**Professionalising site managers and team leaders in the specific management**

**of** **building renovation sites in Europe**

Contract Nb. 2020-1-FR01-KA202-080105 (2020-2023)

**IO1: Transnational model for the positioning, support and professionalisation of site managers and team leaders for building renovation sites**

**IO1-A1. In-depth analysis of the technical, organisational and normative specificities of building renovation sites which affect the evolution of the functions of site managers and team leaders on these sites.**

**IO1-A2. Identification of the specific skills expected of site managers and team leaders by companies specialising in building renovation.**

**Desk Research Findings (IO1 A1)
Poland**



Radom, 08 the February 2021

# **IO1-A1. In-depth analysis of the technical, organisational and normative specificities of building renovation sites which affect the evolution of the functions of site managers and team leaders on these sites**

## Synthesis of the Desk Research findings

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| **Executive Summary***(max 1 page)** *Brief presentation of the national desk research: method, key actors, resources exploited, accessibility of data, main issues encountered, surprises, etc.*
* *Main conclusions regarding the aspects that affect the evolution of the functions of site managers and team leaders on renovation sites.*
* *Main recommendations for the training paths to be developed.*

The aim of the work carried out during the period 10.2020 – 03.2021 was to obtain an in-depth knowledge of: 1) the specificities of the projects for the renovation of construction works and 2) the professional profiles required of employees engaged in such work in partner countries. In order to achieve the above-called research objectives, two methods of qualitative research were selected: desk research and interviews with construction industry experts (focus groups).At the desk research stage, literature, available industry reports, legal acts (national and EU), own experience of partner institutions were analysed. A particularly valuable source of information in Poland was the Sectoral Qualifications Framework SRK-Bud, which organizes qualifications typical of the construction sector (in relation to Polish Qualification Framework’s levels) by means of characteristics of the extent and complexity of knowledge, skills and social competences required of persons with qualifications of a given level as well as other publications of the Sectoral Competence Council for the construction sector (existing and working in Poland since 2017).In addition, an online training offer for the construction industry, as well as job vacancies for construction managers and team leaders published on the Internet (as a source of information on qualification requirements) were reviewed.The most important findings from desk research:* in the available publications, reports, strategic regional and government documents, it is very clear the directions of development of the construction sector in Poland and Europe and its great importance for the economy as a whole (and consequently - the growing interest in this sector of the economy among scientists, innovators, businessmen, governments, politicians). These developments are primarily the **production of energy-efficient buildings** (greening, green construction) and the **circular economy;**
* desk research has shown that the publications and materials available in our country concern construction and construction works in general, which also include renovation works;
* formal qualification requirements for construction managers are strictly defined by law in Poland (construction law – so-called independent technical functions), while the qualifications of foreman/masters are not (decided by authority among colleagues, trust of the manager, professional experience);
* these trends in the development of the construction sector are reflected in the changing scope of work of construction workers (knowledge of available innovative technologies, materials, new legal and normative requirements), although it should be stressed that they are now likely to have a greater impact on the work of designers and architects than building managers or team leaders;
* despite the **lack of a national long-term renovation strategy** (in line with Commission Recommendation (EU) 2019/786 of 8 May 2019 on building renovation, each country should develop one by 10.03.2020), the government has been implementing activities in line with the idea of Polish wave of renovation for several years: the thermomodernisation relief, the “Clean Air” programme;
* The construction industry in Poland is facing obvious **staffing problems** (an ageing group of skilled workers, a shortage of young workers choosing more financially advantageous job offers in western European countries, coming in workers from Ukraine - mostly unskilled, relatively low popularity among young people of education in the construction professions);
* sectoral associations / organisations and the Sectoral Competence Council for Construction strongly point to the **need to strengthen the continuing education** of workers in the sector (especially of team leaders/foremen ). In practice, however, this is very difficult, as: 1) employees are not bound by loyalty contracts (very often they are not full-time employees) and the employer incurred training costs, there is no certainty that he will be able to use the new competences of the employee, 2) the majority of Polish construction companies are micro (up to 10 employees), so the number of workers on the construction site is often so few that it is impossible to afford to take any of them away from work for the purpose of participating in training;
* therefore, the development of the qualifications of this group of employees are often **informal** – at the workplace of a particular employer; the training offer for team leaders in the area of renovation is limited and usually dedicated to specific solutions/ technologies / products;
* speaking about construction managers, they benefit from a free training offer from the district chambers of civil engineers in which they are compulsorily associated. The offer is wide and comprehensive (technical, legal, human management issues); however, health and safety training is the most common (mandatory every 3 years);
* when it comes to qualification requirements (other than formal ones), the most important thing for employers is the **professional experience** of both construction managers and team leaders.
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| **Key areas of investigation** | **Synthesis of the Desk Research findings****(descriptive part)** |
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| 1. Definition of ‘building renovation sites’ in each national context
 | Polish construction law does not distinguish between construction site and renovation site (Law of 7 July 1994 on construction; Journal of Laws of 2020, item 1333, Art.3): the construction site is to be understood as 'the space in which the construction works are carried out together with the space occupied by the facilities of the construction facilities'.In defining the 'construction site', the Law refers to construction works in general, which include:* construction, as 'execution of a work in a specific place, as well as reconstruction, extension';
* conversion as 'the execution of works resulting in a change in the performance or technical characteristics of an existing building, with the exception of characteristic para-metres such as volume, built-up area, height, length, width or number of storeys';
* **renovation**, as 'the execution in an existing building of works consisting in the restoration of the original state and not forming ongoing maintenance, it is possible to use of construction products other than those used in the original state'.

