

BUILD UP Skills – Greece

National Roadmap 2030



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Further information

More details on the implementation of BUILD UP Skills in Greece can be found at http://www.cres.gr/cres/pages/projects/projects_EU/life_4_uk.html

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

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

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Preface

The EU's “Renovation Wave”, the inclusion of “Nearly Zero Energy Buildings” (nZEBs) and the incorporation of issues related to resource efficiency, which are EU priorities on the path to full decarbonization by 2050, as well as in the National Energy and Climate Plans (NECPs) of the member states determining the energy and climate goals for 2030 (currently under revision to consider the needs of 'Fit for 55' package and the EU's REPowerEU Plan), require a workforce with the appropriate knowledge and relevant skills for their implementation at all levels.

The European Initiative “**BUILD UP Skills - Upskilling and reskilling interventions enabling a decarbonised building stock and energy system integration**”, whose projects are now co-financed by the LIFE Programme, and more specifically by the “Clean Energy Transition” Sub-programme of LIFE2027, aims to support the upgrading of skills of building sector professionals (both “blue-collar” and “white-collar”) throughout Europe, and more specifically in the 14 European countries where corresponding projects are currently being implemented. This is to successfully ensure high-energy-efficiency building renovations and the construction of new Nearly Zero Energy Buildings (nZEBs).

In the European BUILD UP Skills initiative framework, BUS-REGRoUP project is being implemented in Greece by a robust partnership scheme (consortium) consisting of research organizations, educational institutions, representatives of social partners and professional chambers. More specifically, the partners of the Greek consortium for BUS-REGRoUP project are:

- Centre for Renewable Energy Sources and Energy Saving (CRES) (coordinator)
- National Technical University of Athens (NTUA) – Decision Support Systems Laboratory, School of Electrical and Computer Engineering
- Institute of Small Enterprises of the General Confederation of Professionals, Craftsmen and Traders of Greece (IME GSEVEE)
- Labour Institute of General Confederation of Workers of Greece (INE-GSEE), and
- Technical Chamber of Greece (TCG).



Consortium of the BUILD UP Skills - BUS-REGRoUP project

The final deliverable of the BUS-REGRoUP is the current D4.5 - National Roadmap for 2030, which aims to update and expand the National Roadmap developed during the first phase of the BUILD-UP Skills initiative in the frame of BUS-GR project, about ten years ago. The current document is the final version of the draft National Roadmap (D4.4 – 1st Version of the National Roadmap for 2030) elaborated during the second half of the project and which has been submitted to a thorough and multi-aspect adaptation and enrichment based on all the valuable and useful feedback received by the member of both the Greek NQP and the SPC. The scope of the updated National Roadmap is broader as it addresses not only the “blue-collar” professionals but also the “white-collar” ones. Its initial version was based on the Final Report on the National Status Quo, a study that identified, recorded, and documented skill gaps, barriers, and an estimation of the quantitative needs for a skilled workforce in the building sector, to meet the national energy and climate targets by 2030.

The main objective of the National Roadmap is to propose how to overcome these barriers and address the identified skill gaps in various professions so that the building construction sector can contribute to the national targets for energy and climate for 2030. Specifically, it provides a set of priority measures for the identified relevant professions, an action plan for the defined measures until 2030, the critical

factors, and the resources required to promote their implementation, as well as a set of measures for monitoring the progress of the proposed activities.

In addition to the partners of BUS-REGRoUP consortium, a large number of stakeholders actively participated in the project activities and made substantial contributions to its outcomes. Stakeholders included, among others:

- ✓ Relevant Ministries (through their competent services) with a mandate on issues of energy, building stock infrastructure, lifelong learning, and labour in Greece
- ✓ Federations and professional associations of technicians and other onsite workers ('blue-collar' professionals) working in the construction and broader building (residential and tertiary) sector
- ✓ Associations of 'white-collar' professionals (architects, designers, engineers, building managers, product manufacturers, etc.) who are employed in the building and construction sector
- ✓ Experts in sustainable energy-efficient buildings
- ✓ Associations of companies manufacturing and supplying renewable energy systems (RES) and/or high-energy-efficiency products
- ✓ Academic and Research institutes / bodies active on topics of building construction industry,
- ✓ Certification and accreditation bodies,
- ✓ Other "social partners".

During the proposal submission phase for this specific project, a total number of 26 Letters of Support (LoSs) were gathered from such organizations, with a supportive and empowering character for the proposal, and in which these entities expressed their full support for the consortium in whatever is needed during the implementation of the project. Once the project was launched and following a structured communication process aimed at ensuring the participation of key stakeholders in the National Qualifications Platform (NQP), additional entities showed interest in participating in the joint national effort, including professional associations and federations, professional chambers, certification bodies, as well as collective bodies/representatives of vocational education and training (VET) providers in Greece.

The completion of the process of the reestablishment and relaunching of the Greek NQP led to an interesting combination of a large number of involved entities including the BUS-REGRoUP consortium partners, executives from the competent ministries, responsible for energy and lifelong learning in Greece, experts in sustainable buildings, associations/companies related to renewable energy sources (RES) and energy-efficient building products, academic institutes/organizations related to the building industry, technical unions (manual professionals), and professional associations working in the construction and building sector, certification and accreditation bodies, as well as a number of social partners.

In total, 25 members have designated and officially appointed representatives for the NQP (permanent and alternate members, respectively), including the five project partners, who actively participated in the joint national effort, supporting the project activities, and contributing through their collaboration to achieving its objectives. Thus, this document is the product of a deep and critical consultation procedure between the BUS-REGRoUP project partners and the members of the NQP, implemented through a number of four in total implemented Consultation Meetings, recorded opinions on the online consultation platform, working meetings, structured questionnaires, etc. In this way, the measures and actions proposed in the Action Plan of the current Roadmap, as well as their priorities and timelines, are consistent with the views of the involved entities.

The National Roadmap for 2030 is structured into six (6) chapters, starting with the Executive Summary that introduces the reader in a brief yet comprehensive manner to the findings and proposals articulated within the Roadmap. This is followed by the Introduction, which presents the main elements and key information that emerged from the 'Analysis of the Status Quo in Greece. Chapter 3 presents the general

strategy for the achievement of the national goals and the distinct and specific steps for developing the National Roadmap, while also recording and prioritizing the proposed measures and priorities.

In Chapter 4 the overall Action Plan of the National Roadmap is elaborated, introducing timelines and identifying the stakeholders involved for the measures and actions proposed. Finally, the same chapter outlines the proposed concurrent actions to achieve the national energy and environmental targets for 2030, with a particular focus on priorities related to training (recommended continuing professional training programs for all specialties of interest in the building construction industry).

Chapter 5 is dedicated to the proposed mechanisms for monitoring, control, and feedback on the progress of implementing the measures and actions included in the National Roadmap, while the report is wrapped up with the Conclusions (Chapter 6) that emerged from the entire development process. Lastly, the authors of the report are presented in a separate section, and it should be noted that references and sources are indicated in the form of footnotes at each point where they are cited.

1. Executive Summary

In the context of the BUILD UP Skills initiative, particularly the BUS-REGRoUP project implemented for Greece, the National Roadmap is being developed, recognizing as a necessary precondition that effective continuous vocational education and training of workers in the construction sector (specifically in new building constructions and renovations of old buildings) is essential to achieve reduction of energy consumption and CO₂ emissions, as well as for the greatest possible integration of renewable energy technologies into the building stock, resource efficiency, circularity, industrialized deep renovation, life cycle carbon assessments, etc. The development of this roadmap aims to formulate an optimal strategy and to identify a set of measures and specific actions for developing the skills of the construction sector workforce on the issues of renewable energy (RE) and energy saving (ES).

Through the Roadmap, appropriate guidance is provided to policymakers and decision-makers with the aim of strengthening the institutional framework and integrating specialized training on relevant renewable energy, energy saving, and resource efficiency topics into the existing educational programs of the building sector workforce (both “blue-collar” and “white-collar” professionals), which is the target group of the BUILD UP Skills initiative. Specifically, the National Roadmap identifies the necessary actions and measures to promote the necessary vocational education and training, and subsequently, the certification of qualifications of workers in the construction sector, while more broadly it contributes to addressing the barriers that have been reported (within the 'Status Quo Analysis') to achieve the implementation of the building related goals defined through the national 2030 targets for energy and climate.

The National Roadmap includes the following key actions:

- ✓ Proposing measures to overcome identified barriers and skills gaps for both blue and white-collar workers in the construction sector, to meet the 2030 goals.
- ✓ Integrating training on "smart" energy technologies that enhance building energy efficiency into the professional education programs and vocational training.
- ✓ Proposing appropriate measures for recognizing the qualifications of the specialized workforce at national level.
- ✓ Proposing incentives for enhancing and increasing participation in continuous vocational education and training programs, which in some cases may become mandatory.
- ✓ Proposing policies that enhance the demand for specialized "blue-collar" professionals or make it mandatory.

To achieve the objectives of the National Roadmap, the following main Roadmap Axes have been identified:

1. Ensuring the required number of blue and white-collar workers in the building construction sector.
2. Upgrading the skills of the workforce in the building construction sector.
3. Overcoming identified institutional barriers and ensuring the initiative's sustainability.

Following, the proposed measures were evaluated versus a set of identified criteria, prioritised according to urgency, impact and value and were further analysed into specific activities. These measures are briefly presented herein.

Starting with the measures considered as necessary to ensure the required number of 'blue-collar' and 'white-collar' workers in the building sector (Market), the following were decided:

M1: Reintegration of untapped-inactive labour force

M2: Enhancement of the attractiveness and “image” of construction/building sector professions

M3: Increase of the inflow of young people and women into the construction/building sector

- M4: Combatting of the uninsured / undeclared labour
- M5: Labour force mobility
- M6: Incentives' provision for existing employees to remain in the sector

Regarding the measures that must be taken for the upgrading of the skills of workers in the buildings construction sector, the following were considered as the most critical:

- M7: Updating of occupational profiles and introduction of new ones
- M8: Strengthening of the initial VET for 'blue-collar' professionals in the buildings construction sector and of the specialized training for engineers
- M9: Development of suitable specialized continuing vocational education and training programs addressing the for the buildings construction sector labour workforce
- M10: Implementation of efficient quality assurance mechanisms for the educational processes
- M11: Development of a Framework - Mechanism for ensuring the required number of trainers
- M12: Retraining / reskilling of workers currently employed in the lignite industry

The necessary measures to overcome institutional barriers and ensure the sustainability of the initiative are the following:

- M13: Updating the institutional framework in the chain: Training - Certification - Regulation of profession & professional rights
- M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation
- M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap

Finally, all the aforementioned measures are complimented by the following horizontal measure:

- M16: Dissemination, endorsement and promotion of the National Roadmap actions.

Subsequently, necessary training schemes for each professional specialty were identified and formulated. These training schemes aim to respond to the priorities of new skills as determined through the project. All new training schemes were categorized into two main categories:

- (a) Training schemes for white-collar workers related to RES interventions and improvement of Energy Efficiency (EE) in buildings.
- (b) Training schemes for blue-collar workers related to RES interventions and improvement of EE in buildings.

The assessment that was conducted by the professionals themselves and the related social partners, through the procedure of filling up especially developed questionnaires, highlighted the need of both the professionals and the market for acquiring new "green" skills. Moreover, the related consultation sessions and the "Analysis of the Status Quo" conducted in the previous stage of the project showed that almost none of the required "new" skills of professions related to BUS-REGRoUP in special issues of RES, RETs, and resource efficiency is systematically addressed in secondary vocational education or initial vocational training. Similarly, very few of these are covered in the existing (and already limited) continuing education and training programmes and even in these cases, this coverage cannot be characterised as systematic. Most of these programmes are related with programmes implemented for PV system installers and in most of the cases they not included within an institutionalized qualification certification process.

Finally, a list of monitoring indicators is proposed to monitor the implementation progress of the National Roadmap continuously and systematically, through the application of the proposed measures.

2. Introduction

2.1 Building sector characteristics

In this chapter, key information, and data, as well as the most significant conclusions deriving from the "Status Quo Analysis" conducted for Greece, are succinctly presented. Specifically, primary data concerning the current state of the building sector (size, energy consumption, existing workforce), the national energy targets for 2030, and the expected contribution of the building sector towards achieving these targets are outlined. Additionally, the report details, the required number of skilled "blue-collar" and "white-collar" workers from each profession, as well as the related challenges that must be addressed to meet the national energy targets of 2030, from the building sector perspective.

It is noted that the significant role historically held by the building sector in the country's economy is a nearly constant characteristic, although not stable. Since the early 1990s to about 2007, the construction sector (closely linked to the building sector) manifested a rapid development, while after 2007, a noticeable recession began. Although the most recent Population-Housing Census was conducted by the Hellenic Statistical Authority (ELSTAT) from October 2021 to December 2021, the most recent published statistical data from ELSTAT concerning the building sector dates to the 2011 census, as the corresponding data from the 2021 census have not yet been published. According to the 2011 data, the number of buildings in the country on that year was 4,105,637, of which the largest percentage, specifically 19.1% (783,752 buildings), is located in the Attica region; 3,775,848 (92.0%) of the total number of buildings are exclusively residential, while the 329,789 (8.0%) of them are characterized as of mixed uses.

A noteworthy characteristic of the building sector in Greece is the inadequate protection of existing buildings from the weather elements. Notably, nearly half of the Greek buildings (47%) were constructed before 1980, when the Thermal Insulation Regulation came into effect in Greece, meaning that these buildings possess no thermal insulation, are of low energy efficiency, and have outdated electromechanical installations. Residential buildings constitute the high percentage of 95.4% of the building stock. At the same time, from the tertiary sector, the commercial stores represent 1.4%, offices, and other buildings 1.1%, hospitals and clinics 0.8%, hotels, and restaurants 0.5%, schools, and educational institutions 0.4%, and warehouses in their entirety (0.4%). The overwhelming majority of residences, as a percentage of the total number of buildings, highlight the particular importance attributed to their energy upgrading.

Regarding the workforce employed in the building sector (based on the most recent available data), in the year 2019, approximately 150,000 workers were employed in the construction industry (building construction, civil engineering projects, specialized construction activities), while in other sectors of the construction industry (mining, industrial sectors, architectural services), another 127,000 of workers were employed. Thus, the total employment in the broader construction sector approached a total of 277,000 workers referring to that specific year. It must be noted that the sector includes 46 professional categories, based on the 3-digit ISCO (International Standard Classification of Occupations) classification. In contrast, 86 professional categories are identified in the broader construction sector, incorporating hundreds of sub-professions.

Most of those employed in the construction sector are met in specialized construction activities, with 78,000 individuals in 2019, a decrease of 64.7% compared to 2008. In the building construction, which also experienced a significant reduction in employment during the same period (-73.1%), 42,000 individuals were employed in 2019. A significant footprint in terms of employment is recorded in the industrial sectors of the broader construction sector, with 62,000 workers in 2019, while in the construction services sector, 56,000 individuals were employed the same year. Summarizing, in 2008, the construction sector employed 595,000 individuals, while in 2019, the workforce in this sector barely reached the figure of 150,000. According to even more recent data from the Hellenic Statistical Authority's Labour Force Survey, the average figure for the four quarters of 2022 for workers in the

construction sector (including self-employed, wage earners, and family business helpers) amounted to 148,600.

According to the energy balance of the year 2017, the energy consumption related to buildings in Greece amounted to 6,605 ktoe, a quantity that corresponds to 42% of the total final energy consumption in the country. In the tertiary sector, public buildings are the most energy-intensive with an average annual primary energy consumption of 778.24 kWh/m², as well as prison facilities with an average annual primary energy consumption of 622.67 kWh/m², across almost all climatic zones. It is also worth noting that, during the period from 2005 to 2015, an increase in final consumption from 737 ktoe (2005) to 1,613 ktoe (2015) was recorded in the tertiary sector, reflecting the rapid growth of the relevant sector over this decade.

The largest share of final energy consumption in tertiary sector buildings pertains to space heating and the use of electrical appliances and lighting, followed by air conditioning and the production of domestic hot water. Electricity predominates, covering 73% of the energy needs of buildings in the tertiary sector. It is followed by oil, which experienced a significant drop at the peak of the economic crisis but recovered partially by 2015, while natural gas stands for a relatively small portion.

Among residential buildings, the most energy-intensive buildings are single-family homes, while buildings of multi-family residences are characterized by an average annual primary energy consumption of 257.08 kWh/m². According to Eurostat's energy balance for the year 2015, the consumption of Greek residences amounted to 4,401 ktoe, compared to 4,615 ktoe in 2010 and 5,510 ktoe in 2005, respectively. As can be seen, the economic recession of the previous years significantly impacted household energy consumption, as it coincided with a parallel increase in fuel prices. During the decade from 2005 to 2015, a significant reduction in the share of oil (from 57% to 33%) and a notable increase in the share of natural gas and, to a lesser extent, electricity was recorded. Moving to the more recent years, specifically the year 2020, it is estimated that each household in the country consumed an average of 11,792 kWh annually, to cover its total energy needs.

2.2 Current national and European legislative framework

At the end of 2019, the Greece's "National Energy and Climate Plan" (NECP) was ratified by the Government Council for Economic Policy Decision No. 4/23.12.2019 (Official Gazette B' 4893). The NECP serves as a Strategic Plan for climate and energy issues for the Greek Government, presenting a detailed roadmap for achieving specific Energy and Climate targets by 2030. It outlines and analyses the priorities and necessary policy measures across a broad spectrum of development and economic activities, benefiting Greek society, establishing it as a reference document for the next decade.

On the other hand, the Long-Term Strategy (LTS) for the year 2050 is a roadmap for the country's climate and energy policies, aiming to achieve climate neutrality by 2050. This strategy begins from 2030 and incorporates the objectives of the NECP, proposing technological solutions applicable to the domestic market. It also aims for flexibility in energy policy to adapt to technological advancements and fluctuations in energy consumption across economic sectors post 2030.

According to the NECP, the national target for the share of renewable energy sources (RES) in the final energy consumption is at least 35%, exceeding the European target of 32%. There is also an expected increase in the share of RES in electricity consumption to 60%, in heating and cooling to 40%, and in transportation to 14%. Additionally, targets have been set for increased production from RES and distributed generation in buildings, with plans for the operation of self-production systems and energy self-consumption (netting) with a capacity of 1 GW by 2030, covering the needs of at least 330,000 households.

Improving energy efficiency is critical to national policies and strategies and a fundamental cross-cutting priority. Specifically, regarding the building sector, a certain set of policy measures is envisaged under the "Long-term Renovation Strategy for the Building Stock" issued in March 2020 (in accordance with

the requirements of Directive 2018/844/EU). These measures aim to enhance the energy performance of both public and private buildings and, more specifically, involve the techno-economic analysis and identification of cost-optimal measures to meet the high rate of renovation set for the building stock.

To achieve the targets set by the National Energy and Climate Plan for 2030, Greece foresees the implementation of a series of regulatory and financial measures to upgrade the building stock. These include the revision of the Energy Performance of Buildings Regulation (KENAK)" with new requirements for the energy performance of buildings, the enhancement of the role of the Energy Manager, the adoption of the ISO 50001 standard for energy management in public buildings, the development of plans to address energy poverty, and the further development of programs such as "Energy Saving at Home" / "Energy Saving - Autonomy" program The ELECTRA program is also expected to promote attractive investments in upgrading public buildings' energy efficiency.

The COVID-19 pandemic significantly impacted the global economy and energy markets, reducing demand and prices. However, the European Union responded robustly by creating new resources such as the Recovery and Resilience Fund, which support the energy transition. The gradual emergence from the pandemic and the invasion of Russia into Ukraine led to an increase in energy prices. Now, with the update of the National Energy and Climate Plan, Greece faces the obligation and opportunity to readjust its national strategy to the new international environment, confident in its ability to navigate these challenges.

Regarding national policies and strategies in the field of Continuing Vocational Education and Training (CVET), it should be noted that in January 2022, the "Strategic Plan for Vocational Education, Training, Lifelong Learning and Youth 2022-2024" was drafted as part of the Strategic Planning in the Education Sector. Furthermore, in addition to Law 3879/2010, parts of which are still in force, policy priorities are primarily defined by the recent Law 4763/2020 (Official Gazette 254A), voted in December 2020. This law aims at a comprehensive restructuring and upgrading of this critical education sector, attempting a holistic reform of Vocational Education and Training (VET) and Lifelong Learning (LLL) across three fundamental axes: joint planning of VET and LLL, linking VET and LLL to the real needs of the labour market, and upgrading the quality of VET provided.

It is also worth mentioning that under Axis 3.2 'Enhancing education and lifelong learning and modernizing vocational education and training' of the National Recovery and Resilience Plan' Greece 2.0,' which is fully aligned with EU goals for a rapid transition of the Greek economy to become green and digital, the Ministry of Education has incorporated the Action 'Upgrading Vocational Education and Training,' aimed at accelerating the implementation of Law 4763/2020. Notably, Sub-action 4 focuses on developing and certifying 200 new occupational profiles across priority economic development sectors, emphasizing energy, the environment, and the digital economy. These new occupational profiles are not just about economic growth but also about ensuring and promoting female participation.

Finally, the relatively recent completion of the National Qualifications Framework (NQF) and its institutionalization by Law 4763/2020 ensure the existence of a unique tool through which all degrees awarded in Greece can be described and evaluated. The NQF provides a basis for classifying all titles granted by the Greek educational system and their alignment with the levels of the European Qualifications Framework (EQF), which serves as a meta-framework and reference point, allowing qualification systems from different countries to be related to each other.

2.3 Quantification of needs for a skilled "blue" and "white-collar" workforce

Among the most critical requirements of BUS-REGRoUP initiative was the quantification of "blue-collar" (craftsmen, technicians, construction workers, etc.) and "white-collar" (engineers, architects, designers, etc.) workers in the building sector who need to be trained in each specialty/profession and for each skill level in order to meet the 2030 energy targets. Thus, within the framework of the "Status Quo Analysis" in Greece, a quantitative assessment of the needs for a "blue-collar" and "white-collar" workforce to implement energy saving techniques in buildings and for specialized professionals required to install

renewable energy systems (RES) in buildings (according to the scenarios for achieving the goals) was conducted. The quantitative assessment of the necessary workforce was conducted in a distinct manner pertaining to energy efficiency interventions in the current building stock and the construction of new buildings. To ascertain the overall workforce demands in the construction industry by 2030, a simulation was performed utilizing all accessible data to examine the development of building activity in Greece under three distinct scenarios. The following three scenarios offer contrasting perspectives on the evolution of Greek construction activity: (a) an optimistic outlook, (b) a neutral one, and (c) a pessimistic one.

In light of the estimation of requirements in new constructions, the following quantitative findings emerged regarding the required workforce for the implementation of energy saving interventions in new buildings (or the development of energy-autonomous buildings) and the reconstruction of new buildings by 2030 (the reader is directed to the "Analysis of the Status Quo for Greece" for further elaboration on the quantitative analysis conducted):

- ✓ The estimated number of "white-collar" building construction workers requiring training until 2030 ranges from 44,307 (pessimistic scenario) to 63,858 (optimistic scenario).
- ✓ The estimated number of "blue-collar" building construction workers requiring training until 2030 ranges from 175,257 (pessimistic scenario) to 206,491 (optimistic scenario).

Through cooperation with members of the National Qualifications Platform (NQP), which was re-established during the early months of the project, it was made clear that there is an increased need for education and training both for technicians and for engineers active in the building construction sector. Both categories face the need to acquire new skills for implementing measures to improve energy efficiency and integrate RE systems into buildings.

