

**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-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**

**PART 1. DESK RESEARCH**

**SPAIN**



Asturias (Spain), 15th March 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 in your country. * Main recommendations for the training paths to be developed.   The desk phase has consisted mainly on the research and analysis of technical and institutional relevant sources, such as those available on the Spanish Ministries of Industry and Labour, as well as on professional institutions and Construction trade union websites. An analysis of job offers aimed at managers and team leaders has been done, as well as the conclusions of the survey to detect companies’ construction needs, done under the European ICARO project, to identify the profiles currently demanded by companies. And finally, to analyse the current training offer aimed at these professionals, sources from the Ministry of Education and the Spanish National Institute of Qualifications have been consulted, as well as the training offer of other training providers  The Spanish legislative framework has undergone many changes in recent years which has significantly affected the construction activity, and therefore the renovation of buildings. Promoting energy efficiency and sustainable development, ensuring accessibility to prevent discrimination against people with disabilities and enhance their mobility, as well as the application of innovations and new technologies are the basic criteria that motivate this regulatory update. The managers and team leaders of the renovation sites must consequently manage the competencies and skills related to these normative aspects.  **Energy building renovation** is one of the pillars of the European Climate Pact and the Spanish National Integrated Energy and Climate Plan so managers need to understand and enforce existing regulations related to these issues in order to help to reduce the carbon footprint by optimizing the energy efficiency of buildings and using alternative renewable energy sources. Currently, in Spain, this type of renovation is very common and large grants are being allocated.  Moreover, renovation works have a great particularity, which is that before renovating (in the **pre-renovation phase**), the affected areas to be renovated should be analysed. This process is critical, not only due to the emergence of new pathologies, but also because of the possibility of emerging new occupational risks. The manager must be able to recognize the importance of these new situations and, consequently, either solve them, or ensure work areas and seek technical support from highly qualified staff being able to provide the necessary information for immediately decision-making.  Also **demolition or partial demolition** are crucial actions in rehabilitation works and require specific skills, which most of the managers and team leaders who come from new construction do not own.  The construction sector simultaneously faces the **fourth industrial revolution**, characterized by hyper connectivity, Internet of Things, microfabrication with 3D printers, robotic manufacturing, Big Data... ... And it's the least digitized sector in the world. For this reason, it has a long way to go and must face aspects such as BIM, virtual reality, and new materials that arise as a result of innovation and technological evolution. Basically, this fourth industrial revolution, in which building renovation is going to be crucial, will require managers and team leader to increase an important aspect of their training and knowledge, which until now they did not need: digital skills.  The introduction of regulations related to energy efficiency, circular economy, waste management, prevention of occupational risks, quality and the environment, is generating the emergence of new skills affecting the person responsible for implementing, coordinating, monitoring and controlling them in the rehabilitation and restoration works of buildings. So the training paths of these professionals should look at aspects such as: control of the construction process; analysis and control of demolitions and partial demolitions; analysis and control of the execution of moisture, foundations and floors, walls, wooden, reinforced concrete and steel structures; innovation on the envelope, partitions and building finishes; acoustic conditioning; air conditioning; accessibility; energy efficiency; construction waste management; BIM; drones; multimedia knowledge, video conferencing, online transmission of information packets (compress/decompress files; and communication and conflict resolution skills.  This training will require an effort on the part of these professionals and support from their business structure (while they are training), as well as an updated training offer by training centres, both in the short and medium term. |

| **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 | As a general rule, the term **restoration**is applied to intervention in protected buildings, to refer to the total or partial recovery of the original state of a property, maintaining the building typologies and historical construction techniques as the basis of the recovery that you want to carry out.    On the other hand, the term **rehabilitation**is used in relation to the existing building stock of buildings, not listed. According to the Technical Building Code ( CTE ), shall apply **rehabilitation works**those which aim at achieving any of the following results:    a) **Structural adaptation**: works that provide the building with conditions of constructive safety, stability and mechanical resistance.  **b) Functional adaptation:**works to provide, to the building, better conditions with respect to the basic requirements: removal of barriers, promoting accessibility, etc.  **c) remodelling of a building:** if aims at modifying the surface area intended for housing or to modify the number of these, or the remodelling of a building without housing for the purpose of creating them.    It will be understood that a work is of **integral rehabilitation**when its object is actions tending to all the purposes described in this section    Source: <https://www.coaatgr.es/wp-content/uploads/2014/08/ambito_aplicacion_condiciones_generales.pdf>    During the meetings with the experts and with regard to the section on **structural adaptation,**it has been pointed out that a subdivision needs to be made at this point because it encompasses projects and works of very different volumes and requirements. When dealing with rehabilitation works, the fluidity of evaluations and decisions is a priority. |
