** were proposed, planned and carried out, with the following objectives:

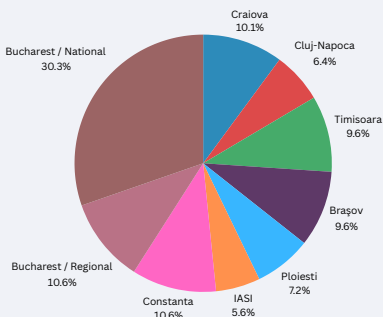
- Evaluation of the implementation stage of the first Roadmap (performed within the ROBUST project, 2012)
- The collection of updated information on the construction market and the need for qualifications/requalifications and the improvement of skills in the market in order to achieve the objectives assumed by Romania at the level of 2030.
- Updating and validating information received from market research.
- Validation of the results and objectives of the new roadmap and the preparation of activities to support it in the construction market.

The proposed agenda for all workshops kept a similar structure. This included an opening plenary session lasting 1.5-2 hours, followed by 2 interactive sessions lasting 1-1.5 hours each and ending with a final plenary session presenting the results of the consultations in sessions and groups work, formulating conclusions, as well as determining next steps.

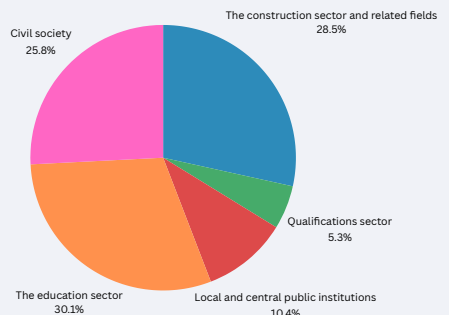
Starting from the initial planning and adapting according to the needs of the project, **10 consultation events** were organized: the national launching seminar and the final national conference, along with **8 regional consultation events** with the participation of members of the National Construction Qualification Platform and other parties stakeholders identified and involved during the project:



A total of **376 participants** representing 5 main categories of stakeholders were present at these meetings. Among them, the education sector had the most important share with 30%, respectively the construction sector with 29% and civil society with 26%. At the opposite pole is the qualifications sector with 5% and public authorities with 10%.



The project launching event took place in Bucharest in December 2022. It was preceded by an organizational meeting that took place at the UTCB partner and which was attended (in a hybrid format, both physically and online) by all members of the BUS4RoBOOST project consortium.



Consultation events

#1 Bucharest, December 2022, National Seminar



#2 Craiova, March 2022, Regional Workshop



#3 Cluj-Napoca, May 2023, Regional Workshop



#4 Timișoara, May 2023, Regional Workshop



#5 Brașov, October 2023, Regional Workshop



#6 Ploiești, October 2023, Regional Workshop



#7 Iași, November 2023, Regional Workshop



#8 Constanța, February 2024, Regional Workshop



#9 Bucharest, April 2024, Final Consultation



#10 Bucharest, May 2024, Final National Seminar



Roadmap for 2030

Based on the analysis of the current state, the actions provided for in this roadmap aim to eliminate the multiple barriers identified and the gaps quantified in each subsector/ profession/ occupation with relevance for the targeted field. So the roadmap was developed with the inclusion of the following:

The document represents the **updated version of the Roadmap for 2020**, developed for the qualification of the workforce in the construction sector, to achieve the national objectives regarding energy efficiency and the use of renewable energy sources in buildings and implicitly reducing the carbon footprint, which were committed by Romania for the year 2030.

Identifying and planning the measures to be adopted/undertaken by the decision makers to overcome the problems and gaps regarding the construction workforce in order to achieve the objectives set for the year 2030.

Implementing coherent and feasible workforce training schemes in the field of efficient energy solutions, both in terms of initial professional training (through professional and technical education) and in continuing professional training (by developing/updating/adapting the curriculum to the requirements labor market).

Adopting the necessary measures to recognize the benefits or newly created value given by a better qualified labor force, for the financial support of companies or the introduction of the obligation to use skilled workers.

The roadmap includes the results of the consultation process carried out between February and May 2024 within the National Qualification Platform (NQP) and the National Consultation Committee (CNC). Through this approach, contributions and suggestions were received from the interested parties to improve the initially defined action plan, aiming to obtain approval and support for the final document, in order to be able to effectively and successfully implement the proposed actions to meet the national objectives established.

Starting from the results of the status quo analysis carried out within the project, in the elaborated roadmap a commonly accepted definition of the guidelines and priority measures necessary for the foundation of a coherent national strategy for the qualification of the labor force in the construction sector in order to achieve the targets regarding the economy was realized of energy and the use of renewable energy sources in buildings, objectives committed by Romania for 2030.