Renovation is therefore a specific type of construction work. Consequently, the above definition of the construction site also applies to renovation site. Thus, **in Polish legal conditions, the terms "construction site" and "renovation site" are not distinguished**. |
| 1. National Legislative framework and policies related to Renovation of Buildings.
 | * Renovation, as one of the types of construction works, is governed by the Act of 7 July 1994, which governs activities involving the design, construction, maintenance and demolition of buildings and lays down the rules for the operation of public administrations in these fields. The implementing rules on OSH in construction sites place direct supervision of OSH in the workplaces in the hands of the manager and the master of construction (usually called a foreman) – according to the scope of duties.
* Important amendment to the Regulation on the technical conditions to be met by buildings and their location (OJ 2020 item 1608); the new conditions in force from the beginning of 2021 concern **increased thermal insulation requirements** for building partitions and the fulfilment of specific building demand indicators for non-renewable primary energy (so-called EP). This is related to the implementation in Poland of an EU programme to gradually reduce energy consumption in construction and minimize heat loss due to poorly insulated buildings.
* A **wave of renovation for Europe**- a strategy that aims to significantly improve the energy efficiency of buildings (thermomodernization, zero-emission heat sources, "smart home" technologies). The EC plans to gradually tightening regulations so that even old homes meet minimum energy efficiency standards. In the European Union, only 1% of existing construction resources undergo a **thermomodernisation** every year. Deep renovations, which reduce energy consumption by at least 60%, are carried out on only 0.2% of resources and in some regions not at all. As a result of the "Renovation Wave", the thermomodernization rate is expected to double. It estimates that 35 million buildings could be renovated by 2030 and up to 160,000 additional green jobs could be created in the construction sector. In line with Commission Recommendation (EU) 2019/786 of 8 May 2019 on the renovation of buildings (paragraph (15)), Member States should implement by 10 March 2020 the laws, regulations and administrative provisions. So far (January 2021) Poland has not developed such a strategy, although some of the government's actions clearly fit into the idea of a wave of renovation: a thermomodernization relief allowing to get back expenditure on thermomodernization, ecological heating and photovoltaics on income, or the “clean air” program, from which you can take subsidies for the replacement of furnaces and thermomodernization of single-family houses.
* Building Information Modeling methodology - BIM (in public procurement) - in 2020 the project "**Digitization of the construction process in Poland**" aimed at disseminating BIM elements on the Polish construction market was completed. The project implemented by the Ministry of Development and PwC developed i.e concept of the BIM IT platform and a package of documents supporting the implementation of the BIM methodology.The roadmap for the implementation of the BIM methodology in public procurement (2020) - recommended timetable for the implementation of the BMI methodology indicates 2025 as the year of mandatory implementation of BIM by public contracting authorities
* BIM Standard Polska Project (2020) – in frame of this project, **the roles and competences of “BIM staff”, both on the contracting side (project information manager) and contractor (BIM manager; BIM coordinator and BIM Modeler) were defied**.
* Since 03.2017, the Sectoral Competence Council (SRK) for the Construction sector has been operating in Poland. The Council provides a forum for the exchange of experience between formal, non-formal and informal education, research entities and construction entrepreneurs involving social dialogue institutions (trade unions and employers' organisations), professional self-government and other stakeholders working for the development of the construction sector by raising awareness of its qualifications and professional needs.One of the results of the Council's work is the Sectoral Qualifications Framework SRK-Bud (published by Regulation; OJ 2019 item 1448), which organizes qualifications typical of the construction sector (in relation to Polish Qualification Framework levels) by means of the characteristics of the scope and complexity of the knowledge, skills and social competences required of persons with qualifications of a given level. The PRK covers 8 levels (similar to the European one). SRK -Bud includes 7 levels (excluding level 1PRK).The authors of SRK-Bud identified 4 so-called sectoral determinants, which define the areas of competence: 1) work in the field of programming, planning and decision-making on the implementation of a construction investment; 2) Construction work; (3) work relating to the maintenance or improvement of the technical performance of the work; 4) works related to the demolition of the building. **Renovation works are located in area 3**).In order to identify key competences within the different sectoral determinants of the SRK-Bud, four contexts of impact were identified for the different phases of the investment process, including context D) Development trends and innovative technologies in construction (e.g. green construction or the production of energy-efficient buildings).
* National Smart Specialisations (KIS) - a strategic national document to address the priorities of the Europe 2020 Strategy (support for investment in smart specialisations is also planned in the next EU financial perspective for 2021-2027). As of 01.01.2021 in Poland there is a list of 13 national smart specializations in 5 areas. One of the areas is Sustainable Energy, and in it KIS 5 - **Smart and energy-efficient construction**. Under KIS 5, experts highlighted 56 specific challenges by 7 groups:
* I. MATERIALS AND TECHNOLOGIES
* II. ENERGY SYSTEMS OF BUILDINGS
* III. DEVELOPMENT OF MACHINERY AND EQUIPMENT
* IV. DEVELOPMENT OF APPLICATIONS AND PROGRAMMING ENVIRONMENTS
* V. INTEGRATED DESIGN
* VI. ENERGY AND ENVIRONMENTAL VERIFICATION
* VII. PROCESSING AND REUSE OF MATERIALSI.
* **Standards of safe work on site** – developed by [Porozumiecie dla Bezpieczeństwa w Budownictwie](http://www.porozumieniedlabezpieczenstwa.pl/standardy-bhp.html), which aims to enable the certification of OSH qualifications in construction acquired on the basis of experience. Three levels have been developed:
* Worker ready to perform dangerous work on the construction site (work at height, work with construction chemicals, near heavy equipment, etc.)
* Person supervising work (preparing IBWR-Manual for Safe Execution of Works) – qualification dedicated to foreman.
* Health and safety expert in construction (advisor to the Construction Manager, designer and investor in safety management at all stages project life).
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| 1. Definition of the specific role and profile of site managers and team leaders in building renovation projects in each national context (today and in the future).
 | **The site manager is in Poland:** 1. **independent technical functions** in construction, defined and characterized by the Construction Law, requiring permission (rights); construction manager,
2. **regulated profession** operating on the Polish labour market (according to the classification of professions and specialties for the labour market – occupation No. 132301).