More specifically, the needs for training workers in the building sector (both "blue-collar" and "white-collar," who will specifically deal with RES interventions and installations) are estimated per professional category and skill level as follows:

- ✓ Need for training "white-collar" workers for 2030 in the field of RES and energy efficiency in the building sector: **31,362** (pessimistic scenario) to **45,201** (optimistic scenario)
- ✓ Need for training "blue-collar" workers for 2030 in the field of RES and energy efficiency in the building sector: **124,053** (pessimistic scenario) to **146,161** (optimistic scenario)

2.4 Necessary skills and skills gaps between the current situation and the estimated needs for 2030

Another important finding in the context of the "Status Quo Analysis" was the identification of new skills that "blue-collar" and "white-collar" workers in the building construction sector need to develop by 2030. Through specially developed questionnaires sent to the members of the NQP, a set of proposed essential skills were prioritized as most critical for achieving the goals of energy saving and improving the energy efficiency of buildings by 2030.

Regarding the "blue-collar" workforce, most technicians in the building construction sector consider it essential to acquire skills for implementing measures to improve energy efficiency and integrate renewable energy technologies/systems in buildings. Following closely in importance are the skills related to the smart operation of buildings (explicitly referring to sensors, control systems, and building management systems), the carbon footprint during the life cycle of a material/system, the circular construction, and the efficient use of resources, as well as the skills related to the comprehensive renovation of buildings, including among others, through modular and industrial solutions.

Regarding "white-collar" workers, on the other hand, it is deemed as most necessary to acquire skills related to the implementation of measures aiming at the improvement of energy efficiency and the integration of renewable energy sources in buildings, as well as those related to the carbon footprint

during the life cycle of a material/system, circular construction, and the efficient use of resources. The involvement of all engineering specialties as energy auditors, which means that in addition to evaluating the building's current energy situation, they are also responsible for drafting improvement proposals, explains the increased importance of skills regarding the implementation of energy efficiency measures and the integration of renewable energy. Similarly, the high importance of skills related to the carbon footprint during the life cycle of a material/system and circular construction can be explained by the promotion of the "circular economy" by the state within the framework of subsidy programs related to the construction sector (professional activity of engineers).

Finally, it is worth mentioning that, currently, there is no mechanism for evaluating and selecting suitable trainers for professional training programs on energy saving and the installation of renewable energy systems. Nevertheless, experts in this field believe that trainers should be individuals from the sector, specialists in constructing sustainable buildings who also have practical experience. Considering the balanced and linear training of professionals in the construction sector within the remaining seven years until 2030, approximately 1,300 trainers are estimated to be required.

2.5 Identified barriers to achieving the 2030 goals

The process of identifying potential barriers concerning the training of both 'blue-collar' and 'white-collar' professionals who are employed in the building construction sector was one of the most critical steps during the development of the "Status Quo Analysis" in the previous stage of the BUS-REGRoUP Project. The process followed to identify these barriers involved representatives from the NQP member organizations filling out two distinct questionnaires: these questionnaires addressed the identification and assessment of the potential barriers "blue-collar" and "white-collar" professions could face respectively with respect to their skills and capacity development agenda. Each identified barrier (10 in total for "blue-collar" workers and 11 for "white-collar" workers) was assessed in terms of its significance, impact, and prioritization.

According to the recommendations and responses received regarding 'blue-collar' workers, the most critical barriers that equally limit their access to training programs include *the cost of education, the lack of available time for participating in training programs, the inadequate institutional framework, the lack of suitable educational programs, the end-users ignorance about qualification certification which results in no added perceived value, and finally, the high prevalence of undeclared work in the construction industry*. Notably, the selection of these 6 (six) barriers as the most significant ones can be interpreted by the fact that they are interdependent and function complementarily to each other.

Regarding the second major target group, the 'white-collar' professionals (civil engineers, mechanical engineers, electrical engineers, architects, etc.) employed in the building construction sector, four (4) primary barriers were identified: these include *the lack of suitable educational programs, the lack of available time for engineers to participate in training programs, the inadequate institutional framework, and the cost of education/training*.

2.6 Progress of the BUILD UP Skills Initiative at national level

Over the last decade, there has been significant mobilization in project implementation in the frame of the BUILD UP Skills Initiative in Greece, specifically related to developing skills in the buildings construction sector. This initiative, launched by the EU in 2011, aims to increase the number of skilled professionals in the sector (initially targeting "blue-collar" workers) by developing national qualification platforms and roadmaps and providing training in energy efficiency and renewable energy technologies in buildings.

Between 2012 and 2013, the **BUS-GR** project was implemented by a consortium of research institutions, employers and workers' organizations, and academic bodies representing the technical sector and the fields of energy and training in Greece. Within the framework of this project, both the "Status Quo

Analysis" and the "National Roadmap" were drafted, focusing initially on workers and craftsmen (blue-collar professionals) with a milestone target set for 2020. A significant achievement of this project was ensuring the acceptance and adoption of the produced "Roadmap" by the relevant authorities and all concerned stakeholders in Greece through appropriate activities that were undertaken.

Approximately a year later, as part of support actions for creating new or upgrading existing training and qualification certification schemes on a large scale for building sector workers – targeting technicians and other on-site workers – and based on the recommendations of the "Qualification Roadmap," the **BUILD UP Skills UPSWING** project was also implemented in Greece. Significant outputs of this project included the approved updated occupational profiles for **building insulation technicians, aluminium and metal constructors, and burner installers-maintainers**, as well as suitable training materials, guidebooks, and practical tools for the workers of these three targeted specialties and their trainers. This included 3 'Training of Trainers' (ToT) seminars and 9 pilot technical training programs. Additionally, a series of supportive measures and monitoring mechanisms were proposed to implement and sustain these training and qualification certification programs on a wide scale (and over time).

Notably, IME GSEVEE, as a research body for small and medium-sized enterprises in the country supporting the General Confederation of Professionals, Craftsmen and Merchants of Greece, developed significant activity from 2012 to 2017 in matters relating to the diagnosis of skills and professional needs, serving as a thematic area of operation. Specifically, it actively participated as a coordinating partner in the pilot phase of implementing the National System for Diagnosing Labour Market Needs (Labour Market Needs Diagnostics Mechanism - Ministry of Labour, Social Security and Social Solidarity), focusing on the recognition and forecasting of skillσ needs, in cooperation with other national institutional social partners and with the scientific support of the EEAD.

Equally significant is the participation of two bodies from Greece, specifically the Panhellenic Association of Graduate Engineers Contractors of Public Works (PEDMEDE) – as the National Representative of the Construction Sector and IEK AKMH – as a provider of Vocational Education and Training (VET), in the project '**Skills Map for the Construction Industry - Construction Blueprint**'. Within the framework of this specific project, the consortium undertook the development of various activities to implement a new sectoral strategy for skills in the construction sector. This approach focuses on analysing existing skills and addressing new needs arising from technological developments and environmental changes. Initially, a detailed analysis of the sector's current state across Europe was conducted, evaluating existing skills and the need for new skills. This analysis incorporated factors such as Vocational Education and Training (VET) and directly influenced the shaping of qualifications. The findings of this analysis were taken into account in the processing of the present study to align the proposals of the two projects.

3. Overall Strategy for achieving the National 2030 Targets

3.1 Methodology for the definition and prioritization of the National Roadmap Measures

3.1.1 Strategic approach to Roadmap development

The development process of the National Roadmap, as followed by the BUS-REGRoUP project consortium, has been designed to ensure broad consensus among the stakeholders, while simultaneously aiming to maintain its strong advisory nature with the interested building construction professionals (“blue-collar” and “white-collar”). The responsibility for the scientific development of the roadmap is held by the BUS-REGRoUP project consortium, while the strategic directions are provided by the Strategic Planning Committee (SPC) that has undertaken this role.

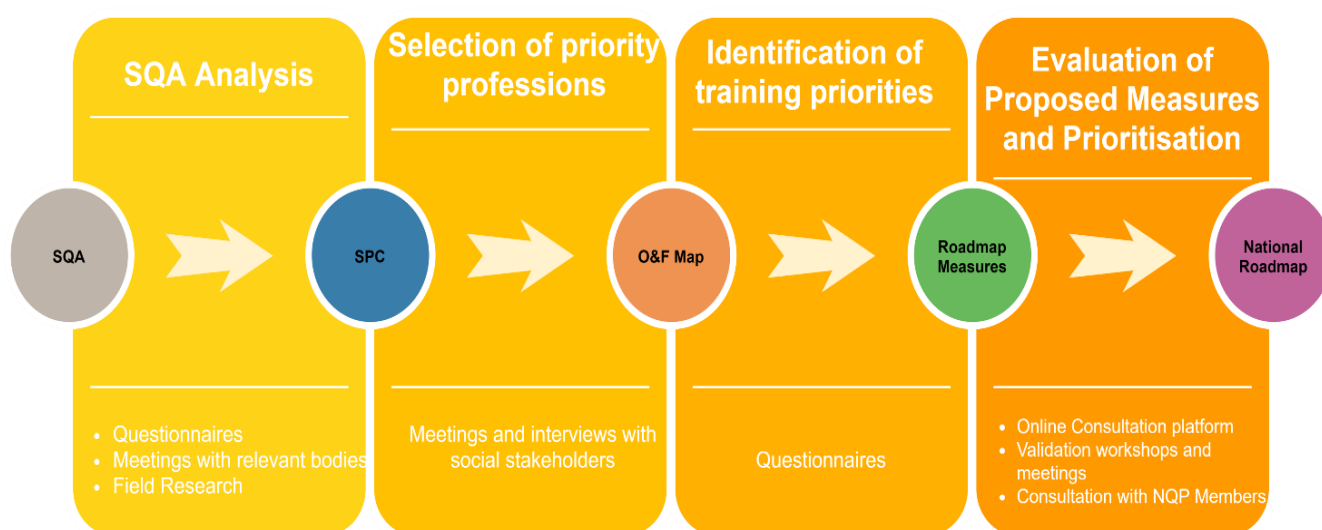


Figure 3.1: Stages of development of the National Roadmap

The successive steps of the National Roadmap development process are five (5) and they are described in detail in the following paragraphs:

➤ **Step 1: Establishment of the Strategic Planning Committee (SPC)**

The Strategic Planning Committee (SPC) has an advisory role and supports the overall decision-making process for the development of the ‘National Roadmap for 2030’. The committee consists of 12 experts and representatives from the partners of BUS-REGRoUP project consortium, the relevant national authorities, and the stakeholders (see Table 3.1).

The ultimate role of the Strategic Planning Committee is to define the strategic national priorities, provide technical support for identifying high-priority professions, evaluate alternative future scenarios, and synthesize the proposed measures and actions. Additionally, this specific committee is responsible for the finalization processes of the National Roadmap, following the completion of the consultation procedures.

To better coordinate the tasks of the SPC and to monitor the progress of the works related to the development of the National Qualifications Roadmap, the committee meetings were scheduled every 2-3 months.

Table 3.1: Members of the Strategic Planning Committee (SPC)

| BUS-REGRoUP Project Partners | External Stakeholders |
|--|---|
| <ol style="list-style-type: none"> 1. Centre for Renewable Energy Sources and Saving (CRES) 2. National Technical University of Athens (NTUA) 3. The Institute of Small Enterprises of the General Confederation of Professionals, Craftsmen and Traders of Greece (IME GSEVEE) 4. Labour Institute of General Confederation of Workers of Greece (INE-GSEE) 5. Technical Chamber of Greece (TCG) | <ol style="list-style-type: none"> 1. Ministry of Environment and Energy (YPEN) 2. Ministry of Education, Religious Affairs & Sports 3. Ministry of Infrastructure and Transport 4. National Organization for the Certification of Qualifications & Vocational Guidance (EOPPEP) 5. Panhellenic Association of Public Works Contractors Engineers (PEDMEDE) 6. Association of Greek Contracting Companies (SATE) 7. Hellenic Association of Solar Energy Industries (EBHE) |

➤ ***Step 2: Selection of the building sector professions to be prioritized and included in the Action Plan of the National Roadmap***

The selection of professions included in the “National Roadmap” is designed to be a process that incorporates both statistical data, which have already been analysed in the “Status Quo Analysis”, as well as the opinions of interested parties and experts in the sector, primarily derived from the qualitative needs of the workforce. The possibilities of integrating women into the professions of the building construction sector are also emphatically considered aiming to enhance and support their participation.

As part of this task, a quantitative assessment of “white-collar” and “blue-collar” workers in the buildings construction sector was conducted by profession, based on relevant statistical data and industry data. Subsequently, the team analysed for each identified new skill, the availability and adequacy of related training schemes provided by various VET and academic providers. Finally, this task addressed and systematically assessed the extent to which the new skills are certified through a certification process approved by the pertinent state authority (e.g., EOPPEP for the case of the blue collar).

At the inaugural meeting of the National Qualifications Platform (NQP), the issue of “white” and “blue” collar professions in the building sector that should be prioritized for inclusion in the Roadmap was addressed through a suitably structured questionnaire. The responses of the NQP members regarding which professions urgently need training on renewable energy sources and energy saving/efficiency issues in the construction sector is depicted in the following Figures 3.2 and 3.3.

From the findings of the research, it was evident that there is a significant need in Greece for additional specialised training of the workforce in new skills. Undoubtedly, as already mentioned, the ability of workers to effectively cope with tasks related to energy-efficiency/saving works and to install renewable energy systems must be reassessed through appropriate monitoring mechanisms, as well as continuous training and certification of individual qualifications.

However, identifying the workforce between those who need further training and those who have already been trained, according to the educational needs proposed by the EU, is a demanding process. This identification process could be directly related to the significance and contribution of each professional activity in achieving the energy targets for 2030 (as described in detail in subsection 7.3 of the ‘Analysis of the Status Quo).

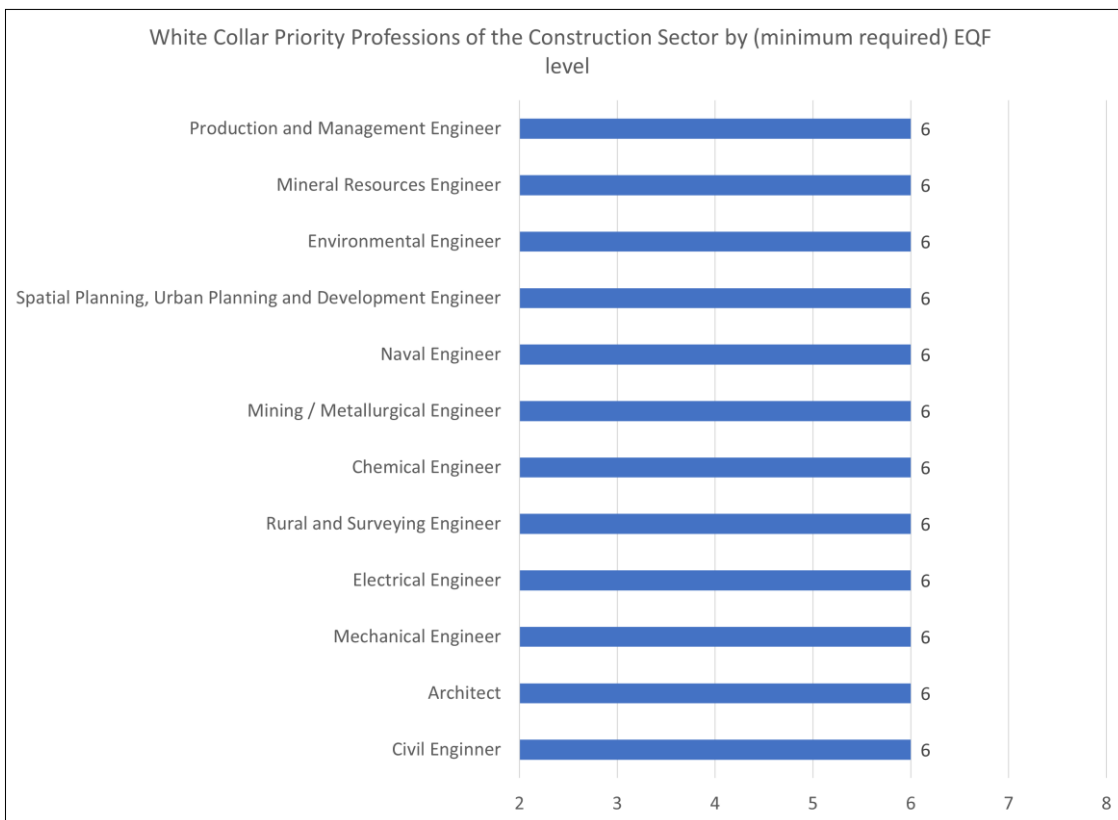


Figure 3.2: White collar professions of high priority for training in EE and RES issues in the building industry

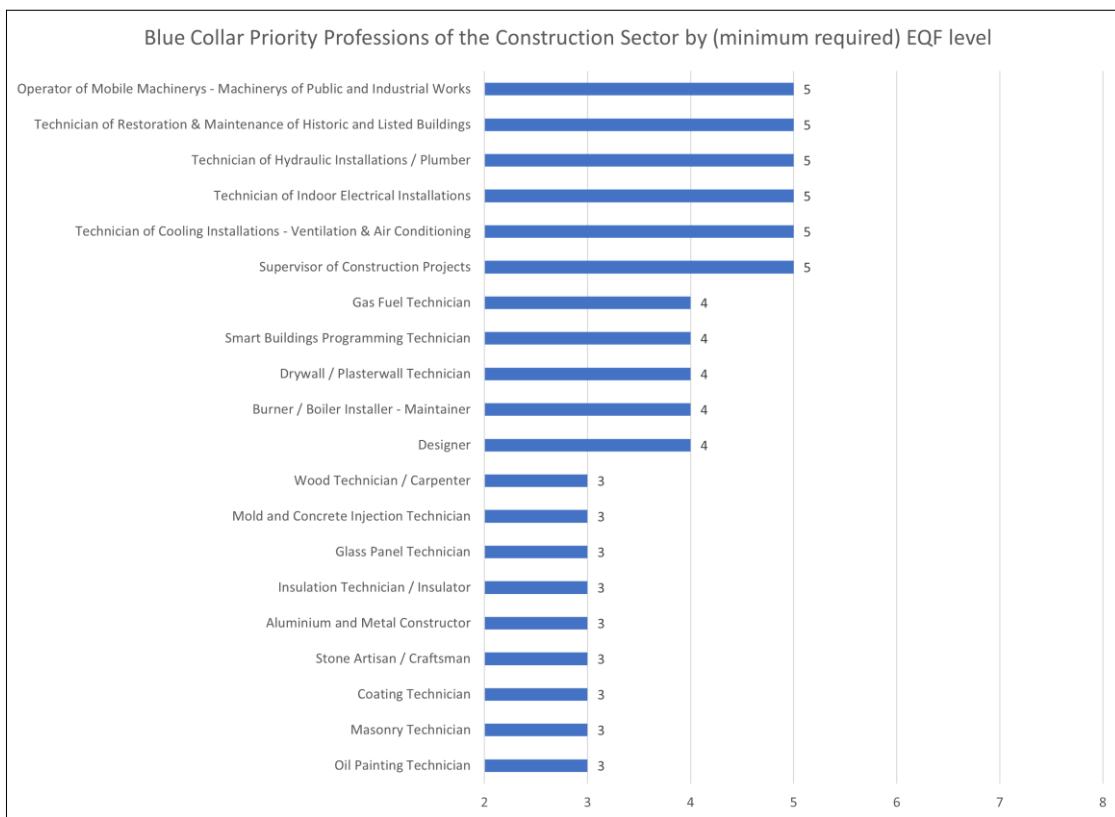


Figure 3.2: Blue collar professions of high priority for training in EE and RES issues in the building industry

In order to effectively implement training, initial barriers such as the cost of participation, the lack of available time, the absence of suitable educational programs, the inadequate institutional framework, the insufficient market supervision, and the creation of added value must be addressed, as these hinder professionals in the sector from accessing the various available training and qualification certification programs.

On the other hand, the State should proceed with the development of appropriate training programs in conjunction with financial support schemes for this training, so that every professional can have the opportunity to access them. At the same time, a series of incentives must be developed for acquiring the necessary new skills, creating added value both for professionals and office staff, ensuring their interest in participating in the training programs.

➤ **Step 3: Determination of the development process of the National Roadmap**

The process for defining the Action Plan to support the implementation of the National Roadmap is depicted in Figure 3.4. Initially, the main axes for achieving the goals of the National Roadmap were established. Subsequently, these axes were specified and – within each of them – a series of measures to overcome specific obstacles were proposed and communicated for comments to the members of the NQP. Additionally, in the same step, a field survey was conducted through appropriate questionnaires to prioritize the proposed measures. Finally, the priority measures that were identified were decomposed and analysed into specific actions, providing a detailed action plan until the year 2030, thus completing the National Roadmap.

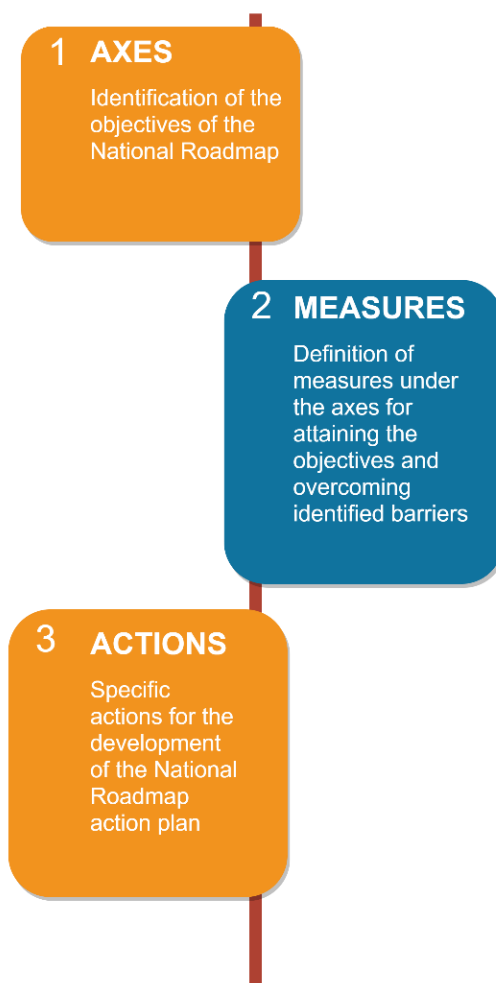


Figure 3.3: The stages for the development of the National Roadmap’s Action Plan

Based on the above approach, a draft of the National Roadmap was developed, which was then put into consultation by the NQP in the first phase, as well as into public consultation in the second phase (the improved draft, or now 'plan', which initially took into account the feedback of the NQP). The consultation processes that followed included NQP consultation meetings, as well as the analysis of proposals received through the online consultation platform (Figure 3.5).