| 1. National Legislative framework and policies related to Renovation of Buildings. | The Spanish Ministry for Sustainable Development promotes and regulates building quality on a basic basis in order to respond to the growing social demand in this area and to the requirements of related national and European policies, also contributing to the improvement of the competitiveness of the sector, through the promotion of innovation both in new building works and in the rehabilitation of the existing building stock. The basic criteria that guide this line of action and, at the same time, define the main areas in which it is developed are: the promotion of energy efficiency and sustainable development, the guarantee of accessibility to avoid discrimination against people with disabilities and favour their mobility, and the application of innovations and new technologies.  The Spanish legislative framework has undergone many changes in recent years that affect construction activity and, consequently, rehabilitation. The following compilation of regulations clearly defines the concepts to take into account for the development of rehabilitation projects.  The [Law 38/1999 of 5 November on Construction Planning (LOE](https://www.boe.es/buscar/act.php?id=BOE-A-1999-21567)) is the cornerstone for the process of construction and rehabilitation of buildings. The Law sets the Basic Requirements for buildings and updates and completes the legal configuration of the agents involved in the building process, sets their obligations and establishes the responsibilities and guarantees for the protection of users.  Another very important norm is the [Technical Building Code](https://www.codigotecnico.org/pdf/Documentos/Parte1/RD3142006.pdf), which is the regulatory framework where all the requirements to be met by rehabilitated buildings on safety and habitability are established, which were established in the law previously seen. It is better known as CTE and was approved by Royal Decree 314/2006. It is one of the most significant standards in this sector. [Link to CTE documents](https://www.codigotecnico.org/DocumentosCTE/DocumentosCTE.html) , including subsequent updates.    In the regulatory framework of the building, other basic technical regulations are mandatory, such as the EHE concrete Instructions, the earthquake-resistant construction standard, the Regulation of Thermal Installations of Buildings, RITE, other industrial safety regulations, etc. that coexist with the CTE and that in principle are external references to it.  The CTE, as established by the LOE, can be completed with the requirements of other regulations issued by the competent Administrations. In other words, the regional and local regulations applicable in each case.  In December 2019, a new revision of the [Basic Document DB HE for Energy Saving of the Technical Building Code (CTE) is carried out](https://www.codigotecnico.org/DocumentosCTE/AhorroEnergia.html) , which completes the gradual process of approaching the definition of a building with almost zero energy consumption.   Another important normative is [Law 8/2013, of June 26, on urban rehabilitation , regeneration and renovation](https://www.boe.es/buscar/act.php?id=BOE-A-2013-6938), which points to the need to preserve buildings and monuments, but providing them with increasingly high performance. Among these benefits, energy renovation is becoming increasingly important.  The objectives pursued by this Law are the following:   * In the first place, to promote building rehabilitation and urban regeneration and renovation, eliminating currently existing obstacles and creating specific mechanisms that make it viable and possible. * Secondly, to offer an ideal regulatory framework to allow the reconversion and reactivation of the construction sector, finding new areas of action, specifically, in building rehabilitation and in urban regeneration and renovation. * Thirdly, to promote quality, sustainability and competitiveness, both in buildings and in the land, bringing our regulatory framework closer to the European framework, especially in relation to the objectives of efficiency, energy saving and the fight against energy poverty.   The three objectives indicated in the previous paragraphs are aligned with [Directive 2010/31 / EU](https://www.boe.es/doue/2010/153/L00013-00035.pdf) , insofar as this Law seeks to promote energy efficiency and address the challenges caused by climate change.    The [Royal Decree Law 7/2015](https://www.boe.es/buscar/act.php?id=BOE-A-2015-11723) approved the revised text of the *Land Law and Urban Rehabilitation*, bringing together into a single standard all the provisions on the floor, rehabilitation and urban regeneration, clarifying and harmonizing all its terminology and legal precepts.  The [Royal Decree-Law 8/2011](https://www.boe.es/diario_boe/txt.php?id=BOE-A-2011-11641) of measures to support mortgagors, control public spending and cancellation of debts with companies and autonomous contracted by local authorities, to promote entrepreneurship and enhance rehabilitation and administrative simplification, tells us about the obligation to carry out a Periodic Technical Inspection ( ITE ) and all the promotion measures for the rehabilitation of buildings.     It is also necessary to take into account in the rehabilitation of buildings:     * The *Law of Common Telecommunications Infrastructures*, according to [Royal Decree-Law 1/1998](https://www.boe.es/boe/dias/1998/02/28/pdfs/A07071-07074.pdf) , of February 27, in its Regulations, approved by [Royal Decree 401/2003](https://www.boe.es/boe/dias/2003/05/27/pdfs/A20223-20249.pdf) of April 4, and by Order [CTE / 1296/2003](https://www.boe.es/boe/dias/2003/05/27/pdfs/A20223-20249.pdf) , of 14 of May.      * The *Energy Efficiency Certificate*. Through [Royal Decree 47/2007](https://www.boe.es/boe/dias/2007/01/31/pdfs/A04499-04507.pdf) .      * The *Electrotechnical Regulation for low voltage*, [Royal Decree 842/2002](https://www.boe.es/buscar/doc.php?id=BOE-A-2002-18099) .   As well as the standard for universal accessibility in housing buildings and removal of architectural barriers , to through laws such as:   * [Law 13/1982](https://www.boe.es/boe/dias/1982/04/30/pdfs/A11106-11112.pdf) , of April 7, on the Social Integration of the Disabled. * [Law 15/1995](https://www.boe.es/boe/dias/1995/05/31/pdfs/A15801-15802.pdf) of May 30, on limits of domain over real estate to eliminate architectural barriers for people with disabilities. * [Law 51/2003 ,](https://www.boe.es/buscar/pdf/2003/BOE-A-2003-22066-consolidado.pdf)of December 2, on Equal Opportunities, Non-Discrimination and Universal Accessibility for People with Disabilities. * [Royal Decree 556/1989](https://www.boe.es/boe/dias/1989/05/23/pdfs/A15352-15353.pdf), of May 19, approving Minimum Measures on Accessibility in Buildings. * [Law 3/1982](https://www.boe.es/buscar/pdf/1982/BOE-A-1982-9983-consolidado.pdf) , of April 7, on the Social Integration of the Disabled. * [Order of March 3,](https://www.boe.es/buscar/doc.php?id=BOE-A-1980-5937)1980, on the characteristics of the accesses, lifting devices and interior fitting out of homes for the disabled, designed in officially protected homes. * [Decree 59/1981](Dhttps://www.euskadi.eus/gobierno-vasco/contenidos/decreto/bopv198100227/es_def/index.shtml) , of March 23, Basque Country, on regulations for the elimination of urban barriers.     In Spain, we continue to modernize our regulatory framework to respond to the new objectives and technologies, announced in the [Renovation Wave](https://translate.google.com/translate?hl=es&prev=_t&sl=es&tl=en&u=https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en) Strategy, published by the European Union.  The legal readaptation of the term "WASTE" in rehabilitation / construction is also urgent, for the application and urgent progress of both "green construction" and the circular economy in the sector. Something that is already in process, with the draft of the [Law of Architecture and Quality of the Built Environment](https://www.mitma.gob.es/el-ministerio/buscador-participacion-publica/anteproyecto-de-ley-de-arquitectura-y-calidad-del-entorno-construido) .  **SOME POLICIES IN PROGRESS FOR THE REHABILITATION OF BUILDINGS**    At present, **energy renovations**are very frequent, the purpose of which is to reduce the impact that prolonged energy use has on the environment in a building with few insulation resources.  Large grants and subsidies such as those listed below are being used for this type of rehabilitation. These grants for the **rehabilitation**of buildings cover new heating and cooling systems or solar energy generation equipment. They also contemplate the installations of ventilated facades or green roofs.    [National Integrated Energy and Climate Plan (PNIEC) 2021-2030](https://www.idae.es/informacion-y-publicaciones/plan-nacional-integrado-de-energia-y-clima-pniec-2021-2030) . The next PNIEC 2021-2030 establishes as a goal for 2030 that renewable energies represent 42% of final energy consumption in Spain    [Aid Program for Energy Rehabilitation Actions in Existing Buildings (PREE)](https://www.boe.es/eli/es/rd/2020/08/04/737) , *established by Royal Decree 737/2020, of August 4, which regulates the aid program for energy rehabilitation actions in existing buildings*.    [The Spanish Government will allocate 5.3 billion euros to aid to rehabilitate buildings and homes](https://www.fundacionlaboral.org/actualidad/noticias/sector/el-ejecutivo-destinara-5300-millones-de-euros-de-los-fondos-europeos-para-la-rehabilitacion-y-regeneracion-de-edificios-y-viviendas). This program will be divided into three branches:   * Traditional rehabilitation of houses. A community of owners requests the subsidy and proceeds to carry out the work. Along with the rehabilitation of neighbourhoods, it will receive 2,400 million. * Complete neighbourhood rehabilitation works, including common spaces, as a result of the agreement between communities and city councils. The improvement of energy efficiency, accessibility and social cohesion is contemplated. This point includes 500 million in aid destined specifically to cities with less than 5,000 inhabitants. * Rehabilitation of public buildings of the State Administration, the communities and Town Halls. Special attention will be paid to buildings for health and educational purposes. The goal is to allocate 2,080 million for this purpose.   It is estimated that these grants could create around 400,000 jobs, providing a significant boost to the construction sector.  The project is led by the Ministry of Transport, Mobility and Public Agenda. In addition, the Energy Department participates and the communities and municipalities collaborate.  In addition, the Institute for Energy Diversification and Saving has another 2,400 million. Without forgetting that in the general state budgets for 2021 there is an item of 1,550 million for the economic and social recovery program to be developed by the different Autonomous Communities.  All these funds will be used to rehabilitate buildings and homes with the aim of improving the building stock of Spain, which with **about 25 million properties, more than half were built before 1979**. In buildings intended for housing, only 23.1% are accessible and more than 80% are energy inefficient, causing more than 36% of greenhouse gas emissions and the consumption of 40% of total energy needs.  The subsidies that will reach Spain, therefore, are aimed at the energy renovation of 480,000 homes in three years. For the Community of Madrid, which has 16% of all homes in Spain, the goal is to regenerate 76,800 homes throughout the region, 38,400 in the capital alone. All this money opens the opportunity for a profound **efficient transformation of the city**, at the same time that it is a challenge when managing so many resources.  Source : [El Español](https://www.elespanol.com/invertia/opinion/20210205/retos-rehabilitacion-lluvia-millones/556564340_12.html)  [Subsidies for Building Rehabilitation by Autonomous Communities](https://www.boe.es/buscar/legislacion.php?campo%5B2%5D=tit&dato%5B2%5D=rehabilitaci%C3%B3n%20de%20edificios&accion=Buscar&checkbox_solo_tit=S&sort_field%5B0%5D=PESO&sort_order%5B0%5D=desc) |
| 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). | Source: [VI AGREEMENT-ANNEX X](https://construccionyservicios.ccoo.es/9ca9cbc18cd532c6d7603a2c7d3bbc51000072.pdf) (page 228)  **TEAM LEADER-GROUP 4**  GENERAL CRITERIA This professional group includes workers who, depending on others with higher qualifications, carry out tasks that require advanced technical and practical knowledge of the trade or profession, since they carry out their functions with a certain autonomy. Coordinate or track small groups of less skilled and less experienced workers.  TRAINING For the adequate performance of the activities framed in this professional group, it is recommended to have completed studies equivalent to Compulsory Secondary Education or the intermediate level of Professional Training, or knowledge acquired through extensive experience in the trade or profession.  TASKS The following list of activities will be understood as belonging to this group, by way of example and not exhaustiveness:  Technical management, design and planning area 1. Delineate simple projects, carry out general and detailed plan surveys based on the information received, carrying out the necessary work and providing the required solutions.  Production area and similar activities 1. All the tasks included in the previous group (associated with the production area). 2. Control and regulate the production processes that generate transformation of the product. 3. Organize the work of lower-skilled operators, following the guidelines specified in the technical documentation as well as the indications of their superior. 4. Describe the methods and procedures of execution to the "crew" at the foot of the pit. 5. Plan in the short term the resources to be available in the pit. 6. Interpret plans and sketches of a certain complexity. 7. Drive and operate with vehicles and heavy machinery used for transportation, hauling, movement and compaction of earth, drilling, suspension of loads, demolition and demolition, special foundations, etc. 8. Handling machines and work equipment that require being in possession of a qualifying professional card.  Transversal services area 1. Supervise the filing and reproduction of documents, as well as support the execution of the work, following the instructions received by a superior or person in charge. 2. Write the commercial correspondence, the calculation of prices in view of the offers received, the reception and processing of the orders. 3. Carry out elementary activities of salary calculation, cost valuation, collection and payment functions, etc., depending on and directly executing the orders of a higher command. 4. Carry out filing, registration, calculation, billing or similar activities that require some degree of initiative. 5. Carry out basic management and advisory functions in the different areas of the company (commercial, production, administration, quality, R + D + I, environment, prevention of occupational risks, human resources, etc.). 6. Carry out activities for the sale and marketing of products and services that require non-complex techniques, such as: demonstration, communication of prices and credit and delivery conditions, order processing, etc. 7. Control and monitor warehouse merchandise operations, ensuring quality and optimization of the logistics chain.  **MANAGER SITE-GROUP 5 GENERAL CRITERIA**  The personnel included in this professional group carry out tasks that require initiative. They can carry out certain planning, organization and supervision functions of the activities of a group of less qualified workers, bearing, under their supervision, their responsibility. They have specific technical knowledge in their area and sufficient criteria to follow up the tasks according to the objectives set by higher professional groups. They solve the most common incidents that arise in their work, although they may require consultation with superiors to solve others that transcend their work area or that require more complex specific knowledge.  TRAINING For the adequate performance of the activities framed in this professional group, a level of training equivalent to Baccalaureate or higher degree of Vocational Training is recommended, or similar knowledge acquired through experience in the trade or profession.  TASKS The following list of activities will be understood as belonging to this group, by way of example and not exhaustiveness :  Technical management, design and planning area 1. Delineate projects, carry out general and detailed plan surveys based on the information received, carrying out the necessary work and providing the required solutions. 2. Develop projects related to the spatial distribution of an interior area. 3. Carry out, intervene and collaborate in surveys of buildings and land (building, civil or maritime works). Help in its execution through stakeouts. 4. Collaborate in the development of a project written by a technician. 5. Make representations of building projects: plans for basic and execution projects, photocompositions and models. 6. Specify, monitor and update the planning and cost control, as well as carry out the control of the documentation generated in the projects and construction works throughout all the phases of the process, following the indications established. 7. Pre-size and, where appropriate, size, under the instructions of the optional manager, the integral elements of the plumbing, sanitation, air conditioning, ventilation, electricity, telecommunications, etc. installations in buildings, applying the established calculation procedures and interpreting the results.  Production area and similar activities 1. To exercise direct command at the head of a group of workers within the production, assembly or auxiliary work process. 2. Coordinate and control the operations and means inherent to the production process (facilities, materials, equipment, auxiliary means, vehicles, etc.). 3. Communicate with the crew at the foot of the pit describing methods, execution procedures and production objectives. 4. Carry out inspections of all kinds of parts, machines, structures and materials, both during the production process and after completion, in accordance with the plans, tolerances, compositions, aspects, standards and use, with a high degree of decision in the acceptation. 5. Supervise the final result of the execution of the different phases and work units. 6. Collaborate, both in the process of execution of the different types of works, and in the control methods of the work plans, quality and occupational health and safety. Likewise, it participates in the management of resources, operations and basic maintenance of the machinery.  Cross-cutting services area 1. Perform laboratory analyzes and determinations carried out under supervision, without it being necessary, on all occasions, to indicate the standards and specifications on the preparation of the precise elements, implying the obtaining of samples and the extension of certificates and analysis bulletins. 2. Develop complex activities framed within your own department. 3. Prepare and present files and documentation before entities and organizations of various kinds. 4. Supervise and control the processes carried out by workers from lower groups belonging to different departments or areas of the company, for example: administration, treasury, human resources, purchasing, marketing-commercial, logistics, accounting, etc. 5. To exercise direct control over a group of workers who receive merchandise, classify it, store it and dispatch it, through the control of the materials and the machines-vehicles used. 6. Manage, at their level, the prevention of occupational hazards in the process of production of goods and services, including the evaluation and control of risks arising from safety conditions, the work environment, the organization and the Workload; and direct the actions to be carried out in emergency and first aid situations. 7. Know the different technical specialties for the transformation and handling of materials, as well as control and organize manufacturing work.  The Ministry of Labour and Immigration affects the responsibility of manager site as a preventive resource at work. Source: [Technical Criterion No. 83/2010 on the presence of preventive resources in companies, centers and workplaces](https://www.mites.gob.es/itss/ITSS/ITSS_Descargas/Atencion_ciudadano/Criterios_tecnicos/CT_83-2010.pdf) . (Third E)    **WHAT THE LABOR MARKET REQUESTS**  In **job offers,**the requirements that are often requested when an experienced site manager is required to coordinate building rehabilitation and renovation works are the following:  **Job Description**  Execution of all types of rehabilitation works  Subcontractor management  Management of own personnel  Own machinery management  Purchase of materials  Rental of tools and machinery  Layouts and measurements  **Requirements**   * Minimum demonstrable experience of 3 to 5 years. * Middle Grade Studies Building and Civil Works * Experience in leading teams, both from the company itself and subcontracted. * Ability to interpret plans and stake out on site. * Knowledge of building and civil works. * Management of computer tools in the sector. * Driving license. * Initiative. * Control of materials and machinery. * Plan work, track the plan and meet timelines. * Enforce H&S regulations. H&S 60 h is requested. * Coordination of work with different industrial and b hired. * Proposal of procedures, materials and techniques. Advice to operators. * Calculation of materials and measurement of the work carried out. * Supervision and verification of work processes and results. QA.   + And specifically for rehabilitation works: * Management of multimedia tools (photography, video and videoconferencing) * Experience and knowledge in insulation, waterproofing and structural works * Ability to interpret technical instructions for "special materials" (special sealants, mortars, new technologies, ...)   **Tasks to be done**   * Opening and closing the site works, receipt of materials and stakeouts. * Supervise the quality of the work carried out on the site. * Coordinate work on the construction site. * Supervise the correct application of risk prevention on the construction site. * Comply with the requirements and standards established in the quality and environment system. * Correct segregation and waste management. * Control of the work carried out by industrialists and subcontractors, both its execution and the means used. * Prepare the daily work reports. * Instruct subordinate personnel (own and / or subcontracted) in the handling of new techniques and materials |