The Construction Law Act (Chap. 3) defines the following participants in the construction process and their responsibilities: investor, investor supervisor, designer and construction manager (where a building permit is required) or works manager (in the case of works not requiring a building permit). To the basic duties of the construction manager / works manager should be i.e: Acquisition of the construction site from the investor; Record-keeping of construction; Ensuring the geodesic delimation of the site and organising the construction and directing the construction in a manner consistent with the design or with the building permit and with the regulations (including health and safety).The main rights and obligations of the construction manager are the same as those of the works manager. However, the construction manager directs the entire site, while the works manager only has a section for which the construction manager does not have professional permission. The manager of the works is only responsible for works within the scope of his powers, e.g. sanitary, electrical, etc.**Ad.1)** A person performing the work of a construction manager/works manager must have building rights to perform so-called independent technical functions in construction (SFT). The condition for obtaining building rights is to pass the examination for knowledge of the construction process and skills in the practical application of technical knowledge. Building rights may be granted for the design or management of construction works, to a limited extent or without limitations. Obtaining the right to drive construction works without limitations requires completing a first or second degree of studies (in the field of construction) and a 1.5-year or 3-year practice on construction site, respectively. To obtain construction rights to a limited extent (in a specific speciality, e.g. construction or installation), it is required to complete studies of the 1st or 2nd degree (in the field of construction or related to those indicated in the law) + practice on the construction site as above. It is also possible to have a professional title of technician and to have a min. 4 years of practice on site.The construction manager is responsible for the construction processes. He must have the ability to assess technical phenomena, solve architectural or technical and organizational issues. Without it, it is impossible to start any action requiring a building permit. This is a responsible position in terms of knowledge of all legal and technical issues and developments that are taking place in these areas**Ad.2)** The competences of the construction manager (as a profession operating on the Polish labour market) and his professional tasks are identified and described in the IoZ (2018) There are:1. Three professional competences:
* Supervising and coordinating the execution of construction works;
* Keeping construction documentation;
* Cooperation with the investor, building supervision authorities and other public administration offices.
1. Social competence, including:
* Professional and civil liability for the consequences of one's own actions and decisions taken as a construction manager.
* Making independent decisions on issues related to the management of the construction site.
* Evaluating his own activities and evaluating the persons he directs in the field of construction work.
* Compliance with building and safety regulations.
* Improving professional competence in the context of legal changes and new technological and organisational solutions in construction.
* Compliance with the professional ethics of construction workers.
1. Ten professional tasks:
* Z1 Receiving and securing the construction site.
* Z2 Conducting, verifying and developing construction documentation.
* Z3 Planning and management of the construction site.
* Z4 Coordinating tasks to prevent and ensure health risks.
* Z5 Halting construction works if a hazard is detected.
* Z6 Executing recommendations entered in the construction log.
* Z7 Reporting for receipt of works that are disappearing or covered.
* Z8 Preparation of post-work documentation.
* Z9 Reporting of works for collection.
* Z10 Participating in reception activities and ensuring the removal of possible defects.