Strategic objective 1

Simplifying green and digital skills training

1.1 Updating and completing the regulatory framework on energy efficiency and circular economy

- 1.1.1 Transposition of Directives 2023/1791/EU (EED), 2023/2413/UE (RED) and EU/2024/1275 (EPBD) into the national legislative framework
- 1.1.2 Ensuring the consistency of the application of the legal framework for prosumers by monitoring consumption data
- 1.1.3 Completing the legal framework regarding the circular economy in construction

1.2 A more flexible regulatory framework for education and training

- 1.2.1 Optimizing the national construction qualifications system
- 1.2.2 Continue to review existing occupational standards and develop occupational standards for newly identified qualifications
- 1.2.3 Simplifying occupational standards by grouping skills and making the process of continuous updating more flexible
- 1.2.4 Development of the system of micro-certifications in education and training
- 1.2.5 Implementation of the professional qualification certification system of construction companies
- 1.2.6 Implementation of a Professional Card for construction workers
- 1.2.7 National recognition of certificates issued under internationally recognized qualification/specialization schemes
- 1.2.8 Apprenticeship: on-the-job training in the construction sector
- 1.2.9 Supporting the application of dual education in the construction sector

1.3 Ensuring transferability of skills through recognition and equivalence mechanisms

- 1.3.1 Development/operation of training and/or skills assessment centers for nZEB and BIM
- 1.3.2 Practical tools and mechanisms applied in the case of transferability in education and vocational training
- 1.3.4 Transferable credits - application rules and implementation mechanisms in the construction sector
- 1.3.3 Integration programs for workers from third countries

Strategic objective 2

Ensuring an adequate and accessible training offer of skills development

2.1 Development of a green and digital skills matrix by specialisation and skills level

- 2.1.1 Modernizing construction skills: integrating green and digital skills for energy efficient buildings
- 2.1.2 Identification of new necessary qualifications
- 2.1.3 Integration of internships in accordance with current trends

2.2 Development and accreditation of appropriate training programs and tools leading to a common practice

- 2.2.1 Development of sizing guidelines and analysis of existing options for effective design of HVAC systems
- 2.2.2 Official calculation program for evaluating the energy performance of buildings according to MCO01
- 2.2.3 Practical guidelines for the use of BIM for different specialties, respectively stages in the life cycle of the investment
- 2.2.4 Project funding calls to develop curricula with a focus on green and digital skills in various specializations and skill levels
- 2.2.5 Development of dual system training programs
- 2.2.6 Detailing the procedural framework for the implementation of the MDLPA 2023 certification schemes (PNRR)

2.3 Quality assurance in education and training

- 2.3.1 Introduction of unique digital tools for the unitary examination of skills
- 2.3.2 Methodologies and mechanisms for periodic certification of certain skills or updating skills
- 2.3.3 Post-implementation monitoring and evaluation mechanisms (with an orientation towards control of results)

Strategic objective 3

Stimulating demand for green and digital skills

3.1 Campaigns to promote green and digital objectives targeting SMEs and workers/professionals

- 3.1.1** Campaigns to promote the use of the principles of design and realization of constructions (+materials) with the longest possible lifespan
- 3.1.2** Improving the network of information, advice and professional guidance
- 3.1.3** Tools for promoting good practices in the private sector
- 3.1.4** Promoting and developing skills in the field of energy efficiency, the use of renewable energy sources and sustainability in schools
- 3.1.5** Dissemination of existing tools and harnessing feedback for the renovation of non-residential buildings
- 3.1.6** Support tools for the renovation of heritage/historic/old buildings
- 3.1.7** Awareness campaigns in the field of sustainability and climate change

3.2 Green and digital skills training for officials in relevant departments of local and central public authorities

- 3.2.1** Development of green and digital skills training programs for civil servants
- 3.2.2** Development of best practice guidelines on the development of specifications supporting green investments
- 3.2.3** Funding call for the development of administrative capacity dedicated to the training of green and digital skills for civil servants in the local administration and other relevant authorities
- 3.2.4** Building inventory and building information database creation: digital national building registry

3.3 Delivering clear benefits on energy efficiency and digitalisation

- 3.3.1** Establishing quantified objectives for local authorities regarding green investments
- 3.3.2** Fiscal incentives for private green investments
- 3.3.3** Initiation of fiscal incentives at the local level for construction companies in order to implement the principles and technologies of the Circular Economy
- 3.3.4** Supporting research and innovation in the field of Circular Economy in construction by developing financing programs for new and sustainable materials
- 3.3.5** Launching a support program for design specialists in the implementation of circular economy principles through a collaboration between research, market and administration with a focus on innovation in construction
- 3.3.6** Calls dedicated to financing the development of green and digital skills in the field of construction
- 3.3.7** Supporting manufacturers and the use of ecological materials
- 3.3.8** Strategy for the sustainable development of wood for energy production and construction structures
- 3.3.9** Creating or adapting local technical, financial and social support systems for the renovation process

The measures and actions plan also includes the calendar of implementation 2024-2030, but also proposals for the period > 2030, emphasizing the periods when the proposed actions should be implemented through the relevant actors involved, but also the continuation of activities through continuous development or improvement.