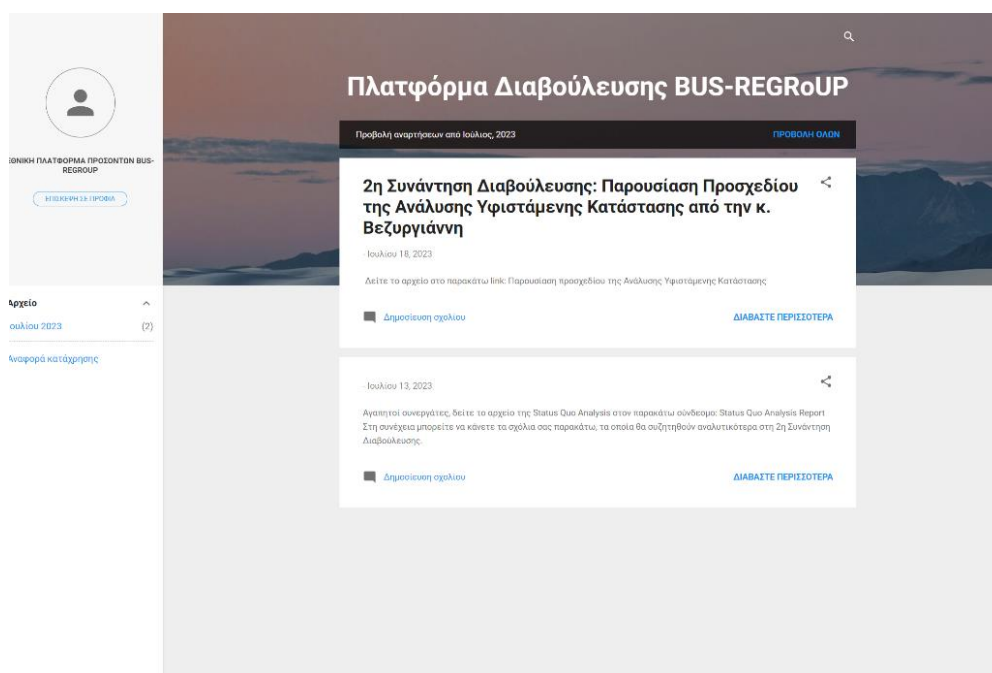


Figure 3.4: Online consultation platform of BUS-REGRoUP project

The draft version of the National Roadmap formed the basis for in-depth consultation, proposing an additional series of activities as follows:

- Study of the necessary incentives that must be provided to professionals in the building construction sector (both 'blue-collar' and 'white-collar' ones).
- Structural measures for monitoring developments in the sector and trends regarding the qualifications of construction sector professionals (both 'blue-collar' and 'white-collar' ones)
- Identification of the stakeholders engaged and the degree of their participation, according to their influence and role/contribution towards the successful implementation of the proposed measures and actions.

➤ **Step 4: Evaluation of the proposed measures and prioritization**

The proposed measures were assessed based on a set of evaluation criteria for determining the priorities of the National Roadmap until 2030. The evaluation system was analysed across various dimensions that are further divided to form the distinct evaluation criteria. The contribution of each measure to each dimension was assessed on a qualitative scale and, in a second phase, the measures were categorized into High Priority, Medium Priority, and Low Priority ones, depending on the overall score they accumulated. The final classification of the measures was discussed and finalized during discussions with stakeholders and targeted meetings of the SPC (Strategic Planning Committee). The process is described in more detail in Subchapter 3.3.

➤ **Step 5: Finalization and Endorsement of the National Roadmap**

The draft of the National Roadmap was initially put into consultation among the members of the NQP to form an enhanced and updated version that was used for subsequent public consultation. To achieve a more effective and extensive public consultation on the National Roadmap, the online platform shown in Figure 3.5 was used, which – as already mentioned – was elaborated exclusively for this purpose

by the consortium, since the earlier stages of the project, as this platform was also used for the public consultation of the “Status Quo Analysis”. The public consultation process was open to the public and was conducted for a time period of almost two months.

Upon completion of the consultation process, all comments suggestions and feedback provided by the members of the NQP were taken into consideration and further analysed and, as expected, they were critically incorporated into the National Roadmap. Subsequently, the updated version of it was reviewed by the SPC, and the final version of the National Roadmap was approved through a voting procedure by the members of the SPC.

3.1.2 Axes for achieving the objectives of the initiative

As a result of the findings of the 'Analysis of the Status Quo' (Status Quo – Skills Gap Analysis), three specific focus areas were defined in order to identify robust background solutions for achieving the goals encompassed in the National Roadmap. The three axes are as follows:

1. Ensuring the required number of 'blue-collar' and 'white-collar' workers in the building construction sector.
2. Upgrading the skills of workers in the building construction sector.
3. Overcoming institutional barriers and ensuring the sustainability of the initiative.

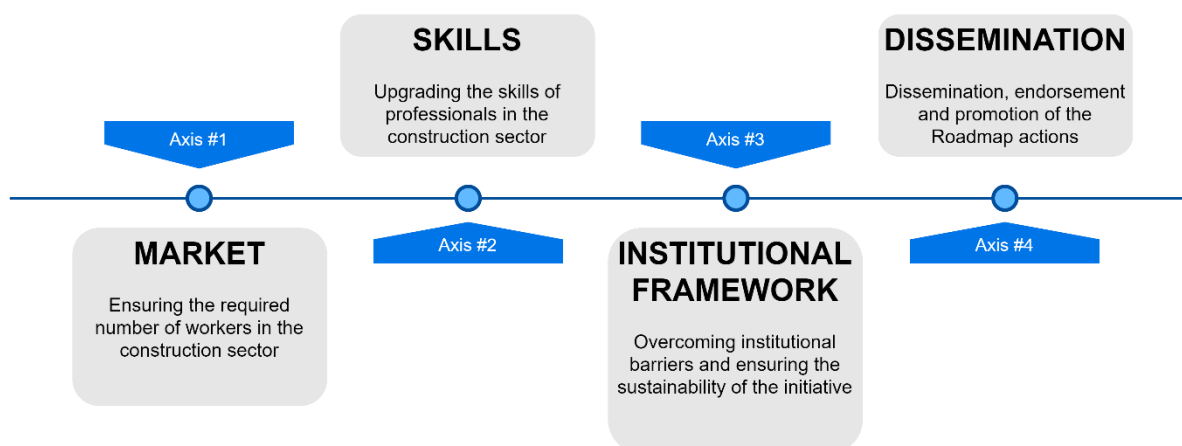


Figure 3.5: Axes for achieving the objectives of the initiative

The proposed sets of measures are supported by a series of horizontal actions aimed at informing / raising awareness among:

- ✓ Workers in the building sector about the necessity of continuously updating their skills and the advantages that arise from the recognition of their qualifications.
- ✓ Citizens, broadly as 'consumers', with the goal of informing them about the advantages of selecting certified workers in the building sector.

3.2 National Roadmap Measures

3.2.1 Proposed Measures

In the afore mentioned context, the project partners held some consultation meetings in order to identify and conclude regarding the measures considered as necessary to be included in the National Roadmap. The measures proposed as necessary for achieving the national goals and overcoming the obstacles identified in the “Status Quo Analysis” were categorized under the previously mentioned four axes.

“Market” Axis

In the above context, the measures considered necessary to ensure the required number of 'blue-collar' and 'white-collar' workers in the building sector (Market) are as follows:

| Market |
|---|
| M1: Reintegration of untapped-inactive labour force |
| M2: Enhancement of the attractiveness and “image” of construction/building sector professions |
| M3: Increase of the inflow of young people and women into the construction/building sector |
| M4: Combatting of the uninsured / undeclared labour |
| M5: Labour force mobility |
| M6: Incentives' provision for existing employees to remain in the sector |

“Skills” Axis

Regarding the measures that must be taken for the upgrading of the skills of workers in the buildings construction sector, the following were considered as the most critical:

| Skills |
|---|
| M7: Updating of occupational profiles and introduction of new ones |
| M8: Strengthening of the initial VET for 'blue-collar' professionals in the buildings construction sector and of the specialized training for engineers |
| M9: Development of suitable specialized continuing vocational education and training programs addressing the for the buildings construction sector labour workforce |
| M10: Implementation of efficient quality assurance mechanisms for the educational processes |
| M11: Development of a Framework - Mechanism for ensuring the required number of trainers |
| M12: Retraining / reskilling of workers currently employed in the lignite industry |

“Institutional Framework” Axis

The measures deemed necessary to **overcome institutional barriers** and **ensure the sustainability of the initiative** are as follows:

| Institutional Framework |
|---|
| M13: Updating the institutional framework in the chain: Training - Certification - Regulation of profession & professional rights |
| M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation |

M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap

Horizontal Axis

All the aforementioned proposed measures are complimented by the following **horizontal measure**:

Dissemination and promotion of the National Roadmap

M16: Dissemination, endorsement and promotion of the National Roadmap actions

The above measures were initially put up for consultation among the members of the NQP (National Qualifications Platform), in order to validate their selection so that an enhanced and updated version of the National Roadmap could be formed, which was subsequently submitted to a public consultation procedure

3.2.2 Contribution of the Measures to overcoming existing barriers

The above Measures focus on addressing the main obstacles to the development of professional qualifications in the technical professions of the building construction sector and achieving the 2030 national targets on energy and the climate, as identified, and recorded by the members of the NQP and the involved entities, as follows:

Barriers for “white-collar” workers

For 'white-collar' workers, the main obstacles identified within the activities of the BUS-REGRoUP project are as follows:

| | |
|------------|--|
| E1 | Training cost |
| E2 | Lack of incentives / Difficulty of small businesses accessing training programs |
| E3 | Lack of time to participate in educational/vocational training programs |
| E4 | Inadequate institutional framework |
| E5 | Lack of appropriate educational programs |
| E6 | Lack of interest on the part of the professionals in the construction sector |
| E7 | Lack of certification schemes |
| E8 | Ignorance of end-users regarding qualification certifications, resulting in them not attributing any added value |
| E9 | Informal (unreported) labour in the construction sector |
| E10 | Lack of relevant information |
| E11 | Broader sense of devaluation of the engineering profession |

The table below (Table 3.2) shows the correlation and impact of the proposed measures in addressing the aforementioned barriers for “white-collar’ workers”.

Table 3.21: Correlation table between the barriers for “white-collar” workers and the National Roadmap Measures

| | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 |
|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| E1 | | | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | | | ✓ | |
| E2 | ✓ | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | | | | ✓ | |
| E3 | | | ✓ | | | ✓ | | ✓ | ✓ | | | | | | ✓ | |
| E4 | ✓ | | | | | | | ✓ | | | ✓ | | ✓ | ✓ | ✓ | |
| E5 | | | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | |
| E6 | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | ✓ | ✓ |
| E7 | | | | | | | | | | ✓ | | | ✓ | | | |
| E8 | | | | | | | | | | | | | | | | ✓ |
| E9 | | | | | | | | | | | | | | | | ✓ |
| E10 | | ✓ | ✓ | | | ✓ | | | | | | | | | | ✓ |
| E11 | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ |

Barriers for “blue-collar” workers

Regarding 'blue-collar' workers, the main barriers identified within the activities of the BUS-REGRoUP project are as follows:

| | |
|------------|--|
| E1 | Language issues for immigrant workers in construction, hindering their participation in education |
| E2 | Training cost |
| E3 | The existence of many individual and very small businesses in the construction sector that have difficulty accessing training programs |
| E4 | Lack of time to participate in educational/vocational training programs |
| E5 | Insufficient institutional framework |
| E6 | Lack of suitable educational programs |
| E7 | Lack of interest on the part of construction sector professionals |
| E8 | Lack of certification schemes |
| E9 | Ignorance of the end-users regarding qualifications certifications resulting in not adding any added value |
| E10 | Informal (unreported) labour in the construction sector |

Table 3.3 below presents the correlation and impact of the proposed measures in addressing the aforementioned barriers for “blue-collar’ workers”.

Table 3.3: Correlation table between the barriers for “blue-collar workers” and the National Roadmap Measures

| | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 |
|-----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| E1 | ✓ | | | | ✓ | | | | | | | | | | | |
| E2 | | | ✓ | | | ✓ | | | ✓ | | | ✓ | | | ✓ | |
| E3 | | | ✓ | | | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ |
| E4 | | | | | | ✓ | | | ✓ | | | ✓ | | | ✓ | |
| E5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| E6 | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | |
| E7 | | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| E8 | | | | ✓ | | | | | | ✓ | | | ✓ | | | |
| E9 | | | | ✓ | | | | | | ✓ | | | | | | ✓ |
| E10 | ✓ | | | ✓ | ✓ | | | | | ✓ | | | | | | ✓ |

3.2.3 Prioritization of the measures – Priorities of the National Roadmap

In addition to the above, an evaluation system for the proposed measures was developed with the goal of shaping the priorities of the National Roadmap until 2030. Initially, the problem is described and defined (evaluation of proposed measures and extraction of priorities) aimed at further detailed analysis. Subsequently, the problem is decomposed into a limited number of dimensions, from which the individual evaluation criteria are derived.

The entire process of shaping the evaluation criteria is described by the classic model of constructing a consistent family of criteria, as proposed by Roy (in 1985)¹. This process has been recognized as fundamental and indispensable for the documented and correct support of decisions according to the methodologies of Multicriteria Decision Aid and Making (MCDA-M). This scientific field has developed and evolved rapidly over the last 40 years and has achieved widespread resonance and application in both administrative and political issues and decision-making problems (Figueira et al., 2005)².

At the initial stage, following consultation with the members of the NQP and related analyses by the members of the SPC, the evaluation process and methodology of the proposed measures were validated using a commonly accepted evaluation system. This system consists of three general preference dimensions, from which the evaluation criteria emerge, as shown in Figure 3.7.

The dimensions chosen for the assessment of the relevant set of measures are:

- I. The measure's contribution to the national energy targets.
- II. The economic dimension, referring both to the cost of the measures and the economic benefits from their achievement.
- III. The meeting of social needs at national level (social dimension).

Subsequently, each dimension is broken down into the individual evaluation criteria that comprise it. According to the multicriteria theory, these criteria need to be preferential, independent to the decision-

¹ Roy, B. (1985). Méthodologie multicritère d'aide à la décision, Economica, Paris.

² Figueira, J., Greco, S., Ehrgott, M., Eds. (2005). State-of-Art of Multiple Criteria Decision Analysis, Kluwer Academic Publishers, Dordrecht

makers who are called upon to make decisions and must also maintain the property of monotonicity (genuinely increasing – decreasing preference functions).

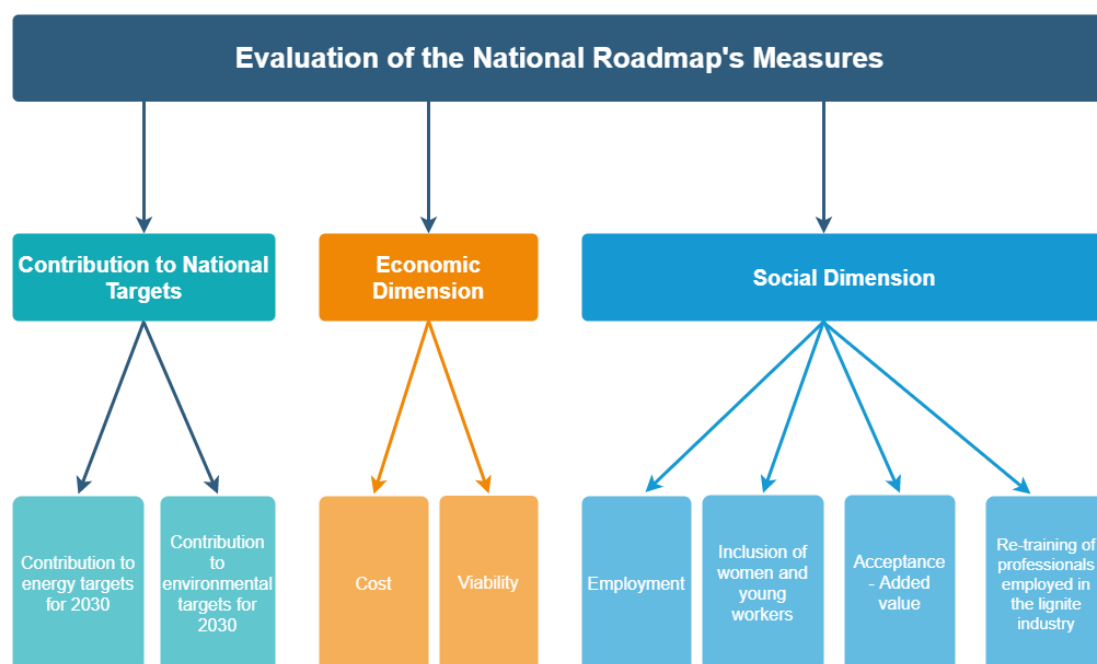


Figure 3.7: Dimensions and evaluation criteria of the National Roadmap’s measures

The **second stage** consists of acquiring the ratings that each specific measure receives in each dimension. Subsequently, these ratings are used to calculate the scores each proposed measure receives at each of the three-dimension levels. Specifically, the contribution of each measure in each dimension was expressed qualitatively, on a three-level discrete and ordered scale of linguistic variables, as shown in Table 3.4 below:

Table 3.4: 2Rating scale of the measures to export priorities

| Rating | Contribution |
|--------|--------------|
| + | Low |
| ++ | Medium |
| +++ | High |

It is worth noting that the use of a discrete and ordered scale of linguistic variables is widely used in priority-setting problems due to the immediacy and clarity of the final results.^{3,4}

The **third and final stage** of the evaluation process consists of synthesizing the individual ratings developed during the second stage into a final overall score for each measure. Depending on the total score they received in the three individual dimensions, the measures were ultimately categorized into **3 categories. Measures of:**

- (1) **High Priority**
- (2) **Medium Priority**
- (3) **Low priority**

³ Doukas H., “Modelling of linguistic variables in multicriteria energy policy support”, *European Journal of Operational Research*, 2013, 227 (2), pp. 227-238.

⁴ Herrera, F., & Herrera-Viedma, E. (2000). Linguistic decision analysis: steps for solving decision problems under linguistic information. *Fuzzy Sets and Systems*, 115, pp. 67-82.

The results of the evaluation of the measures of the National Roadmap, as derived from the overall ratings of the members of both the SPC and the NQP and for all three evaluation dimensions, are presented in Table 3.5.

Table 3.5: Evaluation of the proposed National Roadmap Measures

| Roadmap's proposed measures | Evaluation Dimensions | | | Overall Measure's Priority |
|---|-----------------------|---------------------|------------------|----------------------------|
| | National Targets | Financial Dimension | Social Dimension | |
| M1: Reintegration of untapped-inactive labour force | +++ | +++ | +++ | High |
| M2: Enhancement of the attractiveness and "image" of construction building sector professions | +++ | +++ | +++ | High |
| M3: Increase of the inflow of young people and women into the construction/building sector | +++ | ++ | ++ | Medium |
| M4: Combatting of the uninsured / undeclared labour | ++ | +++ | +++ | High |
| M5: Labour force mobility | ++ | ++ | ++ | Medium |
| M6: Incentives' provision for existing employees to remain in the sector | +++ | +++ | +++ | High |
| M7: Updating of occupational profiles and introducing introduction of new ones | ++ | ++ | +++ | Medium |
| M8: Strengthening of the initial VET for 'blue-collar' professionals in the buildings construction sector and of the specialized training for engineers | +++ | +++ | +++ | High |
| M9: Development of suitable specialized continuing vocational education and training programs addressing the for the buildings construction sector labour workforce | +++ | +++ | +++ | High |
| M10: Implementation of efficient quality assurance mechanisms for the educational processes | ++ | ++ | +++ | Medium |
| M11: Development of a Framework - Mechanism for ensuring the required number of trainers | ++ | ++ | ++ | Medium |
| M12: Retraining / Reskilling of workers currently employed in the lignite industry | ++ | ++ | +++ | Medium |
| M13: Updating the institutional framework in the chain: Training - Certification - Regulation of profession & professional rights | +++ | +++ | +++ | High |
| M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation | +++ | ++ | +++ | High |
| M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap | +++ | +++ | +++ | High |
| M16: Dissemination, endorsement and promotion of the National Roadmap actions | +++ | +++ | +++ | High |

Therefore, the measures to be prioritized are the following:

Table 3.6: High priority measures of the National Roadmap

| | |
|------------------------------------|---|
| Market | M1: Reintegration of untapped-inactive labour force |
| | M2: Enhancing Enhancement of the attractiveness and “image” of construction/building sector professions |
| | M4: Combatting of the uninsured-undeclared labour |
| | M6: Incentives’ provision for existing employees to stay remain in the sector |
| Skills | M8: Strengthening of the initial VET for ‘blue-collar’ professionals in the buildings construction sector and of the specialized training for engineers |
| | M9: Development of suitable specialized continuing vocational education and training programs addressing the for the buildings construction sector labour workforce |
| Institutional Framework | M13: Updating the institutional framework in the chain: Training – Certification - Regulation of profession & professional rights |
| | M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation |
| | M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap |
| Dissemination and promotion | M16: Dissemination, endorsement and promotion of the National Roadmap actions |

4. Action Plan of the National Roadmap

4.1 Specification of the required actions for the implementation of the National Roadmap

The proposed Measures (i.e., those presented in Chapter 3) were further analysed into specific actions following a series of thorough consultation meetings and interactions among the five project partners, as the first step in the overall process of drafting and editing the National Roadmap. Specifically, the Actions (A) that are proposed to be implemented for each Measure are as follows:

M1: Reintegration of untapped-inactive labour force

| | |
|-------|---|
| A.1.1 | Provision of incentives to employers and prospective employees to encourage the reintegration of the untapped/inactive labour force |
| A.1.2 | Actions to connect the inactive workforce with "green professions" and "green jobs" |
| A.1.3 | Digital transformation and enhancement of mapping systems, early warning systems, and monitoring capabilities to identify individuals at risk of unemployment or inactivity |
| A.1.4 | Incentives provision for the integration of legal immigrants and refugees into the productive workforce of the construction sector |

M2: Enhancement of the attractiveness and “image” of construction sector professions

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|-------|--|
| A.2.1 | Establishment of the career advancement for "blue-collar" workers |
| A.2.2 | Information/Awareness programs on employment opportunities and on the prospects available in the market for energy retrofitting of buildings and the construction of nearly Zero Energy Buildings (nZEBs). |

M3: Increase of the inflow of young people and women into the construction sector

| | |
|-------|--|
| A.3.1 | Provision of financial incentives for starting relevant business activities |
| A.3.2 | Provision of financial incentives to employers addressing the employment of young people and women in the construction/building sector |
| A.3.3 | Awareness actions addressed to young people, aiming at the enhancement of the appeal of the construction/building sector professions and the promotion of green professions |
| A.3.4 | Awareness actions addressed to women, aiming at the enhancement of the appeal of the construction/building sector professions and the promotion of green professions |
| A.3.5 | Support for new professionals in the field with free specialized training programs |
| A.3.6 | Improvement of the relevance of education and training to the labour market, through the facilitation of partnerships between training institutions and construction sector firms |
| A.3.7 | Advisory and career orientation programs in education to guide job finding in the construction sector |
| A.3.8 | Actions targeting the prevention of early dropout from education and training |
| A.3.9 | Providing support for women who are new mothers with free or low-cost childcare or a reduction in their social security contributions for a certain period, so that they have an incentive to enter such a demanding sector as the construction / building one |

M4: Combatting of the uninsured / undeclared labour

| | |
|-------|--|
| A.4.1 | Implementation of restrictions on the eligibility of the workforce in public and co-funded projects – possibility for employment solely for certified/licensed workers |
| A.4.2 | Strengthening the mechanism for controlling workers in projects' implementation and establishment of stricter penalties |
| A.4.3 | Exploitation of registers of certified/licensed workers (by trade/profession) |

M5: Labour force mobility

| | |
|-------|---|
| A.5.1 | Conduct of a specific study on the needs for labour influx in the construction sector |
| A.5.2 | Exploitation of labour force mobility programs to attract labour workforce |
| A.5.3 | Communication campaigns on the labour workforce mobility |
| A.5.4 | Programs to enhance the implementation of labour workforce mobility (training, institutional framework, integration framework, etc.). |

M6: Incentives' provision for existing employees to remain in the sector

| | |
|-------|--|
| A.6.1 | Incentives provision for participation in CVET (SEEK) programs addressing specialization |
| A.6.2 | Incentives provision to retain specialized experienced workers in critical sectors |
| A.6.3 | Institutionalization of reward programs for professionals in collaboration with construction sector entities |

M7: Updating of occupational profiles and introduction of new ones

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| A.7.1 | Updating and revision of existing occupational profiles of the sector to fill skill gaps in relation to RES and EE technologies, in collaboration with the competent social partners |
|-------|--|

M8: Strengthening of the initial VET for 'blue-collar' professionals in the buildings construction sector and of the specialized training for engineers

| | |
|-------|--|
| A.8.1 | Updating of the relevant to the construction sector professions' curricula, for NQF levels 3-5 and strengthening of apprenticeships and practical sessions at work |
| A.8.2 | Updating of the relevant to the construction sector professions' curricula, for NQF levels 6-7 |
| A.8.3 | Strengthening the process of aligning the content of curricula by specialization (NQF levels 6-7) |
| A.8.4 | Support programs for upgrading infrastructure and equipment for training / education providers (referring to NQF levels 3-7) |