| 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 greatest particularity of the rehabilitation works is that before building or rehabilitating, we must discover or demolish the affected areas to renovate.  This process is critical, both due to the more than certain appearance of new pathologies, as well as the possibility of the appearance of new accident risks.  The person in charge of rehabilitation must be able to recognize the seriousness of these new situations and either solve them, or secure work areas and seek technical support from highly qualified personnel, being able to provide the necessary information for decision-making.    In addition, energy efficiency, the circular economy and waste management, as we have already seen, have a more or less defined regulatory framework and the middle managers of the building renovation works have to handle competences and skills such as those indicated below:  Regarding ENERGY EFFICIENCY :  Being able to control the execution of the elements that influence the energy performance of the building using the appropriate technology.  Being able to analyse the thermal behaviour of the building and the recognition of pathologies, identifying the phases to develop in the rehabilitation of the building envelope.  Being able to monitor the construction of efficient facades from the energy point of view according to the technical specifications of the project.  Be able to control the installation of thermal insulation systems.  Be able to control the waterproofing and insulation of underground roofs, walls and floors.  On CIRCULAR ECONOMY issues :  Being able to implement the circular economy and environmental protection solutions in all phases of construction and use of the building.  And in WASTE MANAGEMENT :  Being able to monitor the waste chain in the construction and demolition phases, supervising all phases of the construction process.  Being able to control the management or n of specific waste materials. Source: [ICARO project](http://www.icaroproject.eu/en/) |
| 1. Identification of legal and normative challenges and barriers faced for site managers and team leaders related to building renovation sites | The energy renovation of buildings is one of the pillars of the European Green Pact and the National Integrated Energy and Climate Plan and middle managers must know and enforce the current regulations related to this in order to collaborate in reducing the carbon footprint through optimizing the energy efficiency of buildings and the use of alternative renewable energy sources.  In the [VII EECN Congress](https://www.congreso-edificios-energia-casi-nula.es/) (Almost Null Energy Buildings), held in Madrid on November 20, 2020, some of the new legal regulations were revealed (CTE 2019, basic document DB HE on Energy Saving, the decarbonisation strategy, roadmap towards neutral climate 2050, ... ..); but the need to “complete” a legislative framework was also palpable in the face of the great challenge of Energy Rehabilitation in construction, which is facing all of Europe.  It should be also necessary to define, as soon as possible, distribution and form of access to funds (European and national) for renovation, since it will involve a series of documentary justifications that affect the technical staff on site. Among which are the managers and team leaders. |
| 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. | But in addition, the construction sector is simultaneously facing the fourth industrial revolution, characterized by  hyperconnectivity , Internet of Things, microfabrication with 3D printers, robotic manufacturing, Big Data ... And it is one of the least digitized sector in the world. For this reason, he has a long way to go and must face aspects such as BIM, virtual reality, and the new materials that arise as a result of innovation and technological evolution, from which concepts such as Cyber-physical Systems, smart products and industries, the IoT, hyperconnectivity or Big Data.  Basically, this "fourth industrial revolution", in which rehabilitation is going to be crucial, will require managers and team leaders to increase two aspects of their training and knowledge, which until now they were NOT needing :  **DIGITAL SKILLS**  Being able to obtain the information and data necessary for the work to be done.  Being able to communicate and collaborate with other people involved in the construction process and with their own colleagues.  Being able to create, understand, control and analyse digital content in the construction field.  Being able to protect personal data, as well as other data of a digital nature.  **TECHNICAL COMPETENCES**  In demolition or "semi- demolition "; since in rehabilitation this part is crucial, and needs to be reinforced, since most of the workers come mainly from the new construction works.    Source: [ICARO project](http://www.icaroproject.eu/en/)  Source: [Facades 4.0 Conference](https://www.interempresas.net/Fachadas/Articulos/185320-principales-retos-demandas-sector-construccion-rehabilitacion-edificios-debate-jornada.html) |
| 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). | **H&S SKILLS**  Regarding H&S at work, they must be able to implement basic solutions in this matter in all phases of the rehabilitation process, including those derived from the use of new materials and new construction models.  The training needs of these professional profiles are well identified within the framework of the VI Collective Agreement for Construction Work , specifically in the training programs of  - [PRL For Middle Managers](http://www.flc.es/especialidad-activo?p_p_auth=zaAwm9sE&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=50253)  - [Basic Level of Occupational Risk Prevention](http://www.flc.es/especialidad-activo?p_p_auth=zaAwm9sE&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=166363)  -  [PRL for Work Managers and Execution Technicians](http://www.flc.es/especialidad-activo?p_p_auth=zaAwm9sE&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=50244)  - [PRL for Demolition and Rehabilitation works](http://www.flc.es/especialidad-abierta-bonificada?p_p_auth=puRlW4wj&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=104574) .   Source : [V I COLLECTIVE AGREEMENT](https://www.boe.es/diario_boe/txt.php?id=BOE-A-2019-15840)  In addition, it is essential to be able to recognize risks associated with the particular rehabilitation process, since risks arise in the initial process that cannot be previously assessed. Take the appropriate decisions and / or measures to ensure Health and Safety.  The rehabilitation manager needs HIGH KNOWLEDGE on demolition or “semi- demolition” processes. |
| 1. Existing training provision in relative areas/ State-of-the-art training programmes in building renovation sites. | The Organic Law 5/2002 on Qualifications and Vocational Training, in its Article 7, creates the [**National Catalogue of Professional Qualifications (CNCP)**](http://incual.mecd.es/bdc) , in order to facilitate the integrated nature and the adequacy between professional training and the labour market, as well as training throughout life, the mobility of workers and the unity of the labour market, which is valid and is applicable throughout the national territory. Royal Decree 1128/2003, of September 5 (BOE of September 17), regulates the National Catalogue of Professional Qualifications. The CNCP is the instrument of the National System of Qualifications and Professional Training that orders professional qualifications, susceptible of recognition and accreditation, identified in the production system based on the appropriate competencies for professional practice. The CNCP includes the content of the professional training associated with each qualification, according to a structure of training modules articulated in the modular catalogue of professional training. The National Institute of Qualifications is responsible for defining, preparing and keeping updated the CNCP and the corresponding Modular Catalogue of Professional Training. This catalogue will be the basis for the offers of educational training (proposed by the Ministry of Education), occupational and continuous training (both dependent on the Ministry of Labour), as well as the reference to recognize and accredit non-formal and informal learning, included in the work experience.    