**Construction masters colloquially called foreman/ team leaders**The master of construction should not be confused about the person with the title of the master obtained in the chamber of crafts. This is a naming convergence. A construction master is a person who is at the head of a team and often works with employees, so in practice he is called a foreman.The performance of the work of a master of construction (foreman/ team leader) does not involve formal requirements or entitlements in Poland. It is a function that requires experience and high professional competence (professionalism building authority in the team) and appropriate social like communication and organizational skills. Construction masters are responsible for the implementation of plans and supervision of groups/brigades of workers performing construction works in a specific field (e.g. masons, installers, electricians, etc.). The main duties of this employee include, m.in.: * organization and coordination of the work of subordinate employees,
* accounting of employees from hours worked,
* coordination and arrangement of works with management,
* control over the entrusted property of the company
* control of compliance with health and safety rules.

Usually, for a position of foreman/team leader are selected people who have a minimum of technical secondary education and professional experience in a similar position. Such a worker should be characterized by: availability, honesty and ability to organize the work of the brigade. |
| 1. Identification of technical challenges and barriers faced for site managers and team leaders related to building renovation sites, including skills needs related to energy saving and circular economy (today and in the future).
 | The new technical challenges facing the construction industry stem, inter alia, from the so-called double transformation (green and digital). The most important of these are:* New technologies and solutions such as **prefabrication** (prefabricated 3D technology), **modularisation** (off-site building),
* **Computerisation** of building management processes, especially BIM - Building Information Modeling (including different building life stages, construction or renovation costs, analysis of the impact of investments on man and the environment and efficient management of building operations), building software, data ecosystems, augmented reality, cloud-based technologies, etc.,
* **Energy efficiency of buildings** (including energy audits) –in Poland renovation works are focused on the energy performance of buildings very rarely, which is the result of the freedom of legislation in this regard,
* **In the case of old buildings, the problem often becomes the poor condition of their construction, which makes it impossible to take appropriate modernization measures – e.g. external walls do not maintain the additional weight of the insulation material, the roof does not allow the installation of photovoltaic installations or collectors, etc.**
* **Recycling** of building materials and management of waste in the circular and dangerous (e.g. asbestos),
* The use of drones and robots in construction, e.g. in the measurement, supervision and control of building managers and foreman,
* Advanced use of GPS (e.g. for the management of the construction transport fleet).
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| 1. Identification of legal and normative challenges and barriers faced for site managers and team leaders related to building renovation sites
 | 1. new EU and national recommendations/directives/regulations on greening buildings, increasing energy efficiency, e.g.:
* Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency,
* Commission Recommendation (EU) 2019/786 of 8 May 2019 on the renovation of buildings;
* A wave of renovation for Europe – greening of buildings, creation of jobs, improvement of quality of life; Communication from the Commission to the European Parliament, the Council, the EESC and the Committee of the Regions (COM (2020) 662 final;
* Regulation of the Minister of Development of 16 September 2020 amending the Regulation on the technical conditions to be met by buildings and their location (OJ 2020 item 1608).
1. Too narrow (in relation to the challenges and developments of the industry) the scope of the exam entitling to act as construction manager and for technicians and masters in construction professions (see standards of examination requirements for master's exams), who usually act as foreman/master;
2. Lack of generally applicable qualification requirements for masters of construction; problems with the non-application in employment contracts of the position of "master of construction" (there is usually still "foreman", which causes problems with the lack of supervision security in the case of inspections).
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| 1. Identification of managerial/ organizational challenges and barriers faced for site managers and team leaders related to building renovation sites, including digital skills today and in the future.
 | * **The increasing number of subcontractors** associated with a given construction project (dipped liability in the chain of contractors);
* Building a team of responsible professionals in various fields who can undertake the renovation of the building;
* Mo**vement of workers from the East** (language and technological barriers), largely without directional qualifications or experienced in working outdated methods and techniques (inefficient, not ecological) and oriented towards further **migration to the West**;
* The drainage of professionals: around 70% of construction companies report problems in recruiting new and/or leaving existing employees (including professionals with construction rights, and 18% of cases involve managers).
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| 1. Identification of skills needs of site managers and team leaders in building renovation sites related to health and safety rules on worksite (today and in the future).
 | All persons who supervise health and safety must have up-to-date training in health and safety at work. Therefore, the permanent training needs should include:* periodically renewed **OSH** training, especially for managers (every 3 years) and workers performing dangerous work (at heights, at excavations), where the period of validity of the training must be reduced to 1 year,
* training in fire control, evacuation and first aid,

The experience of the ECO-ZAWÓD project shows that for managers incl. renovation services it is worth organising training courses in the field of:* **thermomodernization** and reduction of the carbon footprint (for construction insulation fitters),
* **integration of energy systems in renewable energy equipment** (for electricians).