The roadmap contains the only occupational analysis in Romania for the construction sector, which includes 264 occupations from the Classification of Occupations in Romania and includes the following information for each of them:

- number of active individual employment contracts in 2022 and the percentage variation of this number compared to 2018;
- the number of providers authorized to carry out professional training programs in 2022;
- the number of graduates of professional training programs in the period 2015-2022;
- if there is a professional training standard, the year of its development or revision and the link where the standard can be accessed;
- if there is an occupational standard, the year of its development or revision and the link where the standard can be accessed;
- number of hours allocated or proposed to be allocated for each training program related to each occupation;
- qualification level;
- number of transferable credits;
- level of green skills;
- level of digital skills;
- access to other occupations of the same level.



Regarding **green skills**, in the absence of a clear European framework that can be transposed and adapted to occupations in the construction sector, a list of skills has been proposed that are directly associated with the level of education/qualification for construction occupations identified as priority :

1. Technical knowledge and practical experience for waste management and recycling: Ability to manage waste effectively and promote recycling and reuse practices in construction projects.

2. Knowledge of sustainable materials and climate change: Understanding the different types of sustainable and environmentally friendly materials used in construction, as well as knowledge of manufacturing processes and environmental impact.

3. Knowledge of the circular economy: Understanding the principles of the circular economy and the ability to apply these principles in construction processes, such as waste reduction, recycling and reuse of materials.

Sustainable planning and design: The ability to participate in the planning and design of buildings or construction projects that use sustainable practices and technologies, such as the integration of renewable energy sources, energy efficiency and efficient resource management.

4. Principles of energy efficiency + Performance monitoring and evaluation: Ability to monitor and evaluate the performance of projects in terms of sustainability and circular economy, and identify opportunities for improvement.

5. Principles of carbon footprint assessment + Certifications and sustainability standards: Knowledge of different certifications and sustainability standards in the field of construction.

6. Principles related to resource management (water, energy)



In the current occupational standards, even those revised in 2023 (analysis included in the roadmap annex), **there are no mentions of green skills except for occupations associated with energy from renewable sources or waste management**, where the inclusion of these skills, not being specifically mentioned in a separate chapter, but included in general and specific skills.

Regarding **digital skills**, the framework provided by DigiComp was used in which it is presented by area and level of qualification (1-8) to associate the need to include digital skills for the construction occupations defined as priority by this fact sheet journey. The level of competence associated with each competence was also proposed, in particular due to the need to revise all current occupational standards (even those revised in 2023) to include specifically and with the associated description digital competences (these are briefly described in the skills part as ICT use).



Also, new occupations and **new qualification schemes for the construction sector were identified** in the roadmap. Anticipation of the skills needs of the labor market has also been taken into account in identifying the new skills needed, and closer cooperation between all stakeholders in developing skills in the new skills needed ensures that labor market supply and demand do not suffer discrepancies that can lead to important imbalances, especially in the construction sector.

FIELD	OCCUPATION
Digital	Expert/design engineer in digitization and operation of buildings
	Technician in digitization and exploitation of buildings
	BIM manager
	Building scanning expert
Energy performances	Technician/Project Manager in Energy Renovation
	Technical controller of the quality of installations and equipment for the supply of energy without carbon emissions
	Specialist in air permeability assessment of buildings
	Thermal bridge assessment specialist
Circular economy	Technician in the valorization of reuse
	Bio production technician
	I diagnose products, materials, waste from buildings
	Preparatory in demolition
	Carbon emissions and circular economy specialist/auditor
	Supervising engineer for hydrogen installations
New constructions	Prefab modular construction worker
	Engineer in modular construction
	Construction worker nZEB



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Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Additional information More details on BUILD UP Skills Romania can be found at <https://buildupskills.ro/>

More details on the BUILD UP Skills initiative can be found at www.build-up.ec.europa.eu

More details on the LIFE Program can be found at https://cinea.ec.europa.eu/programmes/life_en