On March 9, 2004 ROYAL DECREE 295/2004, of February 20, was published, which establishes certain professional qualifications that are included in the CNCP, as well as their corresponding training modules that are incorporated into the modular catalogue of professional training. The Professional Qualifications are included in the corresponding Annexes to this Royal Decree, with their associated training, which have been prepared by the National Institute of Qualifications through a methodology approved within the General Council of Vocational Training and the participation has been counted on and collaboration of the Autonomous Communities and other competent Public Administrations, as well as with the social partners and with the productive sectors. The **Professional Qualifications included in the National Catalogue of Professional Qualifications, corresponding to the professional field of construction, and specifically to the rehabilitation of buildings**, are the following :   * Higher Technician in Construction Projects [ES](https://www.todofp.es/dam/jcr:18fa959d-7d35-4a4c-8b47-0a0efb48e802/n-tsproyectosedificaciones-pdf.pdf) [EN](https://www.todofp.es/dam/jcr:1d4af57d-d8c5-44c8-9d97-b350ac8334ef/n-tsproyectosedificacionen-pdf.pdf) * Higher Technician in Construction Projects, professional profile Rehabilitation and Restoration [ES](http://guiafp.fundaciobcnfp.cat/es/cicles/tecnic-a-superior-en-projectes-dedificacio-perfil-professional-rehabilitacio-i-restauracio/) * Higher Technician in Organization and Monitoring of Construction Works. [ES](https://www.todofp.es/dam/jcr:f274886a-e3bb-457b-bfac-a08044ef104e/n-tsorganizacioncontrolobrases-pdf.pdf) [EN](https://www.todofp.es/dam/jcr:dc22810d-9e3a-4d7c-82f3-9f8f09886aa6/n-tsorganizacioncontrolobrasen-pdf.pdf) * Technician in Construction [ES](https://www.todofp.es/dam/jcr:7c03c70a-ec61-48f5-b680-faf7662d3c91/n-tconstrucciones-pdf.pdf) [EN](https://www.todofp.es/dam/jcr:2d68260f-14fc-49fe-ad4d-0b400ba91d10/n-tconstruccionen-pdf.pdf) * Technician in Interior Works, Decoration and Rehabilitation [ES](https://www.todofp.es/dam/jcr:80962c9f-98cd-4995-9a64-78188305ce10/n-tobras-interiordecoraciones-pdf.pdf) [EN](https://www.todofp.es/dam/jcr:9808feaa-234d-4385-8421-62d700f18082/n-tobras-interiordecoracionen-pdf.pdf) * Professional Certificate Level 3 in Control of Construction Projects and Work Monitoring [ES](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) [EN](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) * Professional Certificate Level 3 in Monitoring of Buildings Construction Onsite [ES](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) [EN](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) * Professional Certificate Level 3 in Representation of Building Projects  [ES](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) [EN](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) * Professional Certificate Level 2 in Installation of Technical Paving, Panelling and Screen Systems [ES](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html) [EN](https://www.sepe.es/HomeSepe/Personas/formacion/certificados-profesionalidad/suplementoseuropass.html)     There are courses from other professional families, such as **Installation and Maintenance, Energy and Water, Electricity and Electronics,**which have aspects that fit the scope of action, so adapted content can be developed.  EXAMPLES OF OTHER TRAINING ACTIVITIES  [Energy rehabilitation of buildings](http://www.flc.es/especialidad-desempleados?p_p_auth=KXbDtw92&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=120191) , execution of projects related to the field of building rehabilitation, analysing in detail the regulatory and technical requirements and the work procedures typical of this type of intervention (FLC Asturias).  [Energy rehabilitation projects for the envelope in residential building](http://www.flc.es/especialidad-desempleados?p_p_auth=KXbDtw92&p_p_id=DistributedDisplay_WAR_distributedDisplayportlet_INSTANCE_0Ok2&p_p_lifecycle=0&p_p_col_id=detalle&p_p_col_pos=3&p_p_col_count=4&p_r_p_-338410784_groupId=14001&p_r_p_-338410784_articleId=120202) , carry out an analysis of the energy needs of a building and apply the most appropriate improvements to the thermal envelope , with the aim of reducing energy demand and limiting the risks due to processes that produce a significant reduction in thermal performance or the useful life of the elements that compose it, in compliance with the requirements established in the Technical Building Code (FLC Asturias)  [Facade Rehabilitation Manager](https://www.construmatica.com/construpedia/Encargado_de_Rehabilitaci%C3%B3n_de_Fachadas) . For the control and organization on site of the works consisting of the recovery, restoration, rehabilitation or cleaning of the exterior walls of the buildings, which have deteriorated due to the action of the weather, the effects of pollution or have deteriorated progressively by aging or by human intervention. (Institut Gaudí de la Construcció) [Master in Execution of Rehabilitation and Restoration Works](https://edificacion.upm.es/estudios/master-en-ejecucion-de-obras-de-rehabilitacion-y-restauracion.html), which includes notions on the management and control of the specific process of rehabilitation and restoration works; analysis of the historical evolution of the construction, and the rest on the control of the execution of the different construction systems and their pathology, in the rehabilitation of buildings, mainly of the real estate park of the s. XIX and s. XX; a analysis and execution control system rehabilitation; previous technical fundamentals on Conservation and Restoration; as well as the analysis and control of the execution in Conservation and Restoration of systems . (Higher Technical School of Building). |
| **Topics** | **Key conclusions reached**  **(analytical part)** |
