



Project co-financed by the European
Regional Development Fund

D3.5.1

WP3 - WG3 Pilot Activity Training Final Report. Courses learning by doing

Final Version

SHERPA

**SHared knowledge for Energy Renovation in buildings by Public
Administrations.**

Priority axis-Investment Priority-Specific Objective 2-1-1

Partner in charge (Authors)

Valencia Institute of Building

Laura Soto (IVE) & Vera Valero (IVE)

Supported by LP-DTES – Gencat

Xavier Martí & Silvia Mata

Final version prepared by LP DTES for A.3.5 –Training
Distribution: Public
Date: September 30th, 2018

Content

1. Introduction	3
2. Objective	5
3. Methodology	7
3.1. Mapping of knowledge & mapping of skills	7
3.2. Process	7
3.3. Multidisciplinary approach	7
4. Scope of action	8
4.1. Transnational training (phase I & II)	8
4.2. Regional Training (phase III)	9
5. Description of phases	12
5.1. Phase I: Energy renovation project	13
5.2. Phase II: Thematic webinars by typology	13
5.3. Phase III: Learning by doing	14
6. Monitoring and evaluation of results	16
6.1. Transnational training	16
6.2. Regional Training	16
7. Conclusions	23
8. Annexes	24
8.1. Annex I. Skills profile evaluation	24
8.2. Annex II. List of experts Phase I	25
8.3. Annex III. Template report training	26
8.4. Annex IV. Training proof	27
8.5. Annex V. Virtual classroom TELLMED	28



1. Introduction

Moving to a low-carbon and sustainable Mediterranean economy provides transition opportunities and challenges. More and better skills are indispensable for the Mediterranean labour force as they make it easier to innovate, adopt new technologies, attract investment, compete in new markets, and diversify the economy. This, in turn, increases productivity and so jobs and growth, facilitating the achievement of the objectives developed in research projects Interreg Med.

The Mediterranean work force needs access to environmental skills training. Policy makers need to understand which training approaches are more appropriate to deliver the best benefits in terms of achieving sustainable development and providing good quality jobs.