In addition, there is a need for systemic solutions to **raise environmental awareness** of construction workers.There is a lack of courses on the market to prepare for the function of foreman/team leader in general. The closest to this form are the (optional) courses for the master's examination in construction professions (corresponding to a particular type of craft) carried out by chambers of crafts, but they also do not give any rights (although a person with such a professional title can, in combination with the relevant experience, take the examination for a construction manager to a limited extent. |
| 1. Existing training provision in relative areas/ State-of-the-art training programmes in building renovation sites.
 | **The basis is the vocational education system** The vocational education system in Poland provides for the division of professions into 32 sectors. One of them is the construction industry. It comprises a total of 22 professions (26 qualifications in total), including 8 technical level– 4th level PRK (two-qualification professions) and 16 professions at the level of vocational school of the 1st degree (formerly a primary vocational school)– III level of the PRK (single-qualification professions). In all professions, graduates receive the results of education on OSH and social competences defined in the core curriculum for a given profession. In addition, in the professions at the technical level, graduates are equipped with knowledge and skills regarding the organization of the work of small teams, which form the basis for the future work of a construction manager or foreman.The qualifications of managers in Poland are defined as follows: * higher education courses indicated in the legal regulations (construction or related to a particular speciality) + professional practice + permission (construction rights)
* professional title of technician or master + apprenticeship + permission (construction rights),
* professional diploma/ diploma confirming professional qualifications in the profession taught at the level of technician + apprenticeship + permission (construction rights).

In addition to renewing formal rights, specificity of the work of the construction managers requires to refresh the knowledge on the law, the knowledge and skills associated with new technologies. As persons responsible to the investor and the building supervision inspector, they must take care of their mental condition (coping with **stress and psychophysical burdens**) and interpersonal competence (they manage staff on the construction site). Therefore, national and regional chambers of civil engineers offer a number of legal and organisational, technological and so-called soft training for their members.Below, there is are **examples of training and workshops** (offer for 2021) organised by these chambers for site managers, including those involved in renovation works:* Duties and rights of the site manager,
* BIOZ Plans (safety and health) vs instructions for the execution of works and other health and safety documents taking into account the work of foreigners (including the content of IBWR - Instructions for safe execution of works),
* Renovation of damp and salted buildings - rules of execution and details,
* Protection against surges of power supply installations,
* Classification, records and management of waste from the construction site,
* Construction works at historic buildings,
* Lightning protection and against surges of photovoltaic power supply systems,
* Management of own energy and attention (soft training),
* How to cope with stress and counteract,
* Psychophysical burn-out,
* Performing an independent technical function in construction - actions protecting against claims of third parties,
* Constructive feedback and enforcement of tasks (Manager Academy),
* Tools for strengthening mental strength and resilience,
* and many others.

Other training offered on the market (commercially) for site managers concerns m.in. : * Health and safety obligations in the era of epidemiological risk,
* Effective enforcement of claims for defects and errors of construction,
* Safeguarding the interests of participants in the construction process,
* management of team on the site,
* waste management in the construction and renovation industry.

BIM Education project (commercial offer for BIM coordinators): * BIM Summer/Winter School,
* Trainings BIM REVIT, REVIT MEP.

**Qualifications of foreman/team leaders** There is no vocational training path in Poland that provides all the skills and competences necessary to be a construction master/foreman/team leader. Some patterns have been identified: typically, people who have completed a 3-year vocational school of the 1st degree (formerly a primary vocational school) can be foreman/team leaders. The completion of SB I does not give complete preparation for the role of foreman, rather it is a first step in this direction. On the other hand, it is not unusual for people without formal education to become team leaders in construction sites. In turn, a 4-year technical school, as already mentioned, provides skills related to the management of small teams. However, these graduates relatively rarely work as foreman/team leaders.The market offers a limited pool of training courses (continuing education) for foreman/team leaders in the area of renovation. They are most often **informal training** **by a particular employer** and there is a relatively small training offer on free market concerning management issues. Th**ese are trainings dedicated to specific solutions/ technologies / products (and company of course**), e.g.: *Training master of passive and energy-saving construction* with PHI Darmstadt certification, which includes knowledge in the implementation of new and modernization of old facilities. Training may result in a confirmation of skills (certificate, entry in the list of experts of a given company etc.).**Masters in crafts** – on the market there are optional courses for preparing for the master's exam in construction professions corresponding to a particular type of craft, carried out by craft chambers. Few courses preparing candidates for the function of foreman (or formally "master of construction"), e.g.: course "*Building foreman – building a house step by step*". Program includes 6 technical modules and the basics of labour law (and health and safety), but there is a lack of a module related to the management of people on the construction site, or the development of competences of interpersonal communication and commissioning tasks. A course does not give you any permissions (outside the organizer's certificate). |