| 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. | At present the educational competences on vocational training in Spain fall to the Ministry of Education. The ministry designs and validates the training programs of all vocational training of the construction sector: middle and higher grades, as well as professional certificates. To advance in the qualification of managers and team leaders of the renovation sites, the ministry should modify all those training programs that could be affected, facilitating from the base the acquisition of knowledge for its subsequent transfer to the construction sites.    On the other hand and at labour market level, the incorporation of these qualifications should be analysed in the framework of the General Agreement for the Construction sector, incorporating these skills in the currently existing professional categories.  Also at Public Administration level, in the bidding documents for procurement, when it is mainly a rehabilitation work, the need to have qualified technicians in the development of the project could be introduced. This could be achieved with legal modifications that would make such incorporation mandatory in the bidding processes of the Public Administrations. It might be interesting a final certification of the execution of the work signed not only by the Architect but also by the manager who executed and took care of the construction process on site in an efficient way.  The huge amount of new technical and legislative normative that is ongoing, required from managers and team leaders, both a continuous training, as well as a support from their companies (as they’re training). This will require an effort from all, not only managers and team leaders, but also companies and training centres, coordinating both an immediate training process and another in the medium term.  Finally, just to mention that it should be interesting to unify in single document all regulations (present and future) regarding Passivhaus , green construction, energy rehabilitation , etc., in the same way that we have already unified in Spain the different construction standards under the CTE (Technical Building Code). |
| 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 introduction of regulations related to energy efficiency, circular economy, waste management, prevention of occupational risks, quality and the environment, is generating the appearance of new competences that affect the person in charge of applying, coordinating, monitoring and control them in renovation works. Therefore, the training paths of these professionals should consider aspects such as:  - Control of the work process  - Analysis and control of the execution of shoring and demolitions, humidity, foundations and floors, walls, as well as wooden, reinforced concrete and steel  structures,  - In conservation and restoration works, legislation and regulations, continuous coatings, ornamental elements ...  - Innovation in building structures.  - Innovation in building envelope, partitions and finishes  - Acoustic conditioning  - Air conditioning  - Accessibility  - Energy efficiency  - Construction waste management  - BIM  - Drones  - Communication and conflict resolution skills  It is necessary to integrate in the practical training processes principles such as circular economy, use of new materials, H&S and energy efficiency. Organize the training paths using these concepts for their organization and implementation.  The sector is facing the biggest change to date (change from new construction to rehabilitation, passivhaus , circular economy, new technologies, energy efficiency and legislative changes). Both the manager and the team leader will need great agility in handling new information and specific work data.  For this we should add a "new" aspect for these professionals:  -Multimedia knowledge, video conference, online transmission of information packages (compress / decompress files).  -Management of office type packages (text editor, spreadsheets).  Because, if the need of evolution for the construction sector in general is high, the particularity of the renovation sites (facing always numerous changes and inconveniences), emphasizes the need for the ( "almost immediately") prompt handling of information with a bidirectional character between managers and team leaders and the support of technicians and experts in the specific field. |

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| **List of References**  [Law 38/1999 of 5 November on Construction Planning (LOE](https://www.boe.es/buscar/act.php?id=BOE-A-1999-21567))  [Technical Building Code](https://www.codigotecnico.org/pdf/Documentos/Parte1/RD3142006.pdf)  [Basic Document DB HE for Energy Saving of the Technical Building Code (CTE) is carried out](https://www.codigotecnico.org/DocumentosCTE/AhorroEnergia.html)  [Law 8/2013, of June 26, on urban rehabilitation , regeneration and renovation](https://www.boe.es/buscar/act.php?id=BOE-A-2013-6938),  [Directive 2010/31 / EU](https://www.boe.es/doue/2010/153/L00013-00035.pdf)  [Royal Decree Law 7/2015](https://www.boe.es/buscar/act.php?id=BOE-A-2015-11723) approved the revised text of the *Land Law and Urban Rehabilitation*  [Royal Decree-Law 8/2011](https://www.boe.es/diario_boe/txt.php?id=BOE-A-2011-11641) of measures to support mortgagors, control public spending and cancellation of debts with companies and autonomous contracted by local authorities  *Law of Common Telecommunications Infrastructures*, according to [Royal Decree-Law 1/1998](https://www.boe.es/boe/dias/1998/02/28/pdfs/A07071-07074.pdf)  [Royal Decree 47/2007](https://www.boe.es/boe/dias/2007/01/31/pdfs/A04499-04507.pdf) for *Energy Efficiency Certificate*  [Law 13/1982](https://www.boe.es/boe/dias/1982/04/30/pdfs/A11106-11112.pdf) , of April 7, on the Social Integration of the Disabled.  [Law 15/1995](https://www.boe.es/boe/dias/1995/05/31/pdfs/A15801-15802.pdf) of May 30, on limits of domain over real estate to eliminate architectural barriers for people with disabilities.  [Law 51/2003 ,](https://www.boe.es/buscar/pdf/2003/BOE-A-2003-22066-consolidado.pdf)of December 2, on Equal Opportunities, Non-Discrimination and Universal Accessibility for People with Disabilities.  [Royal Decree 556/1989](https://www.boe.es/boe/dias/1989/05/23/pdfs/A15352-15353.pdf), of May 19, approving Minimum Measures on Accessibility in Buildings.  [Law 3/1982](https://www.boe.es/buscar/pdf/1982/BOE-A-1982-9983-consolidado.pdf) , of April 7, on the Social Integration of the Disabled.  [Order of March 3,](https://www.boe.es/buscar/doc.php?id=BOE-A-1980-5937)1980, on the characteristics of the accesses, lifting devices and interior fitting out of homes for the disabled, designed in officially protected homes.  [Decree 59/1981](Dhttps://www.euskadi.eus/gobierno-vasco/contenidos/decreto/bopv198100227/es_def/index.shtml) , of March 23, Basque Country, on regulations for the elimination of urban barriers.  [Law of Architecture and Quality of the Built Environment](https://www.mitma.gob.es/el-ministerio/buscador-participacion-publica/anteproyecto-de-ley-de-arquitectura-y-calidad-del-entorno-construido) .  [National Integrated Energy and Climate Plan (PNIEC) 2021-2030](https://www.idae.es/informacion-y-publicaciones/plan-nacional-integrado-de-energia-y-clima-pniec-2021-2030)  [Aid Program for Energy Rehabilitation Actions in Existing Buildings (PREE)](https://www.boe.es/eli/es/rd/2020/08/04/737) ,  [VI AGREEMENT-ANNEX X](https://construccionyservicios.ccoo.es/9ca9cbc18cd532c6d7603a2c7d3bbc51000072.pdf)  [Technical Criterion No. 83/2010 on the presence of preventive resources in companies, centers and workplaces](https://www.mites.gob.es/itss/ITSS/ITSS_Descargas/Atencion_ciudadano/Criterios_tecnicos/CT_83-2010.pdf)  [ICARO project](http://www.icaroproject.eu/en/)  [VII EECN Congress](https://www.congreso-edificios-energia-casi-nula.es/)  [Facades 4.0 Conference](https://www.interempresas.net/Fachadas/Articulos/185320-principales-retos-demandas-sector-construccion-rehabilitacion-edificios-debate-jornada.html)  [Fundación Laboral de la Construcción del Principado de Asturias. Open Class for H&S.](http://www.flc.es/aula-abierta)  [Fundación Laboral de la Construcción del Principado de Asturias. Training offer](http://www.flc.es/formacion)  [National Catalogue of Professional Qualifications (CNCP)](http://incual.mecd.es/bdc)  [Spanish Ministry for Sustainable Development](https://www.miteco.gob.es/va/ministerio/planes-estrategias/estrategia-espanola-desarrollo-sostenible/) |