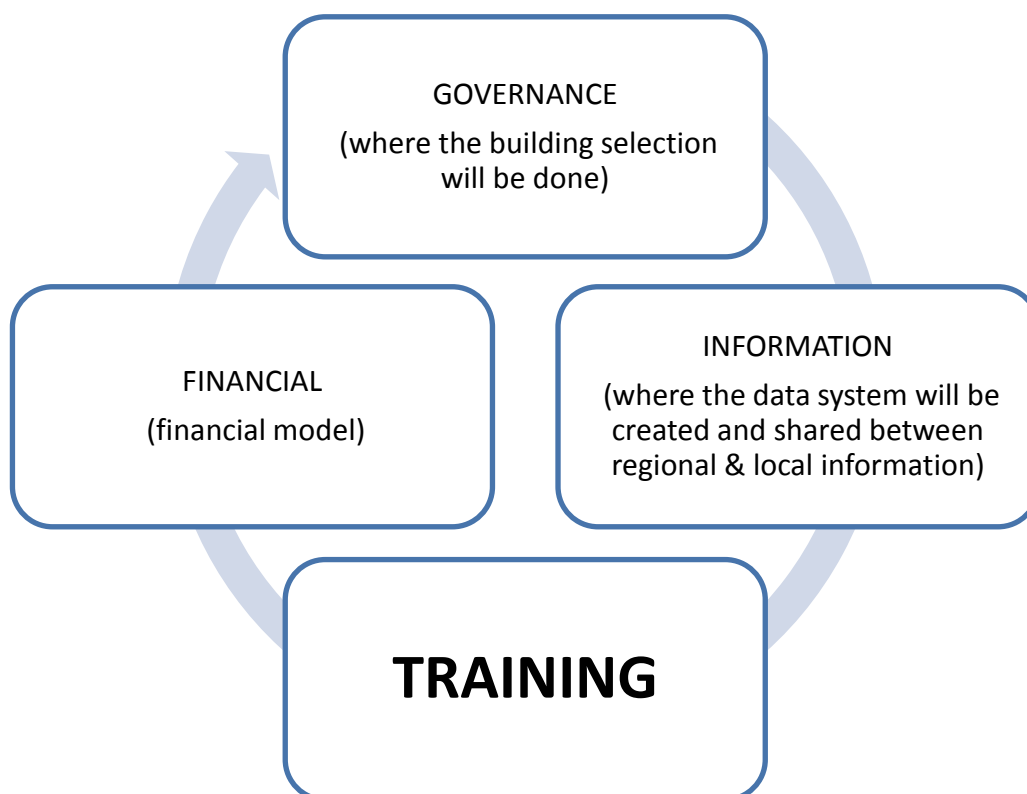


Figure 1. Scheme about the 4 fields where SHERPA develops the activities

The main barriers detected within the MED area with regard to EEB in public buildings can be integrated into four categories (see Figure 1: governance, information, awareness and training and financing), all defined as pilot activities within the testing module developed in SHERPA, to be later capitalized at a larger scale, and thereby establishing a clear correspondence between territorial challenge and project development. For this reason, “training” is one of these areas, which have been coordinated with Governance, Financial and Information.

In this context, Governments (regional and local) can reduce energy consumption in publicly owned or managed buildings by mandating minimum energy standards or establishing energy-savings targets. Increasingly, local governments require major retrofits of existing public buildings.



Successful energy-efficient progress depends on the ability of regional/ local governments to undertake the following action:

- establish and enact sound energy efficiency procurement policies and guidelines and “lead by example” through relevant pilot actions in buildings be to adopt and publicly announce an energy or carbon reduction goal for public buildings;(GOVERNANCE)
- create tools to facilitate regional and municipal agents in their procurement efforts and energy plans (INFORMATION)
- provide training and create awareness of the “what,” “how,” and “why;”(TRAINING)
- develop incentive strategies and new financial models, if relevant, to counteract behavioural inertia; and monitor compliance and track progress.(FINANCIAL)

Workforce Capacity and Training

A major barrier to deploying energy efficiency projects in Mediterranean countries is lack of workforce training. This gap in training represents a missed opportunity in places with high potential energy saving, particularly among stakeholders linked to public buildings. Even in many Mediterranean countries, governments and utilities have difficulty hiring candidates with sufficient education or training in energy efficiency.

A skilled profile is essential to completing projects that effectively achieve energy and resource savings SHERPA has developed this training action-strategy needed.

Implementing assistance to public administration systems and structures will tend to be channelled through measures focusing either on increasing capabilities of people working in the systems and structures (e.g. employees of institutions) or on improvement of internal processes, organisation or resources of systems and structures (tools, guides, etc.)

The implementation of a training action plan covering different fields of energy efficiency expertise would increase the coordination amongst the public administration It has been also supporting this, the development of a platform where information about training material has been provided.



2. Objective

The 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 defines the increase of energy efficiency (EE) in public buildings as an important milestone for the achievement of the European energy savings and climate protection targets.

For this reason, public authorities play a key role in the reduction of EU energy consumption and the increase of renewable energy capacity. Support should continue and be reinforced in building capacity of public authorities and empowering them to take up their role of energy transition leaders at regional and local level, by permanently improving their skills as public entrepreneurs and supporters of market transformation towards more efficient energy systems.

Permanent improvement of skills of public authorities:

- Public sector energy managers with responsibility for building energy use
- Public sector capital teams, project managers and coordinators with responsibility for buildings
- Design teams, working on public sector buildings that will be occupied in 2018 who are invited to attend by public sector clients

So the objective is to elaborate a training programme to reinforce the capacities of public administrations at regional and local level so as to improve energy efficiency in their public buildings' stock.

Objectives	Description
OI ₁	Define appropriate criteria for selecting people to be trained
OI ₂	Elaborate training contents addressing needs both at regional and local level
OI ₃	Integrate and combine the training dimension at regional and local level
OI ₄	Contribution to the main result of WP3 (output 3.7): 100 projects of public buildings to be renovated with EEB measures

Table 1. Objectives Pilot Activity 3.5. Awareness and Training

To achieve these objectives, complementary, but task-specific training actions are to be developed, taking into account the needs and responsibilities of the beneficiaries. The development of these training programmes is grounded on the basic idea that training and learning have to be taken as continuous, life-long processes, and extended to all categories of public officials, whatever their level or designation.

In addition, the training action try to be multidisciplinary during the process from the policy makers, through the senior managers, to the front line managers and supervisors linked to public buildings. This being so, the training actions provides a forum in which all the stakeholders could exchange ideas and share experiences on the reform programme's underlying philosophy, operational processes, and methods around real pilot cases of Energy efficiency public buildings.