M9: Development of suitable specialized continuing vocational education and training programs addressing the buildings construction sector labour workforce

| | |
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| A.9.1 | Designing a common framework for employee training across sectors on the specific issues of RES and/or EE |
| A.9.2 | Development of specialized training programs per professional group |
| A.9.3 | Development of the suitable labouratory infrastructures for the practical training of trainees |

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| A.9.4 | Introduction of flexible training methods (e-learning) |
| A.9.5 | Development of educational material and of a pool of exam topics for assessing the acquired knowledge and skills |
| A.9.6 | Creation of a basic curriculum on Energy Efficiency addressing all employees of the sector (horizontal module) |

M10: Implementation of efficient quality assurance mechanisms for the educational processes

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|--------|---|
| A.10.1 | Implementation of training programs capable of leading to qualification certification |
| A.10.2 | Expansion of the registry of certified trainers per professional group |

M11: Development of a Framework - Mechanism for ensuring the required number of trainers

| | |
|--------|--|
| A.11.1 | Development of training programs for trainers in the new skills required |
| A.11.2 | Exploitation of specialized experienced technicians as trainers, mainly in the practical part of the training programs, and their training and integration into the trainers' registry |
| A.11.3 | Development of a mechanism for the continuous further education of the trainers in cutting-edge technologies |

M12: Retraining / reskilling of workers currently employed in the lignite industry

| | |
|--------|---|
| A.12.1 | Cooperation with regional/local authorities and the competent bodies in areas heavily dependent on the lignite industry, providing personalized support and resources for transitioning to new careers in the construction sector |
| A.12.2 | Support and implementation of policies that facilitate the retraining and integration of lignite industry workers into the construction sector, such as tax incentives for companies employing reskilled workers |
| A.12.3 | Launch of a national initiative dedicated to the reskilling of workers and professionals in the lignite industry on topics related to sustainable construction |

M13: Updating the institutional framework in the chain: Training - Certification - Regulation of profession & professional rights

| | |
|--------|---|
| A.13.1 | Updating regulations related to training and certification to ensure the implementation of the National Roadmap |
| A.13.2 | Proceeding with regulations related to professional rights to ensure the implementation of the National Roadmap |
| A.13.3 | Update on a regular/periodic basis of occupational profiles by the competent bodies |
| A.13.4 | Possibility for the certification of non-formal and informal learning in the construction sector |

M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation

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|--------|--|
| A.14.1 | Institutionalization of the role of the NQP for the implementation and sustainability of the Roadmap. |
| A.14.2 | Creation of a monitoring mechanism per involved Ministries for the monitoring of the progress of the Roadmap |

| | |
|--------|--|
| A.14.3 | Establishment of an "Observatory" (supported by the NQP) for the systematic monitoring of the needs for upgrading skills and/or acquiring new ones in the energy technologies topics |
|--------|--|

M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap

| | |
|--------|--|
| A.15.1 | Provision of incentives for building sector employees' participation in training programs in EE and RES technologies |
| A.15.2 | Development of an online application for the identification of the required skills per professional group and of the suitable educational/training programs and the respective providers |

M16: Dissemination, endorsement and promotion of the National Roadmap actions

| | |
|--------|--|
| A.16.1 | Informative actions on the obligations and advantages of renovation interventions and behavioural changes of building users, aiming at increasing the energy efficiency of buildings in the residential and tertiary sectors |
| A.16.2 | Development of cost-benefit calculation tools addressing the energy efficiency improvement interventions, for easy use by citizens |
| A.16.3 | Hot line for the interested professionals of the construction sector and citizens interested in the sector |
| A.16.4 | Communication campaign to provide information about nearly zero-energy buildings. |
| A.16.5 | Citizen and public authorities' information actions on the advantages of choosing certified/licensed technicians and craftsmen |
| A.16.6 | Training actions for public sector executives on RES and energy saving issues in the building sector and related provisions in public contracts |

Following the completion and the endorsement of the National Roadmap by all relevant (and involved) parties, it is planned to initiate the implementation of the proposed actions with the aim of their successful completion by the year 2030 (milestone year for the achievement of national energy and environmental targets).

4.2 Action Plan

Table 4.1 below presents the Action Plan of the National Roadmap, which in essence consists of the Actions supporting the Measures (Section 3.2), as these were derived and presented in subchapter 4.1. More specifically, for each of the Actions, the timelines, the stakeholders involved, the possible funding sources, as well as the competent bodies for the monitoring and the risk mitigation during the implementation of each Action are presented.

Table 4.1: Integrated Action Plan of the National Qualifications Roadmap

| Supportive Actions | “Blue - Collar” (NQF 3-5) | “White - Collar” (NQF 6-8) | Timeline until 2030 | Involved Actors | Funding Sources | Competent bodies for the monitoring and risk mitigation during the implementation of the Action |
|--|------------------------------|-------------------------------|------------------------|---|--|---|
| M1: Reintegration of untapped-inactive labour force | | | | | | |
| Provision of employer and prospective employees’ incentives to encourage the reintegration of the untapped/inactive labour force | √ | - | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE • Recovery and Resilience Fund (until 2026) | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Initiatives to connect the inactive workforce with "green professions" and "green jobs" | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE • Recovery and Resilience Fund (until 2026) | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Digital transformation and enhancement of mapping systems, early warning systems, and monitoring capabilities to identify individuals at risk of unemployment or inactivity. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE • Recovery and Resilience Fund (until 2026) | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Incentives provision for the integration of legal immigrants and refugees into the productive workforce of the construction sector. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA • YMA | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |

| M2: Enhancement of the attractiveness and “image” of construction/building sector professions | | | | | | |
|--|---|---|-----------|---|--|--|
| Institutionalization of career advancement for "blue-collar" workers. | √ | - | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • YPAN |
| Information/Awareness programs on employment opportunities and the prospects available in the market for energy retrofitting of buildings and the construction of nearly Zero Energy Buildings (nZEB). | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • YPEN |
| M3: Increase of the inflow of young people and women into the construction/building sector | | | | | | |
| Financial provision incentives for starting relevant business activities | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Provision of financial incentives to employers to employ youth and women in the construction/building sector | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Awareness actions for youth to enhance the appeal of construction/building sector professions and promote green professions | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • Self-financing | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |

| | | | | | | |
|--|---|---|-----------|---|--|--|
| Awareness actions for women to enhance the attractiveness of construction/building sector professions and promote green professions. | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • Self-financing | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Support for new professionals in the field with free specialized training programs. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| Improvement of the relevance of education and training to the labour market through the facilitation of partnerships between training institutions and construction sector firms | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • YPEPTH • YPEN • Social Institutions/ Bodies | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • MERAS |
| Advisory and career orientation programs in education to guide job finding in the construction sector | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • YPEPTH • Universities | <ul style="list-style-type: none"> • NSRF • Self-financing | <ul style="list-style-type: none"> • MERAS |
| Actions targeting the prevention of early dropout from education and training | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • YPEN • DYPA • YMA | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |
| Providing support for women who are new mothers with free or low-cost childcare or a reduction in their social security contributions for a certain period so that they have an incentive to enter such a demanding sector as construction | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN • IME GSEVEE • INE GSEE |

| M4: Combatting of the uninsured / undeclared labour | | | | | | |
|---|---|---|-----------|---|---|---|
| Implementation of restrictions on the eligibility of the workforce in public and co-financed projects - employment only for certified/licensed workers. | √ | - | 2024-2030 | <ul style="list-style-type: none"> Relevant ministries | - | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| Strengthening the mechanism for controlling workers on projects and enforcing more strict penalties. | √ | - | 2024-2030 | <ul style="list-style-type: none"> Relevant ministries | - | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| Utilization of registers of certified/licensed workers (by trade/profession). | √ | - | 2024-2030 | <ul style="list-style-type: none"> Relevant ministries DYPA EOPPEP Employers' & workers' associations | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| M5: Labour force mobility | | | | | | |
| Conduct a specific study on the needs for labour influx in the construction sector. | √ | √ | 2024 | <ul style="list-style-type: none"> Relevant ministries Employers' & workers' associations | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) YPEN |
| Utilization of labour force mobility programs to attract labour force. | √ | - | 2024-2026 | <ul style="list-style-type: none"> Relevant ministries | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) YPEN |
| Communication campaigns for labour force mobility. | √ | - | 2024-2026 | <ul style="list-style-type: none"> Relevant ministries | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) YPEN |

| | | | | | | |
|--|---|---|-----------|---|--|---|
| Programs to enhance the implementation of labour force mobility (training, institutional framework, integration framework, etc.). | √ | - | 2024-2026 | <ul style="list-style-type: none"> Relevant ministries | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) YPEN |
| M6: Incentives' provision for existing employees to remain in the sector | | | | | | |
| Incentives provision for participation in CVET (SEEK) programs for specialization. | √ | √ | 2024-2026 | <ul style="list-style-type: none"> Relevant ministries DYPA Employers' & workers' associations | <ul style="list-style-type: none"> NSRF Self-financing | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| Incentives provision to retain specialized experienced workers in critical areas. | √ | √ | 2024-2026 | <ul style="list-style-type: none"> Relevant ministries | <ul style="list-style-type: none"> NSRF Self-financing | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| Institutionalization of reward programs for professionals in collaboration with construction sector entities. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> Relevant ministries Employers' & workers' associations | <ul style="list-style-type: none"> NSRF Self-financing | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) |
| M7: Updating of occupational profiles and introduction of new ones | | | | | | |
| Update and revise existing occupational profiles of the sector to fill skill gaps in relation to RES and EE technologies, in collaboration with relevant social partners | √ | - | 2024 | <ul style="list-style-type: none"> Relevant ministries Employers' & workers' associations | <ul style="list-style-type: none"> NSRF PDE | <ul style="list-style-type: none"> Ministry of Labour (M.E.K.Y.) IME GSEVEE INE GSEE |

| M8: Strengthening of the initial VET for ‘blue-collar’ professionals in the buildings construction sector and of the specialized training for engineers | | | | | | |
|--|---|---|-----------|--|--|---|
| Update of study programs related to the construction sector professions for NQF levels 3-5 and strengthening of apprenticeships and work-based learning. | √ | - | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) • IME GSEVEE • INE GSEE |
| Update of study programs related to the construction sector specialties for NQF levels 6-7. | - | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • MERAS |
| Strengthening the process of aligning the content of study programs by specialization (NQF levels 6-7). | - | √ | 2024-2026 | <ul style="list-style-type: none"> • YPEPTH | <ul style="list-style-type: none"> • Self-financing | <ul style="list-style-type: none"> • MERAS |
| Support programs for upgrading infrastructure and equipment for training/education providers for NQF levels 3-7 | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • Recovery and Resilience Fund | <ul style="list-style-type: none"> • MERAS |
| M9: Development of suitable specialized continuing VET programs addressing the buildings construction sector labour workforce | | | | | | |
| Designing a common framework for employee training across sectors on specific issues of RES and/or EE. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • MERAS |

| | | | | | | |
|--|---|---|-----------|--|--|---|
| Development of specialized training programs by professional group. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • LAEK • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • MERAS |
| Development of adequate laboratory infrastructures for practical training of trainees. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • MERAS |
| Introduction of flexible training methods (e-learning). | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • MERAS |
| Development of educational material and a database of exam topics for assessing acquired knowledge and skills. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • MERAS |
| Creation of a basic curriculum for Energy Efficiency for all sector employees (horizontal module). | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • MERAS |

| M10: Implementation of efficient quality assurance mechanisms for the educational processes | | | | | | |
|--|---|---|-----------|---|--|--|
| Development of training programs capable of leading to qualification certification. | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries | <ul style="list-style-type: none"> • NSRF • LAEK • Self-financing | <ul style="list-style-type: none"> • EOPPEP |
| Expansion of the registry of certified trainers by professional group. | √ | √ | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • EOPPEP | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • EOPPEP |
| M11: Development of a Framework - Mechanism for ensuring the required number of trainers | | | | | | |
| Development of training programs for trainers in the new skills required. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • LAEK • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • EOPPEP |
| Utilization of specialized experienced technicians as trainers, mainly in the practical part of the training programs, and their training and integration into the trainers' registry. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • Self-financing | <ul style="list-style-type: none"> • EOPPEP |
| Development of a mechanism for continuous professional development of trainers in cutting-edge technologies. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries | <ul style="list-style-type: none"> • NSRF • Self-financing | <ul style="list-style-type: none"> • EOPPEP |

| M12: Retraining / reskilling of workers currently employed in the lignite industry | | | | | | |
|--|---|---|-----------|---|---|---|
| Cooperation with regional/local authorities and responsible bodies in areas heavily dependent on the lignite industry, providing personalized support and resources for transitioning to new careers in the construction sector. | √ | - | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Local and regional authorities | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) • INE GSEE |
| Support and implementation of policies that facilitate the retraining and integration of lignite industry workers into the construction sector, such as tax incentives for companies employing reskilled workers. | √ | - | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) • INE GSEE |
| Launch of a national initiative dedicated to the reskilling of workers and professionals in the lignite industry on topics related to sustainable construction. | √ | - | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • DYPA | <ul style="list-style-type: none"> • NSRF • PDE • HORIZON EUROPE • LIFE Programme | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) • INE GSEE |
| M13: Updating the institutional framework in the chain: Training - Certification - Regulation of profession & professional rights | | | | | | |
| Updating regulations related to training and certification to ensure the implementation of the Roadmap. | √ | √ | 2024 | <ul style="list-style-type: none"> • Relevant ministries • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |

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| | | | | | | |
|--|---|---|-----------|---|---|---|
| Proceeding with regulations related to professional rights to ensure the implementation of the Roadmap. | √ | √ | 2024 | <ul style="list-style-type: none"> • Relevant ministries • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| Periodic update of occupational profiles by the relevant entities responsible. | √ | - | 2024-2026 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| Certification of non-formal and informal learning in the construction sector. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • EOPPEP • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| M14: Development of a monitoring, control, and feedback Mechanism regarding the progress of the National Roadmap implementation | | | | | | |
| Institutionalization of the role of the NQP for the implementation and sustainability of the Roadmap. | √ | √ | 2024 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| Establishment of a monitoring mechanism by involved Ministries to track the progress of the Roadmap. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |

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|--|---|---|-----------|--|---|---|
| Establishment of an "Observatory" (supported by the NQP) for the systematic monitoring of the needs for upgrading skills and/or acquiring new ones in the field of energy technologies. | √ | √ | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • TCG | <ul style="list-style-type: none"> • NSRF • PDE | <ul style="list-style-type: none"> • Ministry of Labour (M.E.K.Y.) |
| M15: Development and use of the suitable tools for the implementation of the actions included in the Roadmap | | | | | | |
| Provision of incentives for building sector employees' participation in training programs in EE and RES technologies. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Social Institutions/ Bodies • TCG | <ul style="list-style-type: none"> • NSRF • PDE | Ministry of Labour (M.E.K.Y.) |
| Development of an online application for identifying the required skills per professional group and the appropriate educational/training programs and institutions that provide them. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • DYPA • Social Institutions/ Bodies • TCG | <ul style="list-style-type: none"> • NSRF • PDE | Ministry of Labour (M.E.K.Y.) |
| M16: Dissemination, Endorsement and Promotion of the National Roadmap Actions | | | | | | |
| Communication actions on the obligations and advantages of renovation interventions and behavioural changes of building users, aimed at increasing the energy efficiency of buildings in the residential and tertiary sectors. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • Chambers of Commerce • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |

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| | | | | | | |
|--|---|---|-----------|--|--|--|
| Development of cost-benefit calculation tools for energy efficiency improvement interventions for easy use by citizens. | - | - | 2024-2025 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • Chambers of Commerce • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |
| Phone line for professionals in the construction sector and citizens interested in the sector. | √ | √ | 2024 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • Chambers of Commerce • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |
| Communication campaign to inform about nearly zero-energy buildings. | √ | √ | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |
| Citizen and public sector entity information actions on the advantages of choosing certified/licensed technicians and craftsmen. | √ | - | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Social Institutions/ Bodies • Chambers of Commerce • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |

| | | | | | | |
|---|---|---|-----------|---|--|--|
| <p>Training actions for public sector executives on RES and energy saving issues in the building sector and related provisions in public contracts.</p> | - | - | 2024-2030 | <ul style="list-style-type: none"> • Relevant ministries • Employers' & workers' associations | <ul style="list-style-type: none"> • NSRF | <ul style="list-style-type: none"> • YPEN |
|---|---|---|-----------|---|--|--|

4.3 Prioritization in the “blue-collar” and “white-collar” workers training

The 'Status Quo Analysis' highlighted a significant need in Greece for the comprehensive education of professionals active in the building construction sector. This need arises from the increasing requirements related to the construction of new buildings designed for zero or nearly zero energy consumption, as well as the urgent need for proper and efficient upgrades in the energy performance of existing buildings, and the installation of RE systems in them.

In the context of drafting the National Roadmap, efforts were also made to formulate a series of technical training programs that should be prioritized for each involved profession of the building construction sector. This effort is fully aligned with Actions A.9.2 (Development of specialized training programs per professional group) of Measure M9 and A.10.1 (Implementation of training programs capable of leading to qualification certification) of Measure M10, to facilitate the implementation of these. The tables with the proposed programs presented in Appendix B of the National Roadmap reflect the recognized training priorities for 'white-collar' and 'blue-collar' workers, utilizing the material collected and evaluated through questionnaires in previous stages of the program, and by sending new questionnaires to the interested parties.

Thus, based on the initial identification of key skills from the 'Status Quo Analysis' a detailed approach was undertaken to describe the specific new skills required for various categories of workers in the dynamic building construction sector. This detailed approach took into account the complexities arising from the different roles of various categories and specialties of workers, while recognizing the variety of tasks and challenges that arise in various work environments.

Subsequently, as part of Task 4.3 (T4.3) of the BUS-REGRoUP project, the new skills that these professionals, both 'blue-collar' and 'white-collar' (see deliverable D4.3 "Report on the priorities for training of the building workforce"), need to acquire were identified and ranked. Based on previous responses from the stakeholders (representatives of 'blue-collar' and 'white-collar' workers), the skill categories with the highest ratings that emerged for each profession (out of the 8 core skills listed as top priority for BUILD UP Skills) were initially selected.

These selected skill categories were then specified for each profession with more skills, which were tailored to the profession, in order to be more understandable to the stakeholders. In this way, 2 questionnaires (one addressing “blue-collar” and the other “white-collar” professionals) were elaborated and sent to the interested parties, who were asked to rate the priority of each specific skill (from 1 standing for “very low” to 5 standing for “very high”). The processing of the questionnaires, led to the identification of the skill priorities for each profession, while based on this prioritization, the training programs of Appendix B were developed.

As technological developments and sustainable practices continue to shape the industry landscape, it is vital to equip professionals with the most suitable skills, as highlighted by market needs. Thus, the emphasis on prioritizing skills aims not only at meeting the current requirements but also at getting the workforce prepared for the future, creating a resilient and adaptable industry that can quickly respond to dynamic changes.

5. Monitoring the progress in implementing the proposed measures

Thorough monitoring of the progress in implementing the proposed measures (and their specific actions, as previously described) is a crucial process for assessing the effectiveness and success of the National Roadmap. In this context, defining relevant indicators and corresponding monitoring actions is deemed necessary for the successful implementation of the proposed measures. In the following a proposed list of the necessary monitoring indicators to ensure continuous and systematic review of the progress and the suitable reporting on the implementation of the proposed measures, is presented

Table 5.1: Monitoring indicators of the proposed measures

| No | Measure | Indicator |
|---------------------------|---------|---|
| “Market” dimension | | |
| 1 | M1 | Size of untapped/inactive workforce incorporated in the building construction sector |
| 2 | M1 | Number of incentives offered to employers and/or inactive workforce to join the building construction sector |
| 3 | M1 | Number of incentives for the integration of legal immigrants into the productive workforce of the building construction sector |
| 4 | M1 | Number of actions to link inactive workforce with 'green professions' and 'green jobs' |
| 5 | M2 | Number of legislative regulations for the institutionalization of professional advancement for 'blue-collar' workers |
| 6 | M2 | Number of awareness programs about employment opportunities in the professions and opportunities presented in the market for the energy upgrading of buildings and the construction of Nearly Zero-Energy Buildings (nZEBs) |
| 7 | M3 | Number of young workers who entered the building construction sector |
| 8 | M3 | Number of female workers who entered the building construction sector |
| 9 | M4 | Number of restrictions institutionalised on the eligibility of the workforce in public and co-funded projects (employment solely for certified/licensed workers) |
| 10 | M4 | Number of registries created for certified/licensed workers (per trade/profession) |
| 11 | M4 | Number of legislative regulations to strengthen the control mechanism of workers on the implementation of projects and to establish more strict penalties |
| 12 | M5 | Number of workers from abroad who entered the building construction sector (from the EU and third countries) |
| 13 | M6 | Percentage of existing employees in the building construction sector who remained in the sector |

“Skills” dimension

| | | |
|----|-----|--|
| 14 | M7 | Number of existing Occupational Profiles updated and revised to address skill gaps in renewable energy technologies (RET) and energy efficiency (EE) |
| 15 | M8 | Number of updated curricula for construction sector specializations addressing NQF levels 3-5 |
| 16 | M8 | Number of updated curricula for construction sector specializations addressing NQF levels 6-7 |
| 17 | M8 | Number of support programs for upgrading infrastructure and equipment for educational and training providers. |
| 18 | M9 | Number of the developed suitable specialized programs for continuous vocational education and training (CVET) of the construction sector workforce |
| 19 | M10 | Number of training programs implemented that led to certification of qualifications |
| 20 | M10 | Number of new certified trainers per professional group who were included in relevant registries. |
| 21 | M11 | Number of developed training programs for trainers in the new required skills |
| 22 | M11 | Number of experienced technicians/technicians who were included in the trainers’ registry and were utilized |
| 23 | M12 | Number of employees working in the lignite industry who were retrained / reskilled. |

“Legislative framework” dimension

| | | |
|----|-----|--|
| 24 | M13 | Number of updated regulations concerning training and certification to ensure the implementation of the National Roadmap |
| 25 | M13 | Number of initiated regulations related to professional rights to ensure the implementation of the National Roadmap |
| 26 | M14 | Number of developed monitoring control and feedback mechanisms regarding the progress in the implementation of the National Roadmap |
| 27 | M15 | Number of incentives for the participation of employees in the building construction sector in training programs on green technologies |

Horizontal dimension

| | | |
|----|-----|--|
| 28 | M16 | Number of actions implemented for the dissemination, endorsement, and promotion of the actions of the National Roadmap |
|----|-----|--|

6. Conclusions

The "Status Quo Analysis" revealed the need for the training of a large number of workers in the building construction sector by 2030, ranging from 219,564 (pessimistic scenario) and 270,349 (optimistic scenario). These workers need to be trained across various professional categories and skill levels as follows:

- Needs for training of "white-collar" workers in the building construction sector as a total by 2030: between 44,307 (pessimistic scenario) and 63,858 (optimistic scenario).
- Needs for training of "blue-collar" workers in the building construction sector as a total by 2030: between 175,257 (pessimistic scenario) and 206,491 (optimistic scenario).