## Validation of outcomes reached from the Desk Research with group of experts.

Experts having participated in the Focus Group organised by 25 at 02 on 2021

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| Name | | Organisation | Occupation |
| 1 | David Iglesias García | FLC | Site managers Teacher |
| 2 | Carlos FABIÁN | FLC | Site managers trainer |
| 3 | JOAQUÍN AURELIO RODRÍGUEZ | FLC | GENERAL MANAGER |
| 4 | Luis Javier Alonso Méndez | FLC | Training director-VET |
| 5 | Ignacio Vega Blanco | ATICA | Manager |
| 6 | Sandra Alba García | FLC | Training Designer |

|  |  |
| --- | --- |
| **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 | **Expert 1**  In my opinion, the structural adequacy section needs a subdivision because it encompasses projects and works of very different volume and requirement. As these are rehabilitation works, the fluency of assessments and decisions is a priority. I believe that the obligation or NO of the presence in the work of a Senior Technician for certain works within the current adequacy should be established. Especially in the initial part of the execution, when we proceed to the removal of damaged products and final evaluation of pathologies.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Clear and precise definition of the concepts of rehabilitation and restoration, as they are known in Spain.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 1. National Legislative framework and policies related to Renovation of Buildings. | **Expert 1**  In December 2019, new revision of the Basic DB HE Energy Saving Document of the Technical Building Code (CTE), which completes the gradual process of approaching the definition of almost zero energy consumption building.  We must now continue to modernise our regulatory framework to respond to the new objectives and technologies, which have been announced in the "Renovation Wave" Strategy published by the European Union.  Also the need to urge the legal rehabilitation of the term "RESIDUO" in rehabilitation/construction, for the urgent implementation and advancement of both "green construction" and the circular economy in the sector.  Something that is already in process, but with a very slow progress given the current needs, such as: The Law on Architecture and Quality of the Built Environment.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Review subsequent CTE updates.  Add:  PREE programme, established by Royal Decree 737/2020 of 4 August, regulating the aid programme for energy rehabilitation actions in existing buildings  **Expert 4**  The Spanish legislative framework has undergone many changes in recent years affecting construction activities and, consequently, rehabilitation. This collection of regulations is very complete and defines well the concepts to be taken into account for the development of projects in this field.  **Expert 5**  Electrotechnical Regulations for Low Voltage, R.D.2002  **Expert 6**  Well identified. |
| 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). | **Expert 1**  In the hiring requirements of the manager in building sites, add:   * Handling multimedia tools (photography, video and video conferencing) * Experience and knowledge in insulation works, waterproofing and structures * Ability to interpret technical instructions for "special materials" (special sealants, mortars, new technologies,....)   For the tasks to be performed:   * Instruct subordinate personnel in the management of new techniques and materials (own and/or outsourced)   **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Professional profiles are well identified by the regulatory framework of the activity for work purposes.  **Expert 5**  Another of the site manager’s task is to be a preventive resource for the company (a worker who assumes specific H&S tasks at any given time).point 6 definition. <https://www.mites.gob.es/itss/ITSS/ITSS_Descargas/Atencion_ciudadano/Criterios_tecnicos/CT_83-2010.pdf>  **Expert 6**  Well identified. |
| 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). | **Expert 1**  The greatest particularity of rehabilitation works is that before building or rehabilitating, we must discover or demolish the affected areas or to renew.  This process is critical, both for the more than safe emergence of new pathologies, and the possibility of separation of new risks of accidents.  The site manager and team leader must be able to recognize the seriousness of these new situations and either resolve them, or secure the work areas and seek technical support in staff with higher qualifications, being able to provide the necessary information for decision-making.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Well identified.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 1. Identification of legal and normative challenges and barriers faced for site managers and team leaders related to building renovation sites | **Expert 1**  At the VII EECN Congress (Almost Zero Energy Buildings), held in Madrid on November 20, 2020, some of the new legal standards (CTE 2019, basic DB HE energy saving document, decarbonization strategy, roadmap to climate neutrality 2050,.....) were highlighted; but the need to "complete" a legislative framework in the face of the great challenge of Energy Rehabilitation in construction, faced throughout Europe, was also palpable.  Although NOT properly Legislative, it is also necessary to define, as soon as possible, the distribution and form of access to the funds (European and national) for this rehabilitation, since to a greater or lesser extent it will involve a series of documentary justifications that will affect qualified technical personnel on the foot of the work. Among them are The Team Managers and Managers.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Well identified.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 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. | **Expert 1**  Basically, this "fourth industrial revolution", in which rehabilitation is going to be crucial, will exempt from managers and team leader who increase two aspects of their training and knowledge, the until now they were NOT needing:  - DIGITAL training, for the handling, sending and receiving of information.  - Complementary training in demolition or "semi-demolition"; because in enablement this part is crucial, and in my opinion it needs to be strengthened. Since the sector and its workers come, mainly, from the newly built building works.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Well identified.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 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). | **Expert 1**  Being able to recognize risks associated with the particular rehabilitation process, since in the initial process risks arise that cannot be previously assessed.  Make appropriate decisions and/or measures for the assurance of safety and health.  The site manager needs HIGH KNOWLEDGE in demolition or semi-demolition processes.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  The training needs of these professional profiles are well identified within the framework of the VI Collective Agreement on Construction Work, specifically in PRL's training programmes. In particular in Safety for Intermediate managers, Safety for Technicians of Execution and Safety for Demolition and Rehabilitation activities.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 1. Existing training provision in relative areas/ State-of-the-art training programmes in building renovation sites. | **Expert 1**  En este punto no tengo más que añadir a lo mencionado por mis compañeros.  Aunque si creo, como estamos haciendo, que se necesita aumentar la formación y adecuarla a “la nueva construcción”.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Well identified.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 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. | **Expert 1**  The large number of new technical and legislative regulations that are underway will require both continuous training and support from their business structure (while they are trained).  This will require an effort on the part of: technically qualified workers on site, companies and training centres, who must plan in coordination both an immediate training process and a medium-term process.  As in Spain, the different building standards were unified into a single document the CTE (Technical Building Code); it is necessary to include in a single document all regulations (present and future) concerning Passivhaus, "ecological construction", energy rehabilitation, etc.  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Currently the educational skills on vocational training in Spain fall to the Ministry of Education. The ministry designs and validates the training programs of all Vocational Training in the Construction sector: higher, medium and professional certificates. In order to advance the qualification of the project, the ministries should modify all those training programmes that could be affected by facilitating from the basis the acquisition of knowledge for subsequent transfer to the works.  On the other hand, in the world of work, the incorporation of these qualifications into the Construction Convention should be analysed, incorporating these qualifications into the currently existing professional categories.  Also in the field of Public Administrations, the need for qualified technicians could be introduced into the tender requirements, in the case mostly of an energy efficiency work. This would be achieved with legal amendments that would make such incorporation mandatory in the bidding processes of the AAPP. It might be interesting the final certification of the execution of the work by not only the Optional Directorate but also by the technician who executed and veiled by the construction of the work efficiently.  **Expert 4**  Well identified.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |
| 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. | **Expert 1**  Since the sector faces the greatest change to date (move from new construction to rehabilitation, passivhaus, smaller works in general, circular economy, new technologies, energy efficiency and legislative changes). Both the manager and the team leader will need great agility in handling new information and concrete construction data.  To do this we should add a "new" look for these professionals:  - Multimedia knowledge, video conferencing, online transmission of information packets (compress/decompress files).  - Handling office packages (text editor, spreadsheets).  **Expert 2**  Agrees with the information gathered.  **Expert 3**  Agrees with the information gathered.  **Expert 4**  Integrate in the training processes, the principles identified, implementing their development under the principles of circular economy, use of materials, risk prevention and energy efficiency. Organize training paths using these concepts.  **Expert 5**  OK with the information gathered.  **Expert 6**  Well identified. |