Result	Description
RI ₁	Public awareness strategies, including planning and implementation of specific trainings in EEB

Table 2. Results Pilot Activity 3.5. Awareness and Training

The result will be described in **Scope of action**. Training is developed for different levels in order to provide incrementally specialized training.

The key elements of the training action include needs assessment, course work, learning tasks, and practical application. Facilitators introduce new information to trainees through course work or lectures. Learning tasks or activities, such as case studies through the “pilot cases”, provide individuals with opportunities to work with the new information in a small group setting. Practical experiences and application give the trainees the opportunity to apply the knowledge and skills learned in a real-life or simulated situation.



3. Methodology

Identifying the local capacities that need to be developed is important. Early identification of workforce capacity strengths and gaps can inform a package of technical support measures and trainings that may be required on aspects related to enforcement, legal affairs, and technological knowledge. The methodology applied for the training needs assessment focusses on:

- Identifying major subjects which have to be addressed in the trainings in response to the target groups' interests and needs.
- Prioritizing training methods according to their acceptance within the target groups.

3.1. Mapping of knowledge & mapping of skills

Before designing a training or course, it is essential to evaluate the existing experience and prior knowledge of the audience as well as evaluate the needs related to their training.

It is indispensable to evaluate your target audience and for that, needs assessment is a useful approach. (See *Annex I*)

3.2. Process

- a. Selection of PARTICIPANTS in training awareness experience in each SHERPA partner region.
- b. Analysis of specific training needs identified in each region and municipality.
- c. Training contents preparation.
- d. Trainers' selection.
- e. Courses development.

3.3. Multidisciplinary approach

The multidisciplinary groups of participants need special consideration: individuals have specific and often really deep knowledge in one special field, but very superficial knowledge in other professions.

Trainings must find the balance between deepness and comprehensiveness, specific and general contents considering the participants' background. This balance can vary course by course.

The multidisciplinary groups of participants need special consideration: individuals have specific and often really deep knowledge in one special field, but very superficial knowledge in other professions.

Trainings must find the balance between deepness and comprehensiveness, specific and general contents considering the participants' background. This balance can vary course by course.

Training Needs Identification through Competency Mapping Process

Training needs identification is one of the most important aspects of **any training activity**.



4. Scope of action

The content for the specific scope of the training is defined by skill mapping method, which aims to find the most important knowledge- and skill gaps among the EEB professionals of public administration by region.

The general scope of the whole is EEB knowledge in the related professions, skills, techniques, best practices, among the professionals working in this area.

Transnational training (phase I & II)	Transnational common framework giving the general paths for all the regional partners.
Regional Training (phase III)	Adaptation and implementation of the general paths discussed and agreed at the working group level into each regional and local context.

Table 3. Structure of activities related to Activity 3.5. Awareness and Training

4.1. Transnational training (phase I & II)

In case of SHERPA, on one hand, the composition of the audience may be very complex because is focused in the partner's team. This diversity needs to be considered while designing the trainings, especially because their collaboration is the key to the efficient process of RENOVATION EEB design.

Country	Partner	Profile
(ES)	Generalitat of Catalonia	Public administration
(ES)	International Centre for Numerical Methods in Engineering	Research institute
(ES)	Valencian Institute of Building	Research institute
(FR)	Conference of Peripheral Maritime Regions of Europe	Network
(FR)	National Association of Local Authorities, Associations and Companies for Waste Management, Energy Management and District Heating	Network
(IT)	Emilia Romagna Region	Public administration
(IT)	Lazio Region	Public administration
(IT)	Abruzzo Region	Public administration
(MT)	Ministry for Gozo	Public administration
(HR)	Dubrovnik Neretva Regional Development Agency	Public administration
(GR)	Centre for Renewable Energy Sources and Saving	Research institute
(GR)	Region of Crete	Public administration

Table 4. Profiles of attendees in Phase I and II

Regarding this profiles, it has been designed Phase I , taking into account that a training needs assessment and a pretraining knowledge and skills assessment are required to help plan an effective training program after.



On the other hand, they have common characteristics: they are adults, experienced professionals; their special knowledge in their field of expertise may be really deep and diverse, but probably their knowledge about renovation projects aspects and about each other's field is quite superficial.

They can have different level of work experiences, different level of energy efficiency renovation knowledge, and different level of cross-cutting level skills as well and they surely play different roles in construction sector. However, the cooperation between these experts needs to develop in order to support the integrated design approach that is needed for the energy efficiency pilot's results.