More specifically, the needs for training of workers in the building sector (both "blue-collar" and "white-collar"), who will be specifically involved in interventions for Renewable Energy Systems (RES) systems installations and energy efficiency improvements by 2030, are estimated to range from 155,413 (in total for both "blue-collar" and "white-collar" in a pessimistic scenario) to 191,357 professionals (for "blue-collar" and "white-collar", respectively, in an optimistic scenario). These quantified training needs are categorized per professional category and skill level as follows:

- Needs for training of "white-collar" workers by 2030 in the specific issues of **RES and energy efficiency** in the building sector: **31,362** (pessimistic scenario) to **45,201** (optimistic scenario)
- Needs for training of "blue-collar" workers by 2030 in the specific issues of **RES and energy efficiency** in the building sector: **124,053** (pessimistic scenario) to **146,161** (optimistic scenario)

To achieve these goals, three fundamental axes are identified on which the analysis is based and the proposed measures of the current National Roadmap are developed:

- ✓ Ensuring the required number of workers in the construction sector.
- ✓ Upgrading the skills of the workforce in the construction sector.
- ✓ Overcoming legislative barriers and ensuring the sustainability of the initiative.

These axes are further analyzed into specific sets of measures, which are supported by a series of horizontal promotion and dissemination actions.

The necessary measures were identified through the development of a comprehensive evaluation system for the proposed measures, aimed at prioritizing them. Subsequently, the National Qualifications Platform (NQP) evaluated these measures as far as their priority is concerned, and on which the Action Plan of the Roadmap focuses on. Additionally, the National (Qualifications) Roadmap focuses on the new required green skills and related training programs, as recorded and documented by the Strategic Planning Committee (SPC) and the National Qualifications Platform (NQP) members, following consultations.

The National Roadmap is completed with the analysis of the proposed Measures into specific, integrated Actions with defined timelines, identifying the stakeholders involved. In addition, for each of these specific Actions, the key stakeholders involved and potential funding sources for their implementation are determined.

In summary, the current National Roadmap is the product of a comprehensive and consistent effort to upgrade the skills and qualifications of the Greek workforce in the building construction sector. This effort aims to reconstruct new high-energy performance buildings and retrofit old ones according to the new EU-established standards. The National Roadmap, although developed within the framework of the European BUILD UP Skills initiative, looks beyond this, and aspires to serve as a dynamic tool for exerting pressure to shape new priorities in national policies related to energy, buildings, and lifelong learning. This forward-looking approach inspires optimism about the future of the building construction sector.

The goal of this comprehensive initiative is to leverage initiatives and procedures for empowering and enhancing the competitiveness of the national workforce in the building construction sector. The authors aspire for this National Roadmap to serve as the foundation for reconstructing the long-term national framework for sustainable development, attracting, and involving all national stakeholders in energy, labour, and education issues.

Authors / Contributors

To complete this report, the following individuals (collaborative teams from the BUS-REGRoUP project consortium) have contributed:

Dr Charalampos Malamatenios and Mrs Georgia Veziryianni from CRES Training Department, authored the "Preface" and Chapter 2, and coordinated the project as the Coordinator partner.

Professor Ioannis Psarras, Dr Ioanna Makarouni, Georgios Konstantopoulos, Nikolaos Vourgidis, and Christos Konstas from the Laboratory of Decision Support Systems and Management, School of Electrical and Computer Engineering, NTUA, coordinated and authored Chapters 1, 3, 4, 5, and 6, being also the lead partner of Work Package 4 and responsible for drafting this report.

Additionally, the valuable contributions of all partners in providing crucial information throughout the report's development must be acknowledged, especially those of Mr. Iakovos Karatrasoglou (INE GSEE) and Mr. Vasilis Siomadis (IME GSEVEE).

Glossary/ Abbreviations

| TITLE | ABBREVIATION |
|---|---------------------|
| Adult Education Centres | KEE |
| Building Energy Efficiency Regulation | KENAK |
| Centre for Renewable Energy Sources & Energy Conservation | CRES |
| Continuing (Continuous) Vocational Education and Training | CVET |
| Certification of Persons Bodies | CPBs |
| Directive on the Energy Performance of Buildings | EPBD |
| Employment Experts Unit, Social Insurance, Welfare, and Social Affairs of the Ministry of Labour and Social Affairs | M.E.K.Y. |
| Energy Efficiency | EE |
| Energy Performance Directive | EED |
| Energy Saving | ES |
| European Qualifications Framework | EQF |
| General Confederation of Greek Craftsmen, Traders, and Professionals | GSEVEE |
| General Confederation of Greek Workers | GSEE |
| Hellenic Statistical Authority | ELSTAT |
| Institute for Vocational Training | IEK |
| International Standard Classification of Education | ISCED |
| International Standard Classification of Occupations | ISCO |
| Lifelong Learning | LLL |
| Lifelong Learning Centre | KDVM |
| Ministry of Development | YPAN |
| Ministry of Education, Religion, and Sports | YPEPTH |
| Ministry of Environment and Energy | YPEN |
| Ministry of Finance | YPOIK |
| Ministry of Infrastructure and Transport | YPYME |
| Ministry of Labour, Social Insurance, and Welfare | YEKA |
| National Accreditation System | ESYD |
| National Organization for the Certification of Qualifications & Vocational Guidance | EOPPEP |
| National Qualifications Framework | NQF |
| National Qualifications Platform | NQP |
| National Strategic Reference Framework | ESPA/NSRF |
| Panhellenic Association of Technical Companies | SATE |
| Public Employment Service | DYPA |
| Public Investment Program | PDE |
| Renewable Energy Sources | RES |
| Schools of Higher Vocational Training | SAEK |
| Strategic Planning Committee | SPC |
| Vocational apprenticeship schools | EPAS |

| | |
|-----------------------------|------|
| Vocational High Schools | EPAL |
| Vocational Training Schools | ESK |

ANNEX A – List of organizations supporting the National Qualifications Roadmap

The list of organizations that will be called upon to endorse the National Roadmap by signing a relevant agreement is as follows:

A) BUS-REGRoUP Project Partners

| | |
|--------|--------------|
| ✓ CRES | ✓ IME-GSEVEE |
| ✓ NTUA | ✓ INE-GSEE |
| ✓ TCG | |

B) Competent Ministries and Regional Authorities

1. Ministry of Environment and Energy
2. Ministry of Education, Religious Affairs and Sports
3. Ministry of Infrastructure and Transport
4. Ministry of Labour, Social Security and Welfare
5. The thirteen (13) Regions of the country

C) Institutions – Members of the National Qualifications Platform

| | |
|---|--|
| 1. National Organisation for the Certification of Qualifications & Vocational Guidance (EOPPEP) | 2. Greek Public Employment Service (DYPA) |
| 3. Union of Hellenic Chambers of Commerce (HUCC) | 4. Athens Chamber of Tradesmen (EEA) |
| 5. Hellenic Federation of Enterprises (SEV) | 6. Aluminium Association of Greece (AAG) |
| 7. Hellenic Association of Photovoltaic Companies (HELAPCO) | 8. Greek Solar Industry Association (EBHE) |
| 9. Hellenic Union of Heating & Energy Companies (HUHEC) | 10. Hellenic Association for the Cogeneration of Heat and Power (HACHP) |
| 11. Hellenic Association of Insulating Material Companies (PSEM) | 12. Hellenic Association of Expanded Polystyrene (HEPSA) |
| 13. Association of Greek Contracting Companies (SATE) | 14. Association of Technical Companies of the Highest Classes (STEAT) |
| 15. Panhellenic Association of Engineers Contractors of Public Works (PEDMEDE) | 16. Panhellenic Union of Public Works Constructors Associations (PESEDE) |
| 17. Institute of Zero Energy Buildings (INZEB) | 18. Hellenic Association of Consulting Firms (HELLASCO) |
| 19. Panhellenic Federation of Craftsmen in Aluminium and Metal Constructions (POVAS) | 20. Panhellenic Federation of Glass Tradesmen & Manufacturers (POEVY) |
| 21. Hellenic Federation of Craftsmen & Plumbers (OBYE) | 22. Greek Federation of Refrigerating Engineers & Technicians (OPSE) |

| | |
|--|---|
| 23. Panhellenic Federation of Electrical Contractors Association (POSEH) | 24. Panhellenic Federation of Combustion Installations Professionals (POETEK) |
| 25. Hellenic Federation of Electricians (OHELE) | 26. Panhellenic Metalworkers Federation (POEM) |
| 27. Pan-hellenic Energy Federation (PEF) | 28. Federation of Building and Wood Workers of Greece |
| 29. Federation of Hellenic Technical Enterprises Workers Associations (OSETE) | 30. Association of Technical Employees of Greece (STYE) |
| 31. Hellenic Association of Accredited Certification and Inspection Bodies (Hellas Cert) | 32. Association of Architects Graduates of Higher Schools – Panhellenic Association of Architects (SADAS – PEA) |
| 33. Hellenic Association of Civil Engineers (SPME) | 34. Panhellenic Association of Dipl. Mechanical and Electrical Engineering (PSDMI) |
| 35. Hellenic Association of Vocational Training Centres (ELSEKEK) | 36. Panhellenic Association of Vocational Training Centres (PASIKEK) |
| 37. Panhellenic Association of Learning Centers (PEKEM) | 38. Panhellenic Association of Private Vocational Training Institutes (PEIIEK) |

ANNEX B – Recommended vocational training programs for each priority specialty

The following section presents the training programs that are considered of priority for various relevant specialties of both 'white-collar' and 'blue-collar' workers active in the building construction sector, based on the training priorities identified and defined in the earlier stages of the project.

For each of the proposed training programs, detailed information is provided, including the field of implementation, the content, and the educational objectives of the proposed training programs, as well as the costs and benefits, needs of the trainees for practical training, and the knowledge and skills acquired. Additionally, the prerequisites for participation are described. The general information mentioned at the end of each profession is derived from the occupational profiles (for the cases of the specialties for which where such profiles exist).

The (in-person) theoretical training envisaged in these ongoing technical vocational training programs must be implemented by the respective training provider in facilities properly licensed as Level 1 or Level 2 Lifelong Learning Centers (LLCs). In island or remote mountainous areas, functional classrooms of primary or secondary education may be used. It must also be mentioned that each training program should be implemented in accordance with adult education methods and training techniques.

In the case where practical training is foreseen, it can be implemented:

- in meeting rooms of structures licensed as LLCs 1 or 2 (when intended to be carried out in the form of case studies, role-playing games, or simulations of real professional situations), or,
- in suitably equipped and accredited laboratories (i.e., laboratories that have the appropriate equipment and other instruments, etc., to demonstrate and allow practice on the training subjects), which are either provided by the training provider or for which access will be ensured,
- in the premises of collaborating businesses and entities of the public or private sector.

The training phase shall be completed with the implementation of exams upon which the issuance of a certificate will depend, and which must also include the evaluation of the practical part of the training (if such is provided). The certification process of the trainees' knowledge and skills will be conducted based on the in force National and European legislative framework. The certification – through appropriate exams – will be conducted by Certification of Persons Bodies (CPBs), which are either accredited by the Hellenic Accreditation System (ESYD) according to ISO/IEC 17024 standard or another equivalent or certified by EOPPEP to issue certificates for the profession of interest.

At last, it is noted that the “Priority Ranking” that appears in each of the subsequent sections of the various proposed training programs has been calculated to a maximum of **five** (based on the scores of stakeholders and interested parties).

A. “White-collar” professionals

| Engineering Profession | Civil Engineer | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 2142 | |
| Training Program 1.1 | | | | Priority Ranking (0-5) |
| “Material systems and practices for improving efficiency in buildings” | | | | 4.6 |
| Content | Presentation and analysis of the energy behaviour of buildings and characteristics of existing technologies/materials that contribute to the energy-efficient design of new buildings (energy study) and the optimal energy upgrade of existing buildings (energy upgrade proposals) Presentation and analysis of common problems in the construction of the building envelope that affect energy performance and methods for effective resolution Design and proper application of waterproofing / thermal insulation / ventilation systems of the building envelope, including the avoidance of thermal bridges Presentation and analysis of building certification schemes for Zero Energy Buildings (ZEB) and Nearly Zero Energy Buildings (nZEBs), as well as the requirements they set for the construction/renovation of buildings. Presentation and analysis of the properties and proper application of high-energy performance systems and materials used in ZEB and NZEB buildings Techno-economic dimension of material selection/management. Material application techniques | | | |
| Learning Outcome | Trained engineers will be able to design energy-efficient new buildings and upgrade existing buildings | | | |
| Practical Training | The training program does not require practical training | | | |
| Duration | Indicatively 24-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 1.2 | | | | Priority Ranking (0-5) |
| “Digital skills supporting enhanced energy efficiency of buildings” | | | | 4.4 |
| Content | Presentation and analysis of the potential of BIM systems, development of skills to read/understand BIM information and its use in civil engineering projects in the building construction industry. Feeding/updating BIM systems with new information regarding the building. | | | |
| Learning Outcome | Trained engineers will be able to use data from BIM systems to plan the construction or renovation of highly energy-efficient buildings. | | | |
| Practical Training | The training program should include practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 1.3 | | | | Priority Ranking (0-5) |
| “Environmentally friendly materials and systems / Recycling and circular economy” | | | | 4.3 |
| Content | Presentation and analysis of environmentally friendly materials and systems and the environmental footprint of materials. Design of new buildings / energy upgrade of existing buildings considering the overall assessment of the environmental footprint of the construction. Presentation and analysis of proper management and recycling of waste/surplus materials in building construction projects. | | | |

| | |
|--|---|
| | Presentation and analysis of the possibilities for reusing materials in building construction projects |
| Learning Outcome | Trained engineers will be able to select and use appropriate materials correctly to reduce the environmental impact during the implementation of a building construction project. |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 20 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Protection of the environment/public health |
| General Information | |
| The profession of the “Civil Engineer” requires the acquisition of a professional practice license, which is also a prerequisite for participation in the aforementioned training programs. | |
| Required Qualification Level: NQF 6-7 | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialized software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of Civil Engineers in a registry of certified professionals in the building construction sector • Obligation for only certified Civil Engineers who are interested in related co-funded programs to participate | |
| Civil Engineers may register in the following registers: <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy It is proposed to establish: <ul style="list-style-type: none"> • A registry of Civil Engineers certified in the aforementioned subjects of interest | |
| The financing of training programmes could be carried out through: <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programmes The management of training programmes could be carried out by the Technical Chamber of Greece and/or the Association of Civil Engineers of Greece (ACIEG) | |
| The professional / trade union bodies representing Civil Engineers are: <ul style="list-style-type: none"> • Technical Chamber of Greece • Association of Civil Engineers of Greece (ACIEG) | |

| Engineering Profession | Architect | Number | ISCO | NACE |
|--|---|--------|------|--------------------------------------|
| | | - | 2161 | |
| Training Program 2.1 “Material systems and practices for improving energy efficiency of buildings” | | | | Priority Ranking (0-5) 4.6 |
| Content | Presentation and analysis of the energy behavior of buildings and characteristics of existing technologies/materials that contribute to the energy-efficient design of new buildings (energy study) and the optimal energy upgrade of existing buildings (energy upgrade proposals). Presentation and analysis of common problems in the construction of the building envelope that affect energy performance and methods for their effective resolution. Design and correct application of waterproofing / thermal insulation / ventilation systems of the building envelope, including the avoidance of thermal bridges. Presentation and analysis of building certification schemes ZEB and nZEBs and the requirements they set for the construction / renovation of buildings. Presentation and analysis of the properties and the correct way of applying systems and materials with high energy performance used in ZEB and nZEB buildings. | | | |

| | |
|--|--|
| | Design and supervision of the construction of bioclimatic and passive buildings. Techno-economic aspect of material selection/management. Application techniques for materials. Bioclimatic and passive systems for new and existing buildings and infrastructure |
| Learning Outcome | Trained engineers will be able to design energy-efficient new buildings and upgrade existing buildings |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 40-50 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency of buildings |
| Training Program 2.2 | |
| “Utilization of industrial and modular solutions in the construction/renovation of buildings” | |
| | Priority Ranking (0-5) 4.6 |
| Content | Presentation and analysis of the capabilities of existing prefabricated or industrial components for constructing the building envelope in projects involving the construction of new buildings or the radical renovation of existing buildings. Optimal selection of modular and industrial solutions depending on the type and use of the building. Techno-economic aspect of selecting modular and industrial solutions. Technical application of modular and industrial systems - limitations |
| Learning Outcome | The trainees will be able to utilize modular and industrial solutions in the radical renovations of buildings, reducing the cost and implementation time of the project, enhancing the rate of energy upgrades in existing buildings. |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 20 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency of buildings |
| Training Program 2.3 | |
| “Materials and techniques for the energy upgrading of historic and preservable buildings” | |
| | Priority Ranking (0-5) 4.3 |
| Content | Presentation and analysis of the regulatory framework governing the maintenance and repair of historic and preservable buildings. Presentation and analysis of the construction methods of historic and preservable buildings as well as the possibilities for their energy upgrading through insulation of the building envelope. Selection of appropriate materials for the energy upgrading of historic and preservable buildings. |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 30 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improvement of energy efficiency in historic and preservable buildings |
| Training Program 2.4 | |
| “Digital Skills that support energy efficiency of buildings” | |
| | Priority Ranking (0-5) 4.2 |

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| Content | Presentation and analysis of the capabilities of BIM systems, development of skills for reading/understanding BIM information, and their utilization in architectural engineering projects in the building construction sector. Feeding/updating BIM systems with new information regarding the building |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 20 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Protection of the environment/public health |
| General Information | |
| The profession of the “Architect Engineer” requires the acquisition of a professional license, which is also a prerequisite for participation in the aforementioned training programs. | |
| Required Qualification Level: NQF 6-7 | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of Architects in a directory of certified professionals in the building construction sector • Obligation for participation is only for certified Architect Engineers in co-funded programs | |
| Architects may register in the following registers: <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy It is proposed to establish: <ul style="list-style-type: none"> • A registry of Architects certified in the aforementioned subjects of interest | |
| The financing of training programmes could be carried out through: <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs The management of training programs could be carried out by the Technical Chamber of Greece and/or the Association of Graduate Architects of Higher Schools · Panhellenic Association of Architects (SADAS-PEA) | |
| The professional / trade union bodies representing Architects are: <ul style="list-style-type: none"> • Technical Chamber of Greece • Association of Graduate Architects of Higher Schools · Panhellenic Association of Architects (SADAS-PEA) | |

| Engineering Profession | Mechanical Engineer | Number | ISCO | NACE |
|--|--|--------|------|--------------------------------------|
| | | - | 2144 | |
| Training Program 3.1 “Digital Skills that support energy efficiency in buildings” | | | | Priority Ranking (0-5) 4.6 |
| Content | Presentation and analysis of the potential of BIM systems, development of skills to read/understand BIM information and its use in civil engineering projects in the building construction industry. Feeding/updating BIM systems with new information regarding the building | | | |
| Learning Outcome | Trained engineers will be able to use data from BIM systems to plan the construction or renovation of highly energy-efficient buildings. | | | |
| Practical Training | The training program should include practical training | | | |

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|---|---|---------------------------|
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| Training Program 3.2 | | Priority Ranking (0-5) |
| “Material systems and practices for improving energy efficiency in buildings” | | 4.5 |
| Content | <p>Presentation and analysis of the energy behavior of buildings and characteristics of existing technologies/materials that contribute to the energy-efficient design of new buildings (energy study) and the optimal energy upgrade of existing buildings (energy upgrade proposals). Presentation and analysis of common problems in the E/M installations of the building (heating, cooling, domestic hot water, ventilation) that affect energy performance and methods for their effective management. Design and implementation of high energy efficiency heating/cooling/domestic hot water and ventilation systems, presentation and analysis of technical characteristics and installation methods of high energy efficiency systems. Integration of renewable energy technologies in buildings (PV, Solar thermal, etc.) Presentation and analysis of certification schemes for NZEB and nZEB buildings and the requirements they set for construction/renovation of buildings. Techno-economic dimension of the selection/management of H/M systems. Technical installation techniques of E/M systems</p> | |
| Learning Outcome | Trainees should be able to design new, energy efficient buildings and upgrade existing ones | |
| Practical Training | The training program does not require practical training | |
| Duration | Indicatively 40-50 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| Training Program 3.3 | | Priority Ranking (0-5) |
| “Environmentally friendly materials and systems / Recycling and circular economy” | | 4.1 |
| Content | <p>Presentation and analysis of environmentally friendly materials and systems and the environmental footprint of materials. Design of new buildings / energy upgrade of existing buildings taking into account the overall assessment of the environmental footprint of the construction. Presentation and analysis of proper management and recycling of waste/surplus materials in building construction projects. Presentation and analysis of the possibilities for reusing materials in building construction projects.</p> | |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project | |
| Practical Training | The training program does not require practical training | |
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Protection of the environment/public health | |
| General Information | | |
| The profession of Mechanical Engineer requires the acquisition of a professional license, which is also a prerequisite for participation in the aforementioned training programs. | | |
| Required Qualification Level: NQF 6-7 | | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: | | |

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| <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g., BIM) • Recognition of the new professional qualifications and possibility of inclusion of Mechanical Engineers in a directory of certified professionals in the building construction sector • Obligation of participation is limited only to certified Mechanical Engineers in topics of interest in related co-funded programs |
| <p>Mechanical Engineers may register in the following registers:</p> <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry of Mechanical Engineers certified in the aforementioned subjects of interest |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs <p>The management of training programmes could be carried out by the Technical Chamber of Greece and/or the Pan-Hellenic Association of Graduate Mechanical and Electrical Engineers</p> |
| <p>The professional / trade union bodies representing Mechanical Engineers are:</p> <ul style="list-style-type: none"> • Technical Chamber of Greece • Pan-Hellenic Association of Graduate Mechanical and Electrical Engineers (PSDM-H) |

| Engineering Profession | Electrical Engineer | Number | ISCO | NACE |
|---|---|--------|------|------------------------|
| | | - | 2151 | |
| Training Programme 4.1 | | | | Priority Ranking (0-5) |
| “Technologies for upgrading the smart operation of buildings to improve their energy efficiency” | | | | 4.2 |
| Content | <p>Presentation and analysis of automatic control technologies for E/M systems installations in buildings (such as temperature compensation, autonomy technologies for old installations, smart thermostats, etc.) as well as proper installation practices for improving energy efficiency in new and existing buildings.</p> <p>Presentation and analysis of the requirements for installation and operation / regulation of automatic control and energy management systems in high energy efficiency buildings.</p> <p>Presentation and analysis of energy storage systems in buildings.</p> <p>Techniques for smart and efficient energy management in buildings</p> | | | |
| Learning Outcome | Trained engineers will be able to design and install smart operation systems in buildings, improving their energy efficiency | | | |
| Practical Training | The training program does not require practical training | | | |
| Duration | Indicatively 20 -30 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 4.2 | | | | Priority Ranking (0-5) |
| “Material systems and practices for improving energy efficiency in buildings” | | | | 4.1 |
| Content | <p>Presentation and analysis of the energy behaviour of buildings and the characteristics of existing E/M system technologies that contribute to the energy-efficient design of new buildings (energy study) and the optimal energy upgrade of existing buildings (energy upgrade proposals).</p> <p>Presentation and analysis of common problems in the building's E/M installations (heating, cooling, DHW, ventilation) that affect energy performance and methods for their effective resolution.</p> | | | |

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| | Design and implementation of high energy efficiency heating/cooling/DHW and ventilation systems, presentation and analysis of technical characteristics and installation methods of high energy efficiency systems. Integration of renewable energy technologies in buildings (PV, solar thermal, etc.) Presentation and analysis of certification schemes for Nearly Zero Energy Buildings (nZEB) and the requirements they set for the construction/renovation of buildings. Techno-economic dimension of selecting/managing E/M systems. Installation techniques of E/M systems. |
| Learning Outcome | Trainees should be able to design new, energy efficient buildings and upgrade existing ones |
| Practical Training | The training program does not require practical training |
| Duration | Indicatively 40-50 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings |

General Information

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| The profession of Electrical Engineer requires obtaining a professional license, which is also a prerequisite for participation in the aforementioned training programs. | |
| Required Qualification Level: NQF 6-7 | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: | |
| <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of Electrical Engineers in a directory of certified professionals in the building construction sector • Obligation of participation is limited only to certified Electrical Engineers in related co-financed programs | |
| Electrical Engineers may register in the following registers: | |
| <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy | |
| It is proposed to establish: | |
| <ul style="list-style-type: none"> • A registry of Electrical Engineers certified in the aforementioned subjects of interest | |
| The financing of training programmes could be carried out through: | |
| <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs | |
| The management of training programmes could be carried out by the Technical Chamber of Greece and/or the Pan-Hellenic Association of Graduate Mechanical and Electrical Engineers | |
| The professional / trade union bodies representing Electrical Engineers are: | |
| <ul style="list-style-type: none"> • Technical Chamber of Greece • Pan-Hellenic Association of Graduate Mechanical and Electrical Engineers (PSDM-H) | |

| Engineering Profession | Surveyor Engineer / Cartographer Urban Planner and Traffic Planner Environmental Engineer | Number | ISCO | NACE |
|--|--|--------|------|------------------------|
| | | - | 2148 | |
| Training Program 5.1 | | | | Priority Ranking (0-5) |
| “Environmentally friendly materials and systems / Recycling and circular economy” | | | | 4.1 |
| Content | Presentation and analysis of materials and systems that are environmentally friendly and of the environmental footprint of materials. Design of new buildings / energy upgrade of existing buildings taking into account the overall assessment of the environmental footprint of construction. | | | |

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|---|--|------------------------|
| | Presentation and analysis of proper management and recycling of waste/surplus materials in building construction projects. Presentation and analysis of the possibilities for reuse of materials in building construction projects. | |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project | |
| Practical Training | The training program does not require practical training | |
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Protection of the environment/public health | |
| Training Program 5.2 | | Priority Ranking (0-5) |
| “Digital Skills that support energy efficiency in buildings” | | 4.1 |
| Content | Presentation and analysis of the potential of BIM systems, development of skills to read/understand BIM information and its use in civil engineering projects in the building construction industry. Feeding/updating BIM systems with new information regarding the building. Integration of BIM and GIS. | |
| Learning Outcome | Trained engineers will be able to use data from BIM systems to plan the construction or renovation of highly energy-efficient buildings. | |
| Practical Training | The training program should include practical training | |
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| General Information | | |
| These engineering professions require the acquisition of a professional license, which is also a prerequisite for participation in the aforementioned training programs. | | |
| Required Qualification Level: NQF 6-7 | | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: | | |
| <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of $\phi\tau\omega\nu$ Μηχανικών in a directory of certified professionals in the building construction sector • Only certified engineers of these specialties are required to participate in relevant co-funded programs | | |
| Surveyor Engineer / Cartographer Urban Planner and Traffic Planner Environmental Engineer may register in the following registries: | | |
| <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy | | |
| It is proposed to establish: | | |
| <ul style="list-style-type: none"> • A registry of engineers certified in the subjects of interest in these specialties | | |
| The financing of training programmes could be carried out through: | | |
| <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs | | |
| The management of training programmes could be carried out by the Technical Chamber of Greece and/or the respective engineering associations | | |
| The professional / trade union bodies representing Surveyor Engineers / Cartographer | | |

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| Urban Planner and Traffic Planner / Environmental Engineers are: <ul style="list-style-type: none"> • Technical Chamber of Greece • Pan-Hellenic Association of Graduate Agricultural and Surveying Engineers • Association of Greek Engineers in Urban Planning, Spatial Planning and Regional Development (SEMPPA) • Pan-Hellenic Association of Graduate Environmental Engineers |
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| Engineering Profession | Chemical Engineer / Naval Engineer | Number | ISCO | NACE |
|--|--|--------|------|------------------------|
| | | - | 2145 | |
| Training Program 6.1 | | | | Priority Ranking (0-5) |
| “Digital Skills that support energy efficiency in buildings” | | | | 4.1 |
| Content | Presentation and analysis of the potential of BIM systems, development of skills to read/understand BIM information and its use in civil engineering projects in the building construction industry. Feeding/updating BIM systems with new information regarding the building | | | |
| Learning Outcome | Trained engineers will be able to use data from BIM systems to plan the construction of or renovation to highly energy-efficient buildings. | | | |
| Practical Training | The training program should include practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 6.2 | | | | Priority Ranking (0-5) |
| “Environmentally friendly materials and systems / Recycling and circular economy” | | | | 3.8 |
| Content | Presentation and analysis of materials and systems that are environmentally friendly and the environmental footprint of materials. Design of new buildings / energy upgrading of existing buildings taking into account the overall assessment of the construction's environmental footprint. Presentation and analysis of proper management and recycling of waste/ surplus materials in building construction projects. Presentation and analysis of the possibilities for reusing materials in building construction projects. | | | |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project | | | |
| Practical Training | The training program does not require practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Protection of the environment/public health | | | |
| General Information | | | | |
| These engineering professions require the acquisition of a professional license, which is also a prerequisite for participation in the aforementioned training programs. | | | | |
| Required Qualification Level: NQF 6-7 | | | | |
| The following incentives may be utilized to encourage participation in the aforementioned vocational training programs: <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of οφρων Μηχανικών in a directory of certified professionals in the building construction sector • Obligation for only certified engineers to participate in co-financed programs | | | | |

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| <p>Chemical / Naval Engineers may register in the following registries:</p> <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A register of engineers certified in the subjects of interest in these specialties |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>The management of training programmes could be carried out by the Technical Chamber of Greece and/or the respective engineering associations</p> |
| <p>The professional / trade union bodies representing Chemical Engineers / Naval Engineers are the:</p> <ul style="list-style-type: none"> • Technical Chamber of Greece • Panhellenic Association of Chemical Engineers (PACHE) • Association of Graduate Naval Engineers of Greece - AGNEG. |

| Engineering Profession | Other engineering specialties not elsewhere classified | Number | ISCO | NACE |
|--|--|--------|------|--------------------------------------|
| | | - | 2149 | |
| Training Program 7.1 “Digital Skills that support energy efficiency in buildings” | | | | Priority Ranking (0-5) 4.1 |
| Content | Presentation and analysis of the potential of BIM systems, development of skills to read/understand BIM information and its use in civil engineering projects in the building construction industry. Feeding/updating BIM systems with new information regarding the building | | | |
| Learning Outcome | Trained engineers will be able to use data from BIM systems to plan the construction or renovation of highly energy-efficient buildings. | | | |
| Practical Training | The training program should include practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 7.2 “Environmentally friendly materials and systems / Recycling and circular economy” | | | | Priority Ranking (0-5) 3.9 |
| Content | Presentation and analysis of environmentally friendly materials and systems, and the environmental footprint of materials. Design of new buildings / energy upgrades of existing buildings taking into account the overall assessment of the construction's environmental footprint. Presentation and analysis of proper management and recycling of waste/surplus materials in building construction projects. Presentation and analysis of the possibilities for reusing materials in building construction projects. | | | |
| Learning Outcome | The trainees will be able to select and use the appropriate materials correctly in order to reduce the environmental impact during the implementation of a building construction project | | | |
| Practical Training | The training program does not require practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Protection of the environment/public health | | | |

| General Information |
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| The engineering profession requires obtaining a professional license, which is also a prerequisite for participation in the aforementioned training programs. |
| Required Qualification Level: NQF 6-7 |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Subsidies for the purchase of specialised software (e.g. BIM) • Recognition of the new professional qualifications and possibility of inclusion of Engineers in a directory of certified professionals in the building construction sector • Obligation of participation is limited only to certified engineers in the relevant specialties |
| <p>These Engineers may register in the following registries:</p> <ul style="list-style-type: none"> • Registry of Members of the Technical Chamber of Greece • Registry of Energy Inspectors of the Ministry of Energy • Registry of Energy Auditors of the Ministry of Energy <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A register of engineers certified in the subjects of interest in these specialties |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>The management of training programmes could be carried out by the Technical Chamber of Greece and/or the respective engineering associations for engineering professions, not elsewhere classified</p> |
| <p>The professional / trade union bodies representing the aforementioned engineers are:</p> <ul style="list-style-type: none"> • Technical Chamber of Greece |

B. “Blue collar” professionals

| Technician Profession | Oil – Painting Technician | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 7131 | 43.34 |
| Training Program 1.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings” | | | | 4.9 |
| Content | Role of wall painting/insulation materials in building energy efficiency Properties and proper use of cool paints on the exterior of building envelopes Properties and proper use of thermal insulation paints, cool paints, thermocatalytic paints, etc. Selection of materials based on building type requirements Techno-economic aspects of material selection/management Application techniques for materials | | | |
| Learning Outcome | Trained technicians will be able to implement new paints that enhance the energy efficiency of buildings. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 24-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 1.2 | | | | Priority Ranking (0-5) |
| “Environmentally friendly oil-painting materials / Recycling” | | | | 4.1 |
| Content | Environmentally friendly materials and their proper use in oil-painting works. Assessing the environmental footprint of materials used in oil-painting projects. Proper management of waste / surplus materials from a oil-painting project. | | | |
| Learning Outcome | The trained technicians will be able to select and properly use appropriate materials to reduce environmental impact during the implementation of a oil-painting project | | | |
| Apprenticeship - Practical Placement | The training program does not require practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Protection of the environment/public health | | | |
| General Information | | | | |
| The profession of an oil-painting technician does not require a professional license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following conditions could apply: <ul style="list-style-type: none"> • Professional experience of five (5) years. • Graduates of mandatory education and four (4) years of professional experience. • Graduates of Secondary Vocational Education and Graduates of Post-secondary Vocational Training (EPAL or EPAS or SEK or IEK - SAEK - or equivalent titles) in a related profession, with at least two (2) years of professional experience. • Continuous professional training covering the entire set of knowledge corresponding to the 2 CPD (Continuing Professional Development) units of the profession, plus four (4) years of professional experience. | | | | |
| Required Qualification Level: NQF 3 | | | | |
| The incentives that could be applied for the participation of oil-painting technicians in the aforementioned professional training programs are: <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time | | | | |

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| <ul style="list-style-type: none"> • Creation of a registry for certified oil-painting technicians, where those technicians who have successfully completed the training programs can enroll. • Recognition of the new professional qualifications and the possibility of including these technicians in a directory of certified professionals in the building construction sector. • Requirement for only certified technicians to participate in co-financed programs. |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • registry for certified oil-painting technicians |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector</p> |
| <p>The professional / trade union bodies representing oil-painting technicians are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Federation of construction workers and related professions of Greece (OSEE) • Federation of construction workers and woodworkers of Greece |

| Technician Profession | Masonry Technician | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 7112 | 41.20 |
| Training Program 2.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings” | | | | 5.0 |
| Content | Energy performance of buildings / common construction issues in masonry affecting energy efficiency Waterproofing / insulation / breathability / sealing of masonry Properties and proper use of new high-performance energy masonry materials Material selection based on building functions requirements Techno-economic aspects of material selection/management Material application techniques Special bioclimatic construction features (e.g., trombe wall, solar walls, thermosiphonic panels, etc.) | | | |
| Learning Outcome | The trained technicians will be able to construct building masonry and utilize new materials to enhance their energy performance | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 30-50 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 2.2 | | | | Priority Ranking (0-5) |
| “Modular and industrial solutions for building masonry constructions” | | | | 4.3 |
| Content | Requirements for masonry in deep retrofitting of buildings Properties and proper installation of prefabricated and/or industrial masonry elements that can be utilized in a deep retrofitting of buildings. Selection of materials and systems based on the functional requirements of the building. Techno-economic aspects of material and system selection/management. Techniques for applying materials and systems. | | | |
| Learning Outcome | Trained technicians will be able to select and properly use suitable modular and industrial solutions to construct building masonry, particularly in projects involving deep retrofitting. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |

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| Duration | Indicatively 24 -40 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings, enhancing deep renovations through the reduction of time and implementation costs. |
| General Information | |
| <p>The profession of a masonry technician does not require a professional license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following criteria could be required:</p> <ul style="list-style-type: none"> • Professional experience of five (5) years. • Graduates of compulsory education with four (4) years of professional experience. • Graduates of secondary vocational education and post-secondary vocational training (EPAL, EPAS, SEK, IEK – now SAEK – or equivalent qualifications) in a related specialty, with at least two (2) years of professional experience. • Graduates of education/training programs or proven professional experience of five (5) years as a stone technician, including at least one (1) year of experience as a masonry technician. • Ongoing professional training covering the entire body of knowledge corresponding to the competency units of the profession, plus four (4) years of professional experience. | |
| Required Qualification Level: NQF 3 | |
| <p>The incentives that could be implemented for the participation of masonry technicians in the aforementioned professional training programs are:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a registry for certified masonry technicians, where those who have successfully completed the training programs can register • Recognition of the new professional qualifications and the possibility of inclusion of technicians in a directory of certified professionals in the building construction sector • Requirement for only certified technicians to participate in co-funded programs | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • a registry for certified masonry technicians | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programme • Public Employment Service (DYPA) programs | |
| Training programmes could be managed through a social body/trade union representing the sector | |
| <p>The professional / trade union bodies representing masonry technicians are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Federation of construction workers and related professions of Greece (OOSSE) • Federation of construction workers and woodworkers of Greece | |

| Technician Profession | Supervisor of Construction Projects | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
| | | - | 3112 | |
| Training Program 3.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings / nZEB and ZEB buildings” | | | | 4.7 |
| Content | <p>Fundamental principles of energy efficiency in buildings and proper implementation. Basic principles of bioclimatic design. Common construction challenges in buildings that affect their energy performance. Properties and applications of new materials and systems with high energy performance in building construction. Optimal project management with proper scheduling of energy saving measures implementation, to avoid poor workmanship that negatively impacts the building's energy behaviour. Requirements for green building certifications.</p> | | | |

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| | <p>Characteristics and requirements for constructing nZEB (nearly Zero Energy Buildings) and ZEB (Zero Energy Buildings). Characteristics of materials and systems used in nZEB and ZEB buildings and best practices for their application. Skills related to green building certifications. Techno-economic aspects of material selection/management.</p> |
| Learning Outcome | The trained technicians will be able to coordinate and construct buildings with high energy efficiency, as well as nZEB (nearly Zero Energy Buildings) and ZEB (Zero Energy Buildings). |
| Apprenticeship - Practical Placement | The training program should include practical training |
| Duration | Indicatively 36-50 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings |
| Training Program 3.2 | |
| “Environmentally friendly materials and building construction systems / Recycling” | |
| Priority Ranking (0-5) | |
| 4.1 | |
| Content | <p>Eco-friendly materials and systems and their proper use in building construction and renovation. Assessment of the environmental footprint of materials and systems in construction and renovation projects. Proper management of waste and surplus materials from a construction or renovation project.</p> |
| Learning Outcome | Trained technicians s will be able to select and properly use suitable materials and systems to reduce environmental impact during the implementation of a construction or renovation project. |
| Apprenticeship - Practical Placement | The training program does not require practical training |
| Duration | Indicatively 26 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Protection of the environment/public health |
| General Information | |
| <p>The profession of a construction supervisor does not require a professional license to practice. As a prerequisite for a construction supervisor's participation in the aforementioned training programs, one of the following conditions could be met:</p> <ul style="list-style-type: none"> • Diploma from a Vocational High School or Certificate from a Vocational Training Institute (currently known as SAEK) in the Construction Sector + relevant professional experience of 2 years. • Diploma from a Vocational School (EPAS) specializing in the Construction Sector + relevant professional experience of 2.5 years. • Certificate from a Vocational Training Institute (now known as SAEK) with a specialty in “Construction Works Technician” + relevant professional experience of 1 year. | |
| Required Qualification Level: NQF 5 | |
| <p>The incentives that could be applied to encourage the participation of construction supervisors in the above professional training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Establishment of a registry of certified construction supervisors where those who have successfully completed the training programs can register. • Recognition of the new professional qualifications and the possibility of including the supervisors in a directory of certified professionals in the building construction sector. • Requirement for only certified supervisors to participate in co-funded programs. | |
| <p>It is proposed to establish: A registry of certified construction supervisors</p> | |
| The financing of training programmes could be carried out through: | |

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| <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| <p>The professional / trade union bodies representing construction supervisors are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Association of Technical Employees of Greece (STYE) • Panhellenic Association of Contracting Firms Registered in Prefectural Registries (PSEENM) • Federation of Associations of Technical Enterprise Employees of Greece (OSETEE) • Federation of Builders and Woodworkers of Greece • Federation of Builders and Related Professions of Greece • Primary Associations of Employees in Local Government Organizations, Public Legal Entities, Public Utility Companies, etc. |

| Technician Profession | Coating Technician | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
| | | - | 7123 | 43.31 |
| Training Program 4.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings / nZEB and ZEB buildings” | | | | 4.8 |
| Content | <p>Proper application of External Thermal Insulation Composite Systems (ETICS) for building envelopes, with particular emphasis on avoiding thermal bridges, ensuring breathability, and maintaining air insulation of the building envelope.</p> <p>Protection of thermal insulation from moisture condensation phenomena.</p> <p>Basic knowledge of building physics/common issues in the construction of plasters and insulations that affect the energy performance of buildings, as well as methods for addressing them.</p> <p>Requirements for the application of plasters and insulations in Nearly Zero-Energy Buildings (nZEB) and Zero Energy Buildings (ZEB) as well as in passive buildings.</p> <p>Selection of materials according to the usage requirements of the building.</p> <p>Techno-economic aspect of material selection/management.</p> <p>Techniques for the application of materials.</p> <p>Techniques for bioclimatic applications.</p> <p>Traditional plasters – special applications in traditional settlements and heritage buildings.</p> | | | |
| Learning Outcome | Trained technicians will be able to effectively implement thermal insulation systems that enhance the energy performance of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20-36 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| General Information | | | | |
| <p>The profession of a coating technician does not require a professional license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following criteria could be required:</p> <ul style="list-style-type: none"> • Professional experience of five (5) years. • Graduates of compulsory education with four (4) years of professional experience. • Graduates of secondary vocational education and post-secondary vocational training (EPAL, EPAS, SEK, IEK – now SAEK – or equivalent qualifications) in a related specialty, with at least two (2) years of professional experience. • Continuous professional training covering the entire set of knowledge corresponding to the 4 CPD (Continuing Professional Development) units of the profession, plus four (4) years of professional experience. | | | | |

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| Required Qualification Level: NQF 3 |
| The incentives that could be applied to encourage the participation of coating technicians in the above professional training programs include: <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Establishment of a registry of certified coating technicians where those who have successfully completed the training programs can register. • Recognition of the new professional qualifications and the possibility of including the technicians in a directory of certified professionals in the building construction sector. • Requirement for only certified coating technicians to participate in co-funded programs |
| It is proposed to establish: A registry of certified coating technicians |
| The financing of training programmes could be carried out through: <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| The professional / trade union bodies representing masonry technicians are: <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Federation of construction workers and related professions of Greece (OOSEE) • Federation of construction workers and woodworkers of Greece |

| Technician profession | Designer | Number | ISCO | NACE |
|---|--|--------|------|---|
| | | - | 3118 | |
| Training Program 5.1 “Deep renovation of buildings / modular and industrial solutions” | | | | Priority Ranking (0-5) 4.8 |
| Content | Existing technologies of modular and industrial solutions in building envelope construction, their properties, and construction constraints. Architectural rendering of buildings constructed through modular and industrial solutions. Techno-economic dimension of system selection. Design of special constructions. Design software. | | | |
| Learning Outcome | Trainees will be able to architecturally render buildings that are deeply renovated through modular and industrial systems. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20-36 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings, enhancement of deep renovations through the reduction of implementation time and costs. | | | |
| Training Program 5.2 “Digital skills that support greater energy efficiency in buildings” | | | | Priority Ranking (0-5) 4.3 |
| Content | Read/comprehend BIM information and its use in designing/rendering of the building project. Feeding/updating BIM systems with new information regarding the building. | | | |
| Learning Outcome | Trainees will be able to use data from BIM systems during the rendering of the building | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20 hours | | | |

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| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improvement of building energy efficiency. |
| General Information | |
| <p>The profession of a designer is practiced in accordance with the provisions of Presidential Decree 301/2003 (Government Gazette 257/A) and the Ministerial Decision F23/35437/D4/1-3-18 (Government Gazette 771/B/2018). A prerequisite for a designer's participation in the aforementioned training programs could be one of the following cases:</p> <ul style="list-style-type: none"> • Diploma from IEK (currently SAEK) in the profession 'Technical Project Designer using Computer Aided Design (CAD)' and 'Structural Works and Geoinformatics Designer'. • Degree from EPAL in the specialties 'STRUCTURAL WORKS OF BUILT ENVIRONMENT AND ARCHITECTURAL DESIGN' and 'DESIGNER OF STRUCTURAL WORKS AND GEOINFORMATICS' or equivalent titles, relevant professional experience of one (1) year. • Degree from TEE Second Cycle 'Technical Project Designer using CAD', relevant professional experience of one (1) year. <p>Degree from TEE First Cycle 'Technical Project Designer using CAD' or equivalent titles, relevant professional experience of two (2) years.</p> | |
| Required Qualification Level: NQF 3 | |
| <p>The incentives that could be implemented to encourage designers' participation in the above professional training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Recognition of the new professional qualifications and the possibility of including designers in a directory of certified professionals in the building construction sector. • Requirement for only certified designers to participate in co-financed programs. | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry of certified designers | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector</p> | |
| <p>The professional / trade union bodies representing designers are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Association of Technical Employees of Greece (STYE) • Federation of Associations of Technical Enterprise Employees of Greece (OSETEE) | |

| Technician profession | Stone Artisan / Craftsman | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
| | | - | | |
| Training Program 6.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings / modular and industrial solutions” | | | | 4.8 |
| Content | <p>Energy performance of stone buildings / common issues in the construction of the building envelope that affect energy efficiency.</p> <p>Waterproofing / thermal insulation / breathability / sealing of the stone building envelope.</p> <p>Properties, potential for utilization, and application of prefabricated or industrial elements for the deep renovation of stone buildings (e.g., metallic or reinforced concrete).</p> <p>Selection of materials according to the use requirements of the building.</p> <p>Techno-economic aspect of material selection/management.</p> <p>Techniques for the application of materials.</p> <p>Construction variations of stone depending on the region and its unique architecture.</p> | | | |
| Learning Outcome | Trained craftsmen in stone construction will be able to build new or renovate existing stone buildings, enhancing their energy efficiency. | | | |

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| Apprenticeship - Practical Placement | The training program should include practical training |
| Duration | Indicatively 24-40 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings |
| General Information | |
| <p>The profession of a stone mason does not require a professional license to practice. As a prerequisite for a mason's participation in the aforementioned training programs, one of the following cases could apply:</p> <ul style="list-style-type: none"> • High school diploma, three (3) years of relevant professional experience – Continuous Professional Training (theory) for all knowledge corresponding to the two (2) main professional functions (KEL 1, KEL 2). • EPAS diploma in the specialty of 'Building Works' or equivalent and related titles, two (2) years of relevant professional experience – Continuous Professional Training (theory) for all knowledge corresponding to the two (2) main professional functions (KEL 1, KEL 2). • EPAL diploma in the specialty of 'Technician of Structural Works and Geoinformatics' or equivalent and related titles, and one (1) year of relevant professional experience – Continuous Professional Training (theory) for all knowledge corresponding to the two (2) main professional functions (KEL 1, KEL 2). • Professional experience of six (6) years as a Stone Mason. | |
| Required Qualification Level: NQF 3 | |
| <p>The incentives that could be implemented to encourage stone masons' participation in the above professional training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Creation of a registry of certified stone masons, where masons who have successfully completed the training programs can register. • Recognition of the new professional qualifications and the possibility of including the masons in a directory of certified professionals in the building construction sector. • Requirement for only certified masons to participate in co-financed programs. | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry of certified and specialized stone masons based on the different techniques from region to region. | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs | |
| Training programmes could be managed through a social body/trade union representing the sector | |
| <p>The professional/trade union bodies representing stone masons are:</p> <ul style="list-style-type: none"> • Federation of Builders and Related Professions of Greece (GSEE) • Association of Technical Companies of Higher Classes (STEAT) | |

| Technician Profession | Burner / Boiler Installer – Maintainer | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
| | | - | | 43.22 |
| Training Program 7.1 | | | | Priority Ranking (0-5) |
| “Systems and techniques for energy efficient heating systems in buildings” | | | | 4.8 |
| Content | <p>Comprehend the energy performance of heating systems with burners in buildings / common problems in the installation and maintenance of these systems that affect their energy performance, as well as techniques for addressing them.</p> <p>Upgrading the energy efficiency of existing heating systems with burners (e.g., through control systems, handling of partial loads, operation at low temperatures, etc.).</p> | | | |