| **Topics** | **Key conclusions reached****(analytical part)** |
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| 1. Potential impact of the national legislative framework, technical & normative, as well as managerial and organisational challenges and barriers on the role and functions of worksite managers and team leaders in building renovation in the partner country concerned.
 | * For site managers, there are new roles related to participation in BIM integrated processes: BIM Coordinator, BIM Manager, BIM Leader, BIM Modeler (definition of roles and competence requirements for different BIM process participants are included in the "BIM Roadmap (p47). This applies in particular to companies wishing to provide services to public entities (2025 is projected as the year of mandatory implementation of BIM by public contracting authorities);
* New national and EU recommendations/requirements for increasing the energy efficiency of construction works, NZEB (near-zero energy consumption) force construction workers to educate and know both the guidelines/ recommendations/ legislation themselves, as well as technical, technological and organisational solutions to meet the new standards;
* Growing responsibility in the field of OSH for site managers,
* More and more organizational / managerial tasks – the need for training in this field + soft training.
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| 1. Recommendations for the training paths to be developed in line with the work situations of site managers and team leaders concerned, as well as with the skills needs identified further to the desk research.
 | * Short practical training in workplaces (and during work) for active construction managers and construction masters (foreman/team leaders)
* On-line training (theoretical modules e.g. on legal framework, national and EU policy)
* Offer of so-called Additional Professional Skills (DUZ) for current students of SBI industry schools and technicians
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| **List of refences****legal*** Dyrektywa Parlamentu Europejskiego i Rady (UE) 2018/844 z dnia 30 maja 2018 r. zmieniająca dyrektywę 2010/31/UE w sprawie charakterystyki energetycznej budynków i dyrektywę 2012/27/UE w sprawie efektywności energetycznej (Tekst mający znaczenie dla EOG)<https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32018L0844&from=pl>
* Rozporządzenia Ministra Infrastruktury z dnia 6 lutego 2003 r. w sprawie bezpieczeństwa i higieny pracy podczas prowadzenia robót budowlanych (Dz.U. 2003 nr 47 poz.401)<http://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20030470401/O/D20030401.pdf>
* Rozporządzenie Ministra Edukacji Narodowej z dnia 15 lutego 2019 r. w sprawie ogólnych celów i zadań kształcenia w zawodach szkolnictwa branżowego oraz klasyfikacji zawodów szkolnictwa branżowego (Dz. U 2019 poz.316)<http://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20190000316/O/D20190316.pdf>
* Rozporządzenie Ministra Infrastruktury z dn. 23.06.2003 w sprawie informacji dotyczącej bezpieczeństwa i ochrony zdrowia oraz planu bezpieczeństwa i ochrony zdrowia (Dz. U. 120, poz. 1125 i 1126)<https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20031201126>

Rozporządzenie Ministra Inwestycji i Rozwoju z dnia 29 kwietnia 2019 r. w sprawie przygotowania zawodowego do wykonywania samodzielnych funkcji technicznych w budownictwie (Dz.U. 2019 poz.831)<http://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20190000831/O/D20190831.pdf> * Rozporządzenie Ministra Rozwoju z dnia 16 września 2020 r. zmieniające rozporządzenie w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (Dz.U. 2020 poz.1608)<https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20200001608/O/D20201608.pdf>
* Rozporządzenie Ministra Edukacji Narodowej z dnia 12 lipca 2019 r. w sprawie Sektorowej Ramy Kwalifikacji w sektorze budownictwo (Dz.U 2019 poz. 1448)<http://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20190001448/O/D20191448.pdf>
* Ustawa z dnia 28 października 2020 r. o zmianie ustawy o wspieraniu termomodernizacji i remontów oraz niektórych innych ustaw<https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20200002127/O/D20202127.pdf>
* Ustawa z dnia 7 lipca 1994 prawo budowlane; Dz. U. z 2020 r. poz. 1333; <https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU19940890414/U/D19940414Lj.pdf>
* Zalecenie Komisji (UE) 2019/786 z dnia 8 maja 2019 r. w sprawie renowacji budynków <https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32019H0786&from=FI>

**Other*** Build Up – The European Portal for Energy Efficiency in Buildings: <https://www.buildup.eu/en>

Buildupskills Poland: <https://buildupskills.eu/> * Building Information Modeling:

BIM Edukacja: <https://bim.edu.pl/> BIM Standard Polska<https://www.uzp.gov.pl/__data/assets/pdf_file/0024/43449/BIM-Standard-wersja-opublikowana-2.0.pdf> Cyfryzacja procesu budowlanego w Polsce. Mapa drogowa dla wdrożenia metodyki BIM w zamówieniach publicznych: [file:///C:/Users/oem/Downloads/BIM\_PL\_d6\_Mapa\_drogowa\_2020\_07\_22\_PL\_R2.pdf](file:///C%3A%5CUsers%5Coem%5CDownloads%5CBIM_PL_d6_Mapa_drogowa_2020_07_22_PL_R2.pdf)Świadomość i wykorzystanie BIM w Polsce. Raport na zlecenie Autodesk: <https://www.procad.pl/bim-w-polsce> * ConstructyVet: międzynarodowowy projekt Erasmus+ (2015-2018): <http://constructyvet.eu/>
* European Builders Confederation – EBC: <https://www.ebc-construction.eu/projects/>
* Fala renowacji na potrzeby Europy – ekologizacja budynków, tworzenie miejsc pracy, poprawa jakości życia; Komunikat Komisji do Parlamentu Europejskiego, Rady, EKES i Komitetu Regionów (COM (2020) 662 final); <https://eur-lex.europa.eu/resource.html?uri=cellar:0638aa1d-0f02-11eb-bc07-01aa75ed71a1.0018.02/DOC_1&format=PDF>
* Klaster Technologii Informacyjnych w Budownictwie, w tym mapa drogowa dla wdrożenia metodyki BIM<https://www.bimklaster.org.pl/> <https://www.bimklaster.org.pl/mapa-drogowa-dla-wdrozenia-metodyki-bim-w-zamowieniach-publicznych/>
* Konfederacja Budownictwa i Nieruchomości <http://www.kbin.org.pl/>
* Krajowe Inteligentne Specjalizacje: <https://www.gov.pl/web/rozwoj-praca-technologia/krajowe-inteligentne-specjalizacje> [file:///C:/Users/oem/Downloads/Opisy\_KIS\_\_werja\_6\_FINAL\_01012020%20(1).pdf](file:///C%3A%5CUsers%5Coem%5CDownloads%5COpisy_KIS__werja_6_FINAL_01012020%20%281%29.pdf)
* Nowa strategia przemysłowa dla Europy, COM(2020)102 final<https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:52020DC0102&from=EN>
* Polska Izba Inżynierów Budownictwa: <https://www.piib.org.pl/>
* Polski Związek Pracodawców Budownictwa: <https://pzpb.com.pl/>
* Porozumienie dla Bezpieczeństwa w Budownictwie: <http://www.porozumieniedlabezpieczenstwa.pl/standardy-bhp.html>
* Rozkrut M., Kowalczyk A., Boguszewski R., Raport z badania sektora budowlanego 2019, Bank Gospodarstwa Krajowego, Warszawa, 2020.
* Rządowy portal branżowy BUDOWLANE ABC: <https://budowlaneabc.gov.pl>
* Sektorowa Rada ds. Kompetencji w Budownictwie: <http://srkbud.zzbudowlani.pl/>
* Sektorowa Rama Kwalifikacji w Budownictwie SKR-Bud (Projekt)<http://www.krk-www.ibe.edu.pl/download/publikacje/SRK-Budownictwo-internet_finalny.pdf>
* Symela K., Woźniak I., *EKSPERTYZA Rekomendacja dotycząca szczególnie potrzebnych kwalifikacji rynkowych w budownictwie, w tym inteligentnych specjalizacji, wymagających opisów zgodnych ze Zintegrowanym Systemem Kwalifikacji (ZSK)*, PARP-Sektorowa Rada ds. Kompetencji, Warszawa, 2020<http://srkbud.zzbudowlani.pl/wp-content/uploads/2020/10/Ekspertyza-rekomendacja-kwalifikacji-w-budownictwie_K.Sy-mela_I.Wo%C5%BCniak-2.pdf>
* Wortal publicznych służb zatrudnienia:<https://psz.praca.gov.pl/rynek-pracy/bazy-danych/infodoradca//-/InfoDoradcaPlus>
* Związek Zawodowy „Budowlani”: <http://zzbudowlani.pl>

**Zidentyfikowano projekty międzynarodowe dedykowane podnoszeniu kompetencji pracowników sektora budowlanego w zakresie ekologizacji budownictwa i podnoszenia efektywności energetycznej budynków (niestety bez udziału Polski ), np.:*** PROFessional multi-disciplinary TRAining and Continuing development in skills for NZEB principles<http://proftrac.eu/open-training-platform-for-nzeb-professionals.html>
* Train-to-NZEB: The Building Knowledge Hubs <http://www.train-to-nzeb.com>
* Fit-to-nZEB – Innovative training schemes for retrofitting to nZEB-levels <http://www.fit-to-nzeb.com/>
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## Validation of outcomes reached from the Desk Research with group of experts

According to the agreed methodology, desk research findings were validated by the group of sector experts. Focus group was organised by teams, on 09th February 2021. It took about 2 hours.

Additional on-line meeting was arranged with Ms Jolanta Skoczylas.

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| --- | --- | --- |
| Name | Organisation | Occupation |
| 1 | Krzysztof Baranowski  | Konfederacja Budownictwa i Nieruchomości (KBiN)Confederation of Construction and Real Estate (KBiN) | President of the Confederation; Long-time expert, social activist for the construction industry |
| 2 | Marek Tenczyński | Member of accreditation committee PAKA;member of the National Committee of Building Crafts of the Polish Crafts Association | employer of the construction industry, lecturer of technical universities, author of publications in the field of renovation, construction |
| 3 | Cezary Krawczyński | Warmia-Mazury Vocational Eduction CentreConstruction School Centre in Olsztyn | Główny  Specjalista ds. programów nauczania i nadzoru pedagogicznego; autor programów szkoleń dla branży budowlanejSpecialist for curricula and pedagogical supervision; author of training programs for the construction industry |
| 4 | Jolanta Skoczylas  | Building Schools in Radom | Director of the Building Schools in Radom, civil engineer, construction manager |
| 5 | Ireneusz Woźniak | Sectoral Council for Construction | Researcher of labour market– VET relations, in particular the construction industry, co-author of the Sectoral Qualifications Framework for Construction |
| 6 | Krzysztof Symela | Sectoral Council for Construction | Researcher of labour market– VET relations, in particular the construction industry, co-author of the Sectoral Qualifications Framework for Construction |
| 7 | Andrzej Stępnikowski | OECD National Expert on Vocational Training, Member of the CEDEFOP Apprenticeships Expert Network | Researcher of the human-occupation-work relationship. long-time employee of the organization of crafts (2006-2020) and an associate of the National Committee of Building Crafts, lecturer on pedagogical courses for instructors of practical vocational training, member of the project team |
| 8 | Jolanta Religa  | Łukasiewicz - ITeE | Member of the RenovUp project team; meeting organiser  |

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| --- | --- |
| **Key results of the national Desk Research** | **Opinion/Validation of the findings****Additional ideas and proposals made by the Focus Group Experts** |
| 1. Definition of ‘building renovation sites’ in each national context
 | Eksperci nie wnieśli uwag do definicji „renovation” oraz „renovation site”. Wskazali natomiast na wiele pojęć bliskoznacznych funkcjonujących w języku branżowym, które warto przytoczyć dla komplementarności obrazu. Są nimi m.in. rewaloryzacja, restauracja, rekonstrukcja. Experts did not comment on the definition of "renovation" and "renovation site". Instead, they pointed to a number of close-ambiguous terms in the industry language that are worth mentioning for the complementarity of the image. These are e.g. revaorization, restaurant, reconstruction. |
| 1. National Legislative framework and policies related to Renovation of Buildings.
 | As an important element of the system and the result of the country's policy, the role of national and regional chambers of professional self-government (Polish Chamber of Civil Engineers) in the qualification and certification of persons performing independent technical functions was underlined.The chambers conduct the qualification procedure, examination, keep a register of members of the professional self-government. Membership is confirmed by a certificate issued by the Chamber. |
| 1. Definition of the specific role and profile of site managers and team leaders in building renovation projects in each national context (today and in the future).
 | With regard to the specific roles of the site manager carrying out the renovation work, the following were emphasized: * management in surprising, unforeseen situations,
* the ability to reconcile old and new technologies and materials,
* the ability to minimize interference with the functioning of the renovated building (e.g. managing the supply of materials or the export of waste without the need for storage).
 |
| 1. Identification of technical challenges and barriers faced for site managers and team leaders related to building renovation sites, including skills needs related to energy saving and circular economy (today and in the future).
 | Challenges to be added :* increasing requirements for thermal insulation also for existing buildings, which generate the need of use other materials/ technologies;
* technologies for combining "new" and "old" materials/technologies;
* dismantling/disposal of old installations.
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| 1. Identification of legal and normative challenges and barriers faced for site managers and team leaders related to building renovation sites
 | Added challenge:* variable public procurement law and price condition as the most important and very often even the only one for the selection of the tender for the execution of works
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| 1. Identification of managerial/ organizational challenges and barriers faced for site managers and team leaders related to building renovation sites, including digital skills today and in the future.
 | organisational barriers depend on the size of the company; in smaller companies we are more often faced with the phenomenon of multitasking |
| 1. Identification of skills needs of site managers and team leaders in building renovation sites related to health and safety rules on worksite (today and in the future).
 | health and safety rules on worksite is and will be even more important in the future |
| 1. Existing training provision in relative areas/ State-of-the-art training programmes in building renovation sites.
 | No additional comments |
| 1. Potential impact of the national legislative framework, technical & normative, as well as managerial and organisational challenges and barriers on the role and functions of worksite managers and team leaders in building renovation in the partner country concerned.
 | On the basis of their own research work in the construction sector, the SRK representatives proposed a list of potential future market qualifications (from research among members of the Sectoral Council for Construction; 2019):* Planning and implementation of measures to prevent safety and health risks on site.
* Preparation of tender documentation for works (incl. financial aspects).
* Use of innovative materials and technologies for the revitalization of buildings.
* Use of innovative materials and technologies of thermo-modernization of buildings on existing warmings requiring improvement of insulation
* Use of innovative materials and technologies protecting buildings from overheating and/or limiting heat loss.
* Manage your building and smart building team using energy from building-integrated renewable sources and local accumulation systems.
* Use of computer simulation techniques, BUILDING INFORMATION Modeling (BIM) technology in all phases of building design.
* Planning and organizing sustainable construction (energy-saving architectural design, high comfort and functionality of the building, minimal impact on the environment).
* Use of reuse technologies for materials and structural and insulation elements (recovery, including recycling) in construction.
* Circular management of construction waste.
 |
| 1. Recommendations for the training paths to be developed in line with the work situations of site managers and team leaders concerned, as well as with the skills needs identified further to the desk research.
 | The experts made a few additional comments:* The most valuable are training courses finished by specific recognisable certificates/ permissions (like certificates of Energy Regulatory Office, Office of Technical Inspection), sectoral certification is also valuable,
* Teachers for theoretical and practical vocational training, employed in vocational training schools, are required to improve their qualifications by participating in industry training in three-year cycles, 40 hours per cycle (organised by the head of school) - it could be a chance for RenovUp terining offer;
* Form of additional professional skills (DUZ) for students of 3rd and 4th class of vocational schools, that is, just before entering the labour market. A vocational training school may offer a student preparation for the acquisition of additional professional qualifications for selected professions, additional professional skills or market qualifications within the Integrated Qualifications System.

Other potentially interesting subjects of training offer for both site managers and team leaders:* negotiations with the client (investor),
* periodic training on changes in the law regulations applicable in the construction industry, incl. EU regulations.
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