4.2. Regional Training (phase III)

Referring the Regional Training, the concept is involving stakeholders linked to the pilot projects and "learning by doing". In this shared scenario, "learning by doing" schemes are useful to developed pilot actions which can serve as test beds for further action, refinement of processes and awareness-raising mechanisms (word of mouth, visits, visualisation, going beyond information and figures by addressing emotional elements of the stakeholders).

The trainings need to be developed considering that the audience will add up from several different professionals. The multidisciplinary groups of participants need special consideration: individuals have specific and often really deep knowledge in one special field, but very superficial knowledge in other professions. However, they have the common field of buildings, regarding that they need to cooperate in real life, too.

Target public and prior knowledge

A good training adds up of multiple layers: the training topic needs to be placed in its professional and practical environment, needs to develop useful professional skills– practicing and improving existing ones and developing new ones as well –, needs to explore the limits of the professions as well as overlaps with other professions. However, cross-cutting level training is really important, too: e.g. skills that can be independent of profession. An outlook for further development possibilities is always useful as well as summarizing the existing skills and knowledge. Within one training course both level can occur, the developer of the training, should find the best ratio and combination of these layers.

Adult learners

Adults as learner audience have special characteristics which need to be taken into consideration while preparing the training material, choosing approaches, tools and platforms for the training and designing the training in general. Characteristics of Adult learner are shown below.

Characteristics of Adult learners	Suggestions
Fear of doing, saying something wrong, and so the comfort of staying passive	Ensure and show the safety of the environment, show respect for them. Gradual steps in and enough time to the exposure of themselves.
Significant existing experience and knowledge	Induce sharing their ideas, opinion and experience, so they feel respected. Their



	knowledge might be even useful for other participants or in further development of the course
Self-dependency and low level of controllability	Adults do what they need or want to, do not try to control them, but only orientate. Needs assessment is important, feedback and flexibility according to their needs. The whole training in content or structure may need to be changed.
They need to find the topics meaningful for them personally to be motivated	Find out their intentions /aims with the course. Generative themes may affect their attention.
Their time is precious	Respect their time. Complement their existing knowledge, do not cover the areas they already know*. Be aware of their motivation and area they are interested in. Give them opportunity for feedback and raising questions.

*exceptions may occur due to multidisciplinary groups.

Table 5. Suggestions for training depending the profile of adult learners

Source: The adult learners’ principles (Malcolm S. Knowles, Elwood E. Holton III, & Richard A. Swanson, 2005. *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*, Burlington, MA: Elsevier and Dr Mo Hamza, 2012, *Training Material Development Guide*, Swedish Civil Contingencies Agency

Also, the following are specific tips suggested by the Swedish Training Material Development Guide, in case of adult learners:

Adults learn best when	Matching adult learning needs with appropriate methods
They feel valued and respected for the experiences and perspectives they bring to the training situation.	Elicit participants’ experiences and perspectives through a variety of stimulating activities.
The learning experience is active rather than passive.	Actively engage participants in their learning experience through discussion and a variety of activities.
The learning experience actually fills their immediate needs.	Identify participants’ needs; develop training concepts and learning objectives to these identified needs.
They accept responsibility for their own learning.	Make sure that training content and skills are directly relevant to participants’ experiences so that they will want to learn.
Their learning is self-directed and meaningful to them	Involve participants in deciding on the content and skills that will be covered during the training.
Their learning experience addresses ideas, feelings, and actions.	Use multiple training methods that address knowledge, attitudes, and skills.



New material relates to what participants already know	Use training methods that enable participants to establish this relationship and integrate new material
The learning environment is conducive to learning.	Take measures to ensure that the physical and social environment (training space) is safe, comfortable, and enjoyable
Learning is applied immediately.	Provide opportunities for participants to apply the new information and skills they have learned.
Learning is reinforced.	Use training methods that allow participants to practice new skills and receive prompt, reinforcing feedback.
Learning occurs in small groups.	Use training methods that encourage participants to explore feelings, attitudes, and skills with other learners.
The trainer values participants' contributions as both learners and teachers.	Encourage participants to share their expertise and experiences with others in the training.

Table 6. Training methods depending the profile of adult learners



5. Description of phases

The objective of this project was to ensure that the designers, decisions makers and site managers who lead the construction efforts are equipped with the skills and knowledge needed to make energy efficiency and renewable energy use a part of their day-to-day procedures.

So, for this, it has been developed a training process going from general to particular topics:

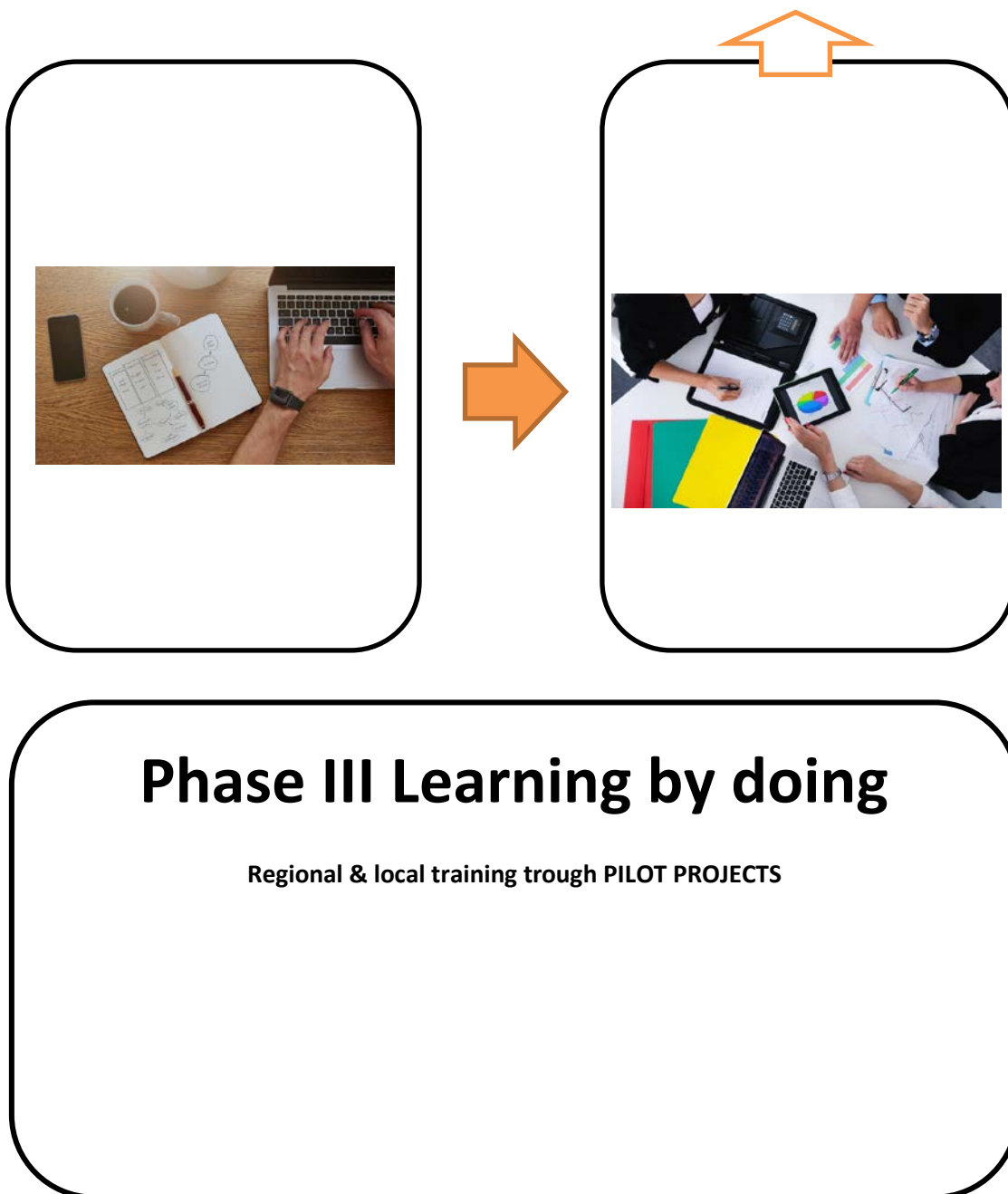


Figure 2. Phases of training



5.1. Phase I: Energy renovation project

In order to retrofit an existing building, a first energy audit phase is necessary. Adapted solutions are then needed to respond to the issue of energy saving in the built environment. The first aim is to present an approach which leads to an effective and feasible energy renovation plan. An overview of the commonly proposed and applied solutions has been presented. In the training Phase I, it has been showed how solutions can be gathered in scenarios to respond to the problematic of energy savings in a building in-use. The steps are:

- General structure energy renovation project
- Analysis & Diagnosis current state
- Passive measures
- Active Measures
- Management
- Financial aspects (cost benefit, cost optimal, etc)

5.2. Phase II: Thematic webinars by typology

For the purposes of the renovation, the training action also includes an overview of the system of measures and criteria for the promotion and implementation of acceptable ways to approach the renovation of different building types.