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| | <p>Properties and proper installation of automatic control systems for heating systems with burners (such as temperature compensation, technologies for autonomy of old installations, smart thermostats, etc.).</p> <p>New European regulations regarding heating systems with burners and requirements for the installation of new/upgrading of existing systems.</p> <p>Utilization of solar thermal systems in both new and existing heating systems with burners.</p> <p>Utilization of biomass burners.</p> <p>Properties and application of new technologies and high-energy performance systems.</p> <p>Techno-economic aspect of system selection.</p> <p>Techniques for the application of systems.</p> |
| Learning Outcome | Trained technicians will be able to install, adjust, and maintain efficient heating systems, thereby enhancing the energy efficiency of buildings. |
| Apprenticeship - Practical Placement | The training program should include practical training |
| Duration | Indicatively 40-60 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings |
| General Information | |
| <p>The profession of burner installer-maintainer requires a special professional license to practice, which is renewed every 8 years and includes the following professional hierarchy gradations:</p> <ul style="list-style-type: none"> • Technician of combustion installations (1st grade). • Master Technician of combustion installations (2nd grade). • Installer of combustion installations (3rd grade). <p>As a prerequisite for the participation of a burner installer-maintainer in the aforementioned training programs, one of the following may apply:</p> <ul style="list-style-type: none"> • Diploma by Second Cycle T.E.E. (Technical Education School) in the specialty of 'Central Heating Maintenance'. • Fast-track DYPA school diploma in the specialty of Boiler Maintenance. • Diploma from T.E.S. (Technical School) in the specialty of 'Internal Combustion Engines'. • Apprenticeship DYPA schools, under decree 3/52 (Official Gazette A' 157) and decree 212/69 (Official Gazette A' 112), specialty 'Turbine-Boiler Technicians' - 24 months of prior experience. • Diploma from Vocational School (EPAS) in the specialty of Gas Fuel Technicians. • Diploma from the Institute of Vocational Training (formerly known as SAEK) in the specialty of Gas Fuel Technician. • Diploma from equivalent and similar schools with corresponding specialties as above. | |
| Required Qualification Level: NQF 3 | |
| <p>The incentives that could be applied for the participation of burner installers and maintainers in the above professional training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Creation of a registry of certified burner installers-maintainers, where those who have successfully completed the training programs can register. • Recognition of the new professional qualifications and the possibility of including installers-maintainers in a directory of certified professionals in the building construction sector. • Requirement for only certified installers-maintainers to participate in co-financed programs. | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry of certified specialists in the relevant fields of burner installers-maintainers | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs | |
| Training programmes could be managed through a social body/trade union representing the sector | |
| <p>The professional/trade union body representing burner installers and maintainers is:</p> <ul style="list-style-type: none"> • Panhellenic Federation of Professional Technicians of Combustion Installations (POETEK) | |

- Various Associations around Greece (e.g. ESTIA, HEFAISTOS, PROMETHEAS, etc.)

| Technician Profession | Aluminium and Metal Constructor | Number | ISCO | NACE |
|---|---|--------|------|------------------------|
| | | - | | 25.12 |
| Training Program 8.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings” | | | | 4.5 |
| Content | <p>Basic principles of material technology & architectural profiles. Understanding the impact of frames on the energy performance of buildings. Proper construction practices and critical control points. Common problems in the construction and installation of frames, which negatively affect the energy performance of buildings, and the application of proper techniques to address them. Properties and proper installation of new frames technologies with high energy performance. Certifications of frames and related requirements of national and European regulations (e.g., CE, KENAK, etc.). Presentation and analysis of technical specifications that frames must meet to be installed in nZEB and ZEB buildings (thermal transmittance coefficient, air permeability class, etc.) and requirements set by certification schemes for their correct installation in nZEB and ZEB buildings (e.g., Passive House). Selection of materials according to the usage requirements of the building. Techno-economic aspect of material selection/management. Special constructions for heritage buildings and traditional ensembles.</p> | | | |
| Learning Outcome | Trained technicians will be able to construct and install frames that enhance the energy performance of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training constituting at least 40% of the total duration | | | |
| Duration | Indicatively 50 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 8.2 | | | | Priority Ranking (0-5) |
| Installation of frames in historical and listed buildings” | | | | 4.3 |
| Content | <p>Presentation and analysis of the regulatory framework governing the maintenance and repair of historical and heritage buildings. Specificities of installing frames in historical and heritage buildings.</p> | | | |
| Learning Outcome | Technicians will be able to select and properly install appropriate frames in historical and heritage buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improvement of energy efficiency in historic and listed buildings | | | |
| General Information | | | | |
| <p>The profession of Aluminium and Metal Constructor does not require a special professional license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following cases could apply:</p> <ul style="list-style-type: none"> • Secondary education diploma + two (2) years of professional experience + Continuous Professional Training for the theoretical part of the entire KEL. | | | | |

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| <ul style="list-style-type: none"> • Diploma from a secondary vocational education institution (EPAS) in the specialty 'Metal Construction Technician' + two (2) years of professional experience + Continuous Professional Training for the theoretical part of the entire KEL. • Compulsory education diploma + three (3) years of professional experience + Continuous Professional Training for the theoretical part of the entire KEL. |
| Required Qualification Level: NQF 3 |
| <p>The incentives that could be applied for the participation of Aluminium and Metal Constructors in the above professional training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Creation of a registry of Certified Aluminum and Metal Constructors where those who have been certified by EOPPEP or another accredited body can register. • Recognition of the new professional qualifications and the possibility of including Aluminum and Metal Constructors in a directory of certified professionals in the building construction sector. • Requirement for only certified Aluminum and Metal Constructors to participate in co-financed programs. • Regulation of the profession and licensing of certified constructors. The requirement for licensing existing constructors will be certification and 5 years of experience. |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • a registry of Certified Aluminum and Metal Constructors |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| <p>The professional / trade union bodies representing the Aluminum and Metal Constructors are:</p> <ul style="list-style-type: none"> • Panhellenic Federation of Aluminum and Metal Craftsmen - POVAS • Panhellenic Federation of Metal Workers - POEM |

| Technician profession | Insulation Technician - Insulator | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | | 43.29 |
| Training Program 9.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for improving energy efficiency in buildings” | | | | 4.6 |
| Content | <p>Comprehend the impact of the building envelope on the energy performance of buildings. Common challenges in the thermal insulation of the building envelope, which negatively affect the energy performance of buildings, and techniques for addressing them.</p> <p>Properties of thermal insulation materials and systems, and proper placement in the building envelope.</p> <p>Presentation and analysis of certifications for thermal insulation materials and systems, as well as the requirements set by national and European regulations (e.g., CE, KENAK, etc.).</p> <p>Presentation and analysis of stringent specifications for the installation of thermal insulation in the building envelopes of nZEB and ZEB buildings (avoidance of thermal bridges, air tightness) and the requirements set by certification schemes for buildings nZEB and ZEB regarding the placement of thermal insulation in the building envelope (e.g., Passive House).</p> <p>Selection of materials according to the usage requirements of the building.</p> <p>Techno-economic dimension of material selection/management.</p> <p>Techniques for the application of materials.</p> <p>Bioclimatic elements and applications of thermal insulation.</p> <p>Special constructions for heritage buildings and traditional ensembles.</p> | | | |
| Learning Outcome | Trainees will be able to effectively implement thermal insulation systems that enhance the energy performance of buildings. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |

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| Duration | Indicatively 24-40 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| Training Program 9.2 | | Priority Ranking (0-5) |
| “Environmentally friendly insulation materials / Recycling” | | 4.0 |
| Content | Environmentally friendly materials and their proper use in thermal insulation activities of building envelopes. Assessment of the environmental footprint of materials in thermal insulation projects of building envelopes. Proper management of waste/surplus materials from a thermal insulation project of building envelopes. | |
| Learning Outcome | Trainees will be able to select and properly use the appropriate materials in order to reduce environmental impact during the implementation of a thermal insulation project of building envelopes. | |
| Apprenticeship - Practical Placement | The training program does not require practical training | |
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Protection of the environment/public health | |
| General Information | | |
| <p>The profession of an Insulation Technician does not require a special professional license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following cases may apply:</p> <ul style="list-style-type: none"> • Diploma from an Institute of Vocational Training (now SAEK) (level 5 of NQF) in the specialties of 'Designer of Structural Works and Geoinformatics' or 'Technician of Structural Works' (Law 2009/1992) or 'Technicians of Structural Works and Geoinformatics' from the EPAL apprenticeship year → Relevant professional experience of one (1) year → Continuous professional training in all the knowledge corresponding to the two KELs of the profession. • Diploma from Secondary Vocational Education at EPAL (level 5 of NQF) in the specialty 'Technicians of Structural Works and Geoinformatics' → Relevant professional experience of two (2) years → Continuous professional training in all the knowledge corresponding to the two KELs of the profession. • Diploma from Secondary Vocational Education at EPAS (level 4 of NQF) in the specialty 'Building Works' → Relevant professional experience of three (3) years → Continuous professional training in all the knowledge corresponding to the two KELs of the profession. • Diploma from Vocational School (ESK or EPAS) (level 3 of NQF) in specialties related to building or structural works → Relevant professional experience of four (4) years → Continuous professional training in all the knowledge corresponding to the two KELs of the profession. • Compulsory education diploma (Gymnasium) (level 2 of NQF) → Relevant professional experience of five (5) years → Continuous professional training in all the knowledge corresponding to the two KELs of the profession. | | |
| Required Qualification Level: NQF 3 | | |
| <p>The following incentives may be utilized to encourage the insulation technicians participation in the aforementioned vocational training programs include:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified insulation technicians in which craftsmen who have successfully completed the training programmes will be able to register • Recognition of the new professional qualifications and possibility of inclusion of the insulation technicians in a directory of certified professionals in the building construction sector • Requirement for only certified technicians to participate in co-financed programs | | |

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| It is proposed to establish: <ul style="list-style-type: none"> • a registry of certified insulation technicians |
| The financing of training programmes could be carried out through: <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| The professional / trade union bodies representing the insulation technicians are: <ul style="list-style-type: none"> • Federation of Private Sector Employees of Greece (OIYE) • Workers' Center of Athens • General Confederation of Greek Workers (GSEE) • Panhellenic Association of Insulation Companies – PSEM • Panhellenic Association of Building Facade Applicators for Energy Savings – SEPKEE |

| Technician Profession | Technician of Cooling Installations - Ventilation & Air Conditioning | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 7127 | |
| Training Program 10.1 | | | | Priority Ranking (0-5) |
| “Systems and techniques for improving energy efficiency in buildings” | | | | 4.6 |
| Content | <p>Impact of cooling and heating systems using heat pumps on the energy performance of buildings.</p> <p>Common challenges in the installation and operation of heat pumps, which negatively affect the energy performance of buildings, and techniques for addressing them.</p> <p>Presentation and analysis of the properties and technical specifications of heat pumps as well as their proper installation and adjustment in buildings.</p> <p>Presentation and analysis of the characteristics and correct installation of new technology and high energy efficiency heat pumps.</p> <p>Techniques for upgrading the energy performance of existing heating/cooling systems (e.g., through control systems, handling of partial loads, operation at optimal temperatures, etc.).</p> <p>Presentation and analysis of the properties and correct installation of automatic control systems for heating/cooling systems.</p> <p>Selection of systems according to the usage requirements of the building.</p> <p>Techno-economic dimension of system selection.</p> | | | |
| Learning Outcome | Trained technicians will be able to install and effectively adjust heating/cooling systems with heat pumps that enhance the energy performance of buildings. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 24-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 10.2 | | | | Priority Ranking (0-5) |
| “Environmentally friendly systems and materials / Recycling” | | | | 4.2 |
| Content | <p>Systems and materials that are environmentally friendly and their proper use in the installation of cooling/heating systems with heat pumps.</p> <p>Assessment of the environmental footprint of materials in projects involving the installation of cooling/heating systems with heat pumps.</p> <p>Reuse of materials as well as proper management of waste/surplus materials in a project involving the installation of cooling/heating systems with heat pumps.</p> | | | |
| Learning Outcome | Trained technicians will be able to select and correctly use appropriate systems and materials to reduce environmental impact during the implementation of a project involving the installation of cooling/heating systems with heat pumps. | | | |

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| Apprenticeship - Practical Placement | The training program does not require practical training |
| Duration | Indicatively 20 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Protection of the environment/public health |
| General Information | |
| <p>The professional scope of the role of a Refrigeration Technician depends on the category of the license they hold, in accordance with the legislation on the licensing of technical professions Law 3982/2011, Presidential Decree 1 /08-01-2013, EC 517/2014, and EC 2067/2015. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following cases may apply depending on the technician's grade:</p> <p><u>A) Refrigeration Technician (belongs to the first (1st) grade) - Refrigeration Technician License</u></p> <ul style="list-style-type: none"> • Diploma from a Vocational High School (EPAL) in the field of Mechanics, specializing in Refrigeration Installations and Air Conditioning, (b) diploma from a Vocational School (EPAS), apprenticeship of DYPA specializing in Refrigeration and Air Conditioning Works, (c) diploma from an Institute of Vocational Training (now SAEK) specializing in Technical Installations of Cooling, Ventilation, and Air Conditioning. • Diploma from schools with an equivalent title and corresponding specialty, which are not currently operational and are referred to in Annex A' (PD 1/2013-Government Gazette A' 3/08-01-2013), as well as other schools or other educational institutions or title-awarding bodies, which are deemed equivalent and corresponding to the schools of the above cases (path 1). • Title of studies from abroad in a corresponding specialty that has been recognized as equivalent to the titles of the cases of path 1. <p><u>B) Master Craftsman License</u></p> <ul style="list-style-type: none"> • Technician license and two years of experience under the supervision of a Master Craftsman or a Refrigeration Supervisor, if they are graduates of Vocational High Schools and Vocational Schools, in refrigeration installations referred to in subparagraph A.(I).c or A.(III) of Article 3 paragraph 2 of PD 1/2013. • Technician license and one year of experience under the supervision of a Master Craftsman or a Refrigeration Supervisor, if they are graduates of IEK (now SAEK), in refrigeration installations referred to in subparagraph A.(I).c or A.(III) of Article 3 paragraph 2 of PD 1/2013. • Holders of equivalent titles and corresponding specialty of the above cases according to cases (II) and (III) of para. 1 of PD 1/2013, holders of the technician license after acquiring, as applicable, the above experience (path 1 or 2). <p><u>C) Refrigeration Technician (Refrigeration Supervisor License)</u></p> <ul style="list-style-type: none"> • Holders of a Master Craftsman in Refrigeration license, after one year of experience from the issuance of the Master Craftsman in Refrigeration license. • University and Technological Sector Graduates: <ol style="list-style-type: none"> a. Engineers falling under the provisions of article 1 of law 6422/1934, with their registration in the Technical Chamber of Greece (TCG). b) Graduate mechanical engineers, electrical engineers, and energy technology engineers of the technological sector upon acquiring their degree, as well as holders of foreign degrees in corresponding specialties that have been recognized as equivalent to the titles of these cases. | |
| Required Qualification Level: NQF 3 | |
| <p>The following incentives may be utilized to encourage participation of the technicians of cooling installations - ventilation & air conditioning in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • subsidies (partial or full) for training costs and/or training time • Creation of a register of certified technicians of cooling installations - ventilation & air conditioning in which craftsmen who have successfully completed the training programmes will be able to register • Recognition of the new professional qualifications and possibility of inclusion of technicians in a directory of certified professionals in the building construction sector | |

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| <ul style="list-style-type: none"> Requirement for only certified technicians to participate in co-financed programs |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> a registry of certified technician of cooling installations - ventilation & air conditioning |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> the Public Investment Program (PDE) NSRF Programs Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector.</p> |
| <p>The professional / trade union bodies representing technicians of cooling installations - ventilation & air conditioning are:</p> <ul style="list-style-type: none"> Secondary Trade Union Body: Federation of Refrigeration Technicians of Greece (OPSE). Tertiary National Employer Organization: General Confederation of Greek Small Businesses and Traders (GSEVEE). Tertiary National Worker Organization: General Confederation of Greek Workers (GSEE). |

| Technician profession | Technician of Indoor Electrical Installations | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 7411 | 4321 |
| Training Program 11.1 | | | | Priority Ranking (0-5) |
| “Skills related to the installation and setting of automatic control systems and energy management in high energy efficiency buildings” | | | | 4.8 |
| Content | Implementation and application of automatic control studies and energy management. Replaces, repairs, and upgrades of electrical materials, automation for smart installations, etc. Upgrade/replacement of electrical installations in historical and heritage buildings. Measurements of the quality of electrical installations. Use of environmentally friendly materials and the environmental footprint of materials/systems. Development of the ability to read/understand BIM information and their use. Proper management of waste and surplus material and reuse of materials. | | | |
| Learning Outcome | Trainees will be able to implement new automatic control and energy management systems that enhance the energy efficiency of buildings. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 60-80 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 11.2 | | | | Priority Ranking (0-5) |
| “Installation of photovoltaic systems in buildings” | | | | 4.4 |
| Content | Implementation and application of renewable energy studies for buildings. Replaces, repairs, and upgrades of electrical materials, automation of smart home installations, photovoltaics, charging stations, etc. Upgrade/replacement of electrical installations and the installation of renewable energy systems in historical and heritage buildings. Quality measurements of electrical installations. Skills related to the knowledge of the regulatory framework governing the maintenance and repair of historical and heritage buildings. Proper management of waste and surplus materials and reuse of materials. | | | |
| Learning Outcome | Trainees will be able to install photovoltaic systems in buildings according to current legislation for optimal utilization of solar potential in a building. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |

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| Duration | Indicatively 40 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Increase of RES penetration in the building sector / reduction of GHGs |
| General Information | |
| <p>A professional license is a prerequisite for participation in educational programs for internal electrical installation technicians.</p> <p>The requirements for practicing the profession of Internal Electrical Installation Technician are defined by the following legislation:</p> <ul style="list-style-type: none"> - Law 6422/1934 (Official Gazette A' 412/28-11-1934) 'On the practice of the Engineering profession' - Law 3982/2011 (Official Gazette A' 143/17-06-2011), 'Simplification of the licensing of technical, professional, and manufacturing activities and business parks and other provisions' - Presidential Decree No. 108 in the Official Gazette A' 141/12-06-2013 titled: 'Determination of specialty and levels of professional qualifications for the professional activity of executing, maintaining, repairing, and operating electrical installations and conditions for practicing this activity by natural persons' | |
| Required Qualification Level: NQF 3 | |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs for internal electrical installation technicians:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time. • Creation of a register of certified Internal Electrical Installation Technicians where technicians who have successfully completed the training programs can register. • Recognition of the new professional qualifications and the possibility of including the technicians in a directory of certified professionals in the building construction sector. • Requirement for only certified technicians to participate in co-financed programs. | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • a registry of certified Internal Electrical Installation Technicians | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>The management of training programs could be carried out by EOPPEP or the Ministry of Education or through a social entity representing the sector.</p> | |
| <p>The professional / trade union bodies representing internal electrical installation technicians are:</p> <ul style="list-style-type: none"> - Panhellenic Federation of Associations of Electrical Contractors (POSEH) - Federation of Electricians of Greece (OHE) - Local professional associations (by region) – associations of electrical installers | |

| Technician Profession | Drywall / Plasterwork Technician | Number | ISCO | NACE |
|---|---|--------|------|------------------------|
| | | - | 7123 | 43.39 |
| Training Program 12.1 | | | | Priority Ranking (0-5) |
| “Best practices for the use and installation of thermal insulation materials and systems with light overhangs in buildings and addressing failures/problems resulting from their improper use/application” | | | | 4.67 |
| Content | <p>Basic knowledge of the impact of the building envelope on the energy performance of buildings.</p> <p>Proper application of external thermal insulation systems (with light overhangs) of the building envelope, with particular emphasis on avoiding thermal bridges, ensuring breathability, and maintaining air tightness of the building envelope.</p> <p>Basic knowledge of building physics/common issues in the application of light overhangs and insulations that affect the energy performance of buildings, as well as methods for addressing them.</p> | | | |

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| | <p>Proper application of internal thermal insulation systems of the building envelope in historical and heritage buildings with light overhangs.</p> <p>Requirements for the application of plasters and insulations in light overhangs in Nearly Zero-Energy Buildings (nZEB) and Zero Energy Buildings (ZEB) as well as in passive buildings.</p> <p>Selection of materials according to the usage requirements of the building.</p> <p>Techno-economic aspect of material selection/management.</p> <p>Techniques for the application of materials.</p> <p>Proper management of waste and surplus material and reuse of materials.</p> <p>Information on environmentally friendly materials/systems and the environmental footprint of materials/systems.</p> <p>Knowledge and understanding of the certifications of thermal insulation materials and systems as well as the requirements set by national and European regulations (e.g., CE, KENAK, etc.).</p> |
| Learning Outcome | Trainees will be able to effectively apply thermal insulation systems in constructions with light overhangs, which will enhance the energy performance of buildings. |
| Apprenticeship - Practical Placement | The training program should include practical training |
| Duration | Indicatively 20-36 hours |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. |
| Benefits | Improving energy efficiency in buildings |
| General Information | |
| <p>The profession of a dry construction systems - plastering technician does not require a special license to practice. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following cases may apply:</p> <ul style="list-style-type: none"> • Professional experience of five (5) years. • Graduates of Compulsory Education and four (4) years of professional experience. • Graduates of Secondary Vocational Education and Post-secondary Vocational Training (EPAL or EPAS or SEK or IEK – now SAEK - or equivalent titles) in a related specialty and at least two years of professional experience. • Continuous professional training for all the knowledge corresponding to the 4 KELs of the profession + four (4) years of professional experience. | |
| Required Qualification Level: NQF 3 | |
| <p>The following incentives may be utilized to encourage participation for a technician's participation in the aforementioned training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified dry construction systems - plastering technicians in which craftsmen who have successfully completed the training programmes will be able to register • Recognition of the new professional qualifications and possibility of inclusion of dry construction systems - plastering technicians in a directory of certified professionals in the building construction sector • Requirement for only certified technicians to participate in co-financed programs | |
| It is proposed to establish a register of certified dry construction systems - plastering technicians | |
| <p>The funding for the training program could be provided through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE), • NSRF Programs, • Public Employment Service (DYPA) programs. <p>The management of the training program could be carried out through a social entity or union body that represents the sector.</p> | |
| <p>The professional/trade union bodies representing dry construction systems - plastering technicians are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE), • Federation of Construction and Related Professions of Greece (OOSE), • Federation of Builders and Woodworkers of Greece. | |

The associations Panhellenic Association of Insulation Companies (PSEM) and Panhellenic Association of Facade Applicators of Buildings for Energy Saving (SEPKEE) include members who are active as technicians in dry construction systems – plastering.

| Technician Profession | Glass Panel Technician | Number | ISCO | NACE |
|--|--|--------|------|------------------------|
| | | - | 7315 | 43,34 |
| Training Program 13.1 | | | | Priority Ranking (0-5) |
| “Properties and Modern Techniques for the Installation of Glass Panels in High Energy Efficiency Frames in Buildings” | | | | 5.0 |
| Content | <p>Understanding the impact of glazing and frames on the energy performance of buildings Common problems in the installation of glazing, which negatively affect the energy efficiency of buildings, and techniques for their resolution Properties and correct installation of new high energy efficiency glazing technologies. Certifications of glazing and related requirements of national and European regulations (e.g., CE, KENAK, etc.) Presentation and analysis of technical specifications that glazing must have to be installed in nZEB and ZEB buildings (e.g., thermal conductivity coefficient,) and requirements set by certification schemes for their correct installation in nZEB and ZEB buildings (e.g., Passive House). Selection of materials according to the usage requirements of the building Techno-economic aspect of material selection/management Information on the installation of glazing in frames of historic and preserved buildings. Information on the knowledge of energy-efficient glazing technologies and familiarity with Smart Glass systems. Proper management of waste and surplus materials and reuse of materials Information on environmentally friendly materials/systems and the environmental footprint of materials/systems. Bioclimatic systems and applications (e.g., greenhouses)</p> | | | |
| Learning Outcome | Trainees will be able to select and install glass panels that will enhance the energy efficiency of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| General Information | | | | |
| <p>The profession of a glass panel technician does not require a special license to practice. As a prerequisite for participation in the aforementioned training programs, a technician could fall under one of the following cases:</p> <ul style="list-style-type: none"> • High school diploma + two (2) years of professional experience + Continuing Professional Training for the theoretical part of the entire training. • Diploma of secondary vocational education from EPAS in the specialty 'Technician of Metal Constructions' + two (2) years of professional experience + Continuing Professional Training for the theoretical part of the entire training. • Mandatory education diploma + three (3) years of professional experience + Continuing Professional Training for the theoretical part of the entire training. | | | | |
| Required Qualification Level: NQF 3 | | | | |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified glass panel technicians which will be open to glass panel technicians who have successfully completed the training programmes | | | | |

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| <ul style="list-style-type: none"> • Recognition of the new professional qualifications and possibility of inclusion of glass panel technicians in a directory of certified professionals in the building construction sector • Requirement for only certified glass panel technicians to participate in co-funded programmes |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry for certified glass panel technicians |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector</p> |
| <p>At the national level, the representative of the profession is the Panhellenic Federation of Traders & Craftsmen of Glass Panels (PDEVY). There are trade unions in the regions throughout Greece:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Federation of Private Employees of Greece (OIIYE) • Labour Centers of the Regions of the Country |

| Technician Profession | Technician of Hydraulic Installations/Plumber | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
| | | - | 7126 | 43.22 |
| Training Program 14.1 | | | | Priority Ranking (0-5) |
| «Utilisation of solar thermal systems for the production of DHW and heating to increase energy efficiency in buildings» | | | | 4.80 |
| Content | <p>Presentation and analysis of the impact of solar thermal systems for domestic hot water (DHW) and heating on the energy performance of buildings.</p> <p>Presentation and analysis of the properties and technical specifications of solar thermal systems for DHW and heating production, as well as their proper installation and adjustment in buildings.</p> <p>Common problems in the installation and operation of systems for DHW and heating production that negatively affect the energy performance of buildings, and techniques for addressing them.</p> <p>Energy saving interventions in existing and new heat distribution networks and heating systems. Techniques for upgrading the energy performance of existing DHW systems.</p> <p>Selection of systems based on the usage requirements of the building.</p> <p>Techno-economic aspect of system selection.</p> <p>Knowledge of new European regulations regarding heating, cooling, and DHW systems that use water as a heat transfer medium, and the requirements they set for the installation of new/upgrading of existing systems.</p> <p>Installation of hydraulic heat distribution networks, terminal units, and DHW and heating production systems in historical and preserved buildings.</p> <p>Proper management of waste and surplus materials and reuse of materials.</p> <p>Information on environmentally friendly materials/systems and the environmental footprint of materials/systems.</p> <p>Ability to read/understand BIM information and utilize it. Special installations (e.g., grey water networks)</p> | | | |
| Learning Outcome | The trainees will be able to install and configure efficient DHW systems that will enhance the energy efficiency of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 40-80 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Protection of the environment/public health | | | |
| General Information | | | | |
| A prerequisite for participation in the educational programs is that the participants hold the relevant professional license of Hydraulic Systems Technician. It is noted here that the profession of Hydraulic Systems | | | | |

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| <p>Technician is a fully regulated and legally secured profession, distinguished into three levels: a) Hydraulic Technician, b) Chief Hydraulic Technician, and c) Hydraulic Foreman. Depending on the level the professional belongs to, they have the right to undertake or supervise work from the following two specialties:</p> <p>1st specialty: a) Installation of water supply and distribution of cold and hot water in buildings and fields, b) Installation of sewage and treatment of wastewater and rainwater in buildings and fields, c) Installation of heating bodies and water distribution for heating building spaces, d) Installation of permanent firefighting systems with water or other liquids, e) Installation of water distribution for air conditioning of building spaces, f) Networks for the distribution of other liquids in communal and private spaces, g) Water distribution installations for renewable energy sources (geothermal, solar thermal and water management).</p> <p>2nd specialty: a) Installation of fuel gas distribution, b) Installation of steam distribution, c) Storage and distribution installations for gases for industrial or medical use, d) Networks for the distribution of other gases.</p> |
| <p>Required Qualification Level: NQF 3</p> |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidy (partial or total) of training costs and/or subsidy of training time • Creation of a register of certified technicians of Hydraulic Installations/Plumbers in which craftsmen who have successfully completed the training programmes will be able to register. • Recognition of the new professional qualifications and possibility of inclusion of technicians of Hydraulic Installations/Plumbers in a directory of certified professionals in the building construction sector • Requirement for only certified technicians to participate in co-financed programs |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A register of technicians certified in matters of interest to technicians of Hydraulic Installations/Plumbers |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| <p>Training programmes could be managed through a social body/trade union representing the sector</p> |
| <p>The professional / trade union bodies representing technicians of Hydraulic Installations/Plumbers are:</p> <ul style="list-style-type: none"> • Tertiary Panhellenic Employers' Organization GSEBEE • Tertiary Panhellenic Organization of Employees GSEE • Federation of Plumbers' Craftsmen of Greece (OVYE) |

| Technician Profession | Technician of Restoration & Maintenance of Historic and Listed Buildings | Number | ISCO | NACE |
|--|--|--------|------|---|
| | | - | | |
| <p align="center">Training Program 15.1</p> <p align="center">“Materials and techniques for improving energy efficiency in historic and listed buildings”</p> | | | | <p align="center">Priority Ranking (0-5)</p> <p align="center">4.9</p> |
| Content | <p>Presentation and analysis of the energy performance of historical and listed buildings and the main parameters that affect it.</p> <p>Presentation and analysis of common problems in the construction of the building envelope of historical and listed buildings, which negatively affect energy performance, as well as measures to address them.</p> <p>Presentation and analysis of energy upgrade practices for historical and listed buildings, as well as the relevant materials/systems and their proper application. Selection of materials based on the building's usage requirements.</p> <p>Techno-economic dimension of material selection/management</p> | | | |
| Learning Outcome | The trainees will be able to upgrade the energy efficiency of historic and listed buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 24-40 hours | | | |

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| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| Training Program 15.2 | | Priority Ranking (0-5) |
| “Environmentally friendly materials for the restoration and maintenance of historic and listed buildings environmentally friendly / Recycling” | | 3.8 |
| Content | <p>Environmentally friendly materials and their proper use in restoration and maintenance projects of historical and preserved buildings.</p> <p>Estimation of the environmental footprint of materials in restoration and maintenance projects of historical and preserved buildings.</p> <p>Proper management of waste/surplus materials and possibilities for reuse of materials in restoration and maintenance of historical and preserved buildings</p> | |
| Learning Outcome | The trainees will be able to select and use the appropriate materials in order to reduce the impact on the environment during the implementation of restoration and maintenance projects of historic and listed buildings. | |
| Apprenticeship - Practical Placement | The training program does not require practical training | |
| Duration | Indicatively 20 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Protection of the environment/public health | |
| General Information | | |
| <p>The profession of a technician for the restoration and maintenance of historical and heritage buildings does not require a special professional license to practice. The prerequisites for a technician's participation in the aforementioned training programs could be one of the following cases:</p> <ul style="list-style-type: none"> • Compulsory education (middle school) + 6 years of professional experience as a builder + relevant continuous professional training programs (seminar-type or on-the-job). • High school education + 3 years of professional experience as a builder + relevant continuous professional training programs (seminar-type or on-the-job). • Vocational High School (EPAL) / Vocational Training Institute (EPAS) / Upper Secondary Vocational School (TEL) / Lower Secondary Vocational School (EPL) / Technical Vocational School (TES) / Technical and Vocational Education (TEE) A' and B' cycle in a related specialty + 2 years of professional experience as a builder + relevant continuous professional training programs (seminar-type or on-the-job). • Post-secondary Vocational Institute (IEK, now SAEK) in a related specialty + 1 year of professional experience as a builder. • Post-secondary Vocational Institute (IEK, now SAEK) post-middle school (level 1) in a related specialty + 5 years of professional experience as a builder. • Compulsory education (elementary) + 12 years of professional experience as a builder + relevant continuous professional training programs (seminar-type or on-the-job). | | |
| Required Qualification Level NQF 3 | | |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified technicians of restoration & maintenance of historic and listed buildings in which craftsmen who have successfully completed the training programmes will be able to register. • Recognition of the new professional qualifications and possibility of inclusion of technicians of restoration & maintenance of historic and listed buildings in a directory of certified professionals in the building construction sector • Requirement for only certified craftsmen for the restoration and maintenance of historic and listed buildings to participate in co-financed programmes | | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • register of certified restoration and maintenance technicians for historic and listed buildings | | |

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| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector</p> <p>The professional / trade union bodies representing technicians of restoration & maintenance of historic and listed buildings are:</p> <ul style="list-style-type: none"> • Federation of Builders & Allied Trades • Panhellenic Federation of Craftsmen's Associations for Woodworking |
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| Technician Profession | Formwork and concrete injection technician | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | 7114 | |
| Training Program 16.1 | | | | Priority Ranking (0-5) |
| “Materials and techniques for making moulds and casting concrete for Improving energy efficiency in buildings” | | | | 4.7 |
| Content | <p>Presentation and analysis of the impact of concrete structural elements on the energy performance of buildings and techniques/materials to improve their energy efficiency. Presentation and analysis of common problems in the construction of building envelope structural elements from concrete, which negatively affect the energy performance, as well as techniques to address them.</p> <p>Presentation and analysis of correct techniques and appropriate materials for thermal insulation and protection of building envelope elements made from concrete.</p> <p>Techno-economic dimension of material selection/management</p> | | | |
| Learning Outcome | Trainees will be able to construct moulds and cast concrete in a way that will enhance the energy efficiency of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 24-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 16.2 | | | | Priority Ranking (0-5) |
| “Technologies of modular and industrial solutions in the construction of moulds and concrete casting in buildings” | | | | 3.8 |
| Content | <p>Presentation and analysis of existing technologies of modular and industrial solutions in the construction of moulds and concrete casting in building projects, their properties, and the construction constraints they impose.</p> | | | |
| Learning Outcome | The trainees will be able to use modular and industrial solutions in the construction of moulds and the casting of concrete in new building construction projects or deep renovation of existing buildings. | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 16 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency and increasing the rate of deep renovation of existing buildings by reducing costs and construction time. | | | |
| General Information | | | | |
| <p>The profession of mold maker and concrete caster does not require a special professional license. The following cases could serve as prerequisites for a technician's participation in the aforementioned training programs:</p> <ul style="list-style-type: none"> • 5 years of professional experience | | | | |

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| <ul style="list-style-type: none"> • Mandatory education + 4 years of professional experience • Vocational education and training (EPAL, EPAS, SEK, IEK – now SAEK – or equivalent titles) in a related specialty + at least 2 years of professional experience |
| Required Qualification Level: NQF 3 |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified Formwork and concrete injection technician in which craftsmen who have successfully completed the training programmes will be able to register • Recognition of the new professional qualifications and possibility of inclusion of Formwork and concrete injection technician in a directory of certified professionals in the building construction sector • Requirement for only certified mould makers and concrete casters to participate in co-financed projects |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • register of certified mould makers and concrete casters |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) • NSRF Programs • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| <p>The professional / trade union bodies representing Mold and concrete injection technicians are:</p> <ul style="list-style-type: none"> • General Confederation of Greek Workers (GSEE) • Federation of Associations of Employees of Technical Enterprises of Greece (OSETEE) • Federation of Builders & Wood Federation of Greece • Federation of Builders and Related Professions of Greece |

| Technician Profession | Smart Buildings Programming Technician | Number | ISCO | NACE |
|---|--|--------|------|------------------------|
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| Training Program 17.1 | | | | Priority Ranking (0-5) |
| “Skills related to the installation and regulation of automatic control and energy management systems in energy-efficient buildings” | | | | 5.0 |
| Content | <p>Development and implementation of studies on automatic control and energy management. Contribution of automatic control and energy management to improving the energy efficiency of buildings.</p> <p>Presentation and analysis of automatic control and energy management technologies in buildings, as well as proper installation practices.</p> <p>Presentation and analysis of the characteristics and properties of sensors used for smart control of buildings.</p> <p>Presentation and analysis of energy storage systems and proper management practices.</p> <p>Presentation and analysis of the capabilities of BIM systems and their operation within the framework of automatic control system applications.</p> <p>Selection of automatic control and energy management technologies for buildings depending on the type and use of the building.</p> <p>Techno-economic dimension of technology and system selection</p> | | | |
| Learning Outcome | Trainees will be able to implement new automatic control and energy management systems that will enhance the energy efficiency of buildings | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 20-32 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| General Information | | | | |

The profession of smart building programming technician does not require a special license to practice. As a prerequisite for a technician’s participation in the aforementioned training programs, one of the following scenarios may apply:

- Diploma from a Vocational Training Institute (currently known as SAEK), Electrical Sector - specialty: Automation Technician, or necessary experience in one of the aforementioned businesses => 10 months, while for other specialties in the Electrical & Mechanical Engineering Sectors mentioned (Technician of Internal Electrical Installations, Technician of Electrical Domestic Appliances for Heating - Hydraulic installations of Gas Fuels, Technician of Refrigeration, Ventilation & Air Conditioning), experience of 24 months.
- Graduate of EPAL6 'nearest specialty' (appears today to be from the Electrical Engineering Sector, specialty of Electrical Installations), with professional experience of 18 months, in a large or medium-sized business of the secondary sector, in one of the following sectors where there is a definite possibility of gaining relevant professional experience: Chemical Industry, Electricity Production, Food & Beverages, Metallurgy, Pharmaceuticals &/or Fragrances, Petroleum Products, Textile Manufacturing, Recycling, etc., and with supplementary fast-track professional training. Also, on a merchant vessel ('Mechanical Engineers of the Merchant Navy', in the Technical Service/'Engineer'): 18 months. -And even in a business that undertakes the maintenance of businesses from the aforementioned or as an 'installer of automation equipment' in businesses/self-employed: 30 months.
- Graduate of EPAL from other Sectors that we have selected/referred to in Para.6, and of EPAS in the selected/referred specialties in the same Para.6: professional experience in a business from those mentioned in the 1st Pathway for 30 months with supplementary fast-track professional training.
- Graduate of 'General' or 'Unified' High School, with professional experience as / where referred to in the 1st Pathway, but now with a minimum duration of 4 years and with supplementary fast-track professional training.

Required Qualification Level: NQF 3

The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:

- Subsidies (partial or full) for training costs and/or training time
- Creation of a register of certified smart buildings programming technicians which will be available to technicians who have successfully completed the training programmes
- Recognition of the new professional qualifications and possibility of inclusion smart buildings programming technicians in a directory of certified professionals in the building construction sector
- Requirement for only certified smart building programming technicians to participate in co-funded programmes

It is proposed to establish:

- A registry of certified smart building programming technicians

The financing of training programmes could be carried out through:

- the Public Investment Program (PDE)
- NSRF Programme
- Public Employment Service (DYPA) programs

Training programmes could be managed through a social body/trade union representing the sector

The professional / trade union bodies representing smart buildings programming technicians are:

- General Confederation of Greek Workers (GSEE)

| Technician Profession | Gas Fuel Technician | Number | ISCO | NACE |
|--|--|--------|------|------------------------|
| | | - | | |
| Training Program 18.1 | | | | Priority Ranking (0-5) |
| “Technologies and practices for improving the energy efficiency of gaseous fuel systems in buildings” | | | | 4.5 |
| Content | Presentation and analysis of the contribution of gas heating systems to the energy efficiency of buildings. Presentation and analysis of common problems in the installation and maintenance of gas heating systems that affect their energy performance in buildings, and practices for addressing these issues. | | | |

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| | <p>Presentation and analysis of energy saving interventions in existing and new gas heating system installations, such as handling partial loads, compensation, etc.</p> <p>Presentation and analysis of new European regulations concerning gas heating systems and the requirements they set for the installation of new/upgrading existing systems.</p> <p>Presentation and analysis of the characteristics and application of new technologies and high-energy performance heating systems using gas fuels.</p> <p>Techno-economic dimension of system selection/management.</p> | |
| Learning Outcome | Trained technicians will be able to install and maintain high energy efficiency gas-fired heating systems in buildings. | |
| Apprenticeship - Practical Placement | The training program should include practical training | |
| Duration | Indicatively 24-40 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improving energy efficiency in buildings | |
| Training Program 18.2 | | Priority Ranking (0-5) |
| “Installation of gaseous fuel heating systems in historic and listed buildings” | | 3.9 |
| Content | <p>Presentation and analysis of the institutional framework regulating the maintenance and repair of historic and listed buildings and architectural restrictions.</p> <p>Specificities of installing gas-fired heating systems in historic and listed buildings.</p> <p>Replacement of existing oil-fired heating systems with gas-fired heating systems in historic and listed buildings</p> | |
| Learning Outcome | Trainees will be able to install high energy efficiency gas-fired heating systems in historic and listed buildings | |
| Apprenticeship - Practical Placement | The training program does not require practical training | |
| Duration | Indicatively 16 hours | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | |
| Benefits | Improvement of energy efficiency in historic and listed buildings | |
| General Information | | |
| <p>The profession of a fuel gas technician requires a special professional license according to Presidential Decree 362/2001, which is distinguished into five categories. A prerequisite for a technician's participation in the mentioned training programs could be one of the following cases:</p> <ul style="list-style-type: none"> • Assistant fuel gas technician license • Fuel gas technician license • Fuel gas installer (supervisor) license • Burner technician (supervisor) license for fuel gases | | |
| Required Qualification Level: NQF 3 | | |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none"> • Subsidies (partial or full) for training costs and/or training time • Creation of a register of certified gas technicians in which craftsmen who have successfully completed the training programmes will be able to register • Recognition of the new professional qualifications and possibility of inclusion of gas technicians in a directory of certified professionals in the building construction sector • Requirement for only certified fuel gas technicians to participate in co-financed programmes | | |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none"> • A registry of gas technicians certified in areas of interest to gaseous fuels | | |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none"> • the Public Investment Program (PDE) | | |

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| <ul style="list-style-type: none"> • NSRF Programme • Public Employment Service (DYPA) programs |
| Training programmes could be managed through a social body/trade union representing the sector |
| The professional / trade union bodies representing gas technicians are: <ul style="list-style-type: none"> • General Confederation of Professionals, Craftsmen and Traders of Greece (GSEVEE) • Panhellenic Federation of Professionals of Technical Combustion Facilities (PDOTEK) |

| Technician profession | Wood Technician/Carpenter | Number | ISCO | NACE |
|--|---|--------|------|------------------------|
| | | - | | |
| Training Program 19.1 | | | | Priority Ranking (0-5) |
| “Wood frame and roofing materials and techniques for improving energy efficiency in buildings” | | | | 4.7 |
| Content | <p>Presentation and analysis of the impact of frames and wooden roofs on the energy efficiency of buildings.</p> <p>Presentation and analysis of common problems in the construction and installation of wooden frames and roofs, which negatively affect the energy efficiency of buildings, and practices for their management.</p> <p>Construction and installation of modern wooden frames with high energy efficiency.</p> <p>Requirements for thermal insulation and airtightness.</p> <p>Construction of wooden roofs and requirements for thermal insulation, airtightness, and waterproofing. New materials and their correct use.</p> <p>Presentation and analysis of existing certifications of frames and the requirements set by national and European regulations (e.g., CE, KENAK, etc.) for frames and roofs.</p> <p>Presentation and analysis of existing green building certifications and the requirements they set.</p> <p>Techno-economic dimension of material selection/management</p> | | | |
| Learning Outcome | The trainees will be able to manufacture and install wooden frames and wooden roofs of high energy efficiency | | | |
| Apprenticeship - Practical Placement | The training program should include practical training | | | |
| Duration | Indicatively 24-40 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improving energy efficiency in buildings | | | |
| Training Program 19.2 | | | | Priority Ranking (0-5) |
| «Technologies and materials of wooden frames and roofs for the renovation of historic and listed buildings» | | | | 3.9 |
| Content | <p>Presentation and analysis of the regulatory framework governing the maintenance and repair of historic and listed buildings.</p> <p>Specificities of installing frames and repairing roofs in historic and listed buildings.</p> <p>Materials and technologies for upgrading wooden frames and constructing wooden roofs in historic and listed buildings</p> | | | |
| Learning Outcome | The trainees will be able to construct and install wooden frames and wooden roofs of high energy efficiency in historic and listed buildings | | | |
| Apprenticeship - Practical Placement | The training program does not require practical training | | | |
| Duration | Indicatively 20 hours | | | |
| Cost | The cost will be estimated after the development of the relevant educational content and the determination of the required hours of theoretical training. | | | |
| Benefits | Improvement of energy efficiency in historic and listed buildings | | | |
| General Information | | | | |

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| <p>The profession of a carpenter does not require a special professional license. As a prerequisite for a technician's participation in the aforementioned training programs, one of the following cases could be considered:</p> <ul style="list-style-type: none">• Professional experience of five (5) years• Graduates of Mandatory Education and four (4) years of professional experience• Graduates of Secondary Vocational Education and Post-secondary Vocational Training (EPAL or EPAS or SEK or IEK - now SAEK - or equivalent titles) of a similar specialty and at least two (2) years of professional experience• Graduates of education/training programs or proven professional experience of five (5) years as a carpenter technician, including at least one (1) year of professional experience as a wooden frame carpenter technician. |
| <p>Required Qualification Level: NQF 3</p> |
| <p>The following incentives may be utilized to encourage participation in the aforementioned vocational training programs:</p> <ul style="list-style-type: none">• Subsidies (partial or full) for training costs and/or training time• Creation of a register of certified wood technicians / carpenters in which craftsmen who have successfully completed the training programmes will be able to register.• Recognition of the new professional qualifications and possibility of inclusion of wood technicians / carpenters in a directory of certified professionals in the building construction sector• Requirement for only certified wood technicians / carpenters to participate in co-financed programmes |
| <p>It is proposed to establish:</p> <ul style="list-style-type: none">• A registry of certified wood technicians / carpenters |
| <p>The financing of training programmes could be carried out through:</p> <ul style="list-style-type: none">• the Public Investment Program (PDE)• NSRF Programs• Public Employment Service (DYPA) programs <p>Training programmes could be managed through a social body/trade union representing the sector</p> |
| <p>The professional / trade union bodies representing wood technicians / carpenters are:</p> <ul style="list-style-type: none">• General Confederation of Greek Workers (GSEE)• Federation of Associations of Employees of Technical Enterprises of Greece (OSETEE)• Federation of Builders & Wood Builders of Greece• Federation of Builders and Related Professions of Greece |

BACK COVER