Use-typology	Description
 Health care	Health care facilities encompass a wide range of types, from small and relatively simple medical clinics to large, complex, and costly, teaching and research hospitals. Large hospitals centres may include all the various subsidiary health care types that are often independent facilities.
 Residential (social housing)	A building should be regarded as residential building when more than half of the floor area is used for dwelling purposes
 Office	A structure used primarily for the conduct of business relating to administration.
 Educational	This occupancy type shall include any building or portion thereof in which education, training and care are provided to children or adults.
 Singular	Including: museums, libraries, cultural buildings, etc.

Table 7. Description of typologies for seminars



5.3. Phase III: Learning by doing

The literature review claims that demonstration projects stimulate sustainable energy innovation via ‘learning-by-doing’ Participants in sustainable energy demonstration projects - like producers, suppliers and users – learn, and by putting what they have learnt into practice, they serve as role models for others to follow. Phase III provide specific learning opportunities; they 1) enable policy makers and technicians to learn how to technically develop energy efficiency renovation pilot project; 2) facilitate technicians and managers to learn to build an organization that produces these energy efficiency renovation pilot project on a large(r) scale; 3) help public policy officers to learn to develop public policy that stimulates the process of energy efficiency renovation pilot projects; and 4) support professionals involved (external expertises: SMEs, universities, etc) to learn how to bring energy efficiency renovation pilot project to the market.

The method will be participative, with participants sharing experiences and knowledge. Consultants will introduce topics, followed by discussions and presentation of concrete cases (pilot cases). Discussions will focus on the real situation of the public buildings and the measures of improvement. Consultants will also present comparative cases and views on developments in the field. Various training sessions (or groups) will be organised, each containing adapted by each region. The number of sessions to be organised will depend on the number of participants, pilot buildings, etc.

Contents of existing training programs follow the demand of the target groups. Training sessions for facilitators usually focus e.g. on the preparation and implementation of the EPC projects. Courses for ESCOs put a high emphasis on economic calculations and de-risking strategies. Public authorities are addressed through best practice examples including costs/benefit comparisons. Legal and administrative framework conditions are always part of the training programs for all target groups.

The leader of training in each Region must take into account the profiles involved to adapt the contain and the experts involved.

Method	Description
Brainstorming	Members of a small or large group are encouraged to contribute any suggestion that comes into their heads on a given subject, initially with no criticism, but later with a sifting and assessment of all ideas.
Case study	A real situation is presented in a brief paper or presentation, and then analysed by participants.
Demonstration	The facilitator shows learners how and what should be done while explaining why, when, and where an action is taken; participants then perform the action.
Discussion	Method in which the participants learn from one another, usually with guidance from a facilitator.
Distance learning	System designed to build knowledge and skills of learners who are not physically on-site to receive training. Facilitators and students may communicate at times of their own choosing by exchanging printed or electronic media or through technology that allows them to communicate in real time.



e-learning:	Participants interact with facilitators through the use of some of the many electronic, computer-based learning materials that are now available.
Group exercise:	A number of participants undertake an activity together, followed by a critical analysis of the process involved.
Lecture:	A direct talk with or without learning aids but without group participation.
Worksheet:	A step-by-step approach to identifying problems or solutions through written questions or problems, with space provided for answers.

Table 8. Learning methods that can be used in Phase III

Some of the methods are more suitable for adult participatory training, and others work well in formal academic settings (such as lectures or seminars). Most people learn better in an active rather than a passive fashion. A combination of methods is likely to be more effective than the exclusive use of one method.



6. Monitoring and evaluation of results

6.1. Transnational training

Topic	Date	Number of attendees(*)	Technical Expert
Energy renovation project			
General structure energy renovation project	28 th March 2017	18	Daniel Satue
Analysis & Diagnosis current state	12 th May 2017	22	Eleni Chatzigeorgiou
Passive measures	26 th May 2017	19	Ivan Luque Segura
Active Measures	23 th June 2017	21	Paolo Civiero
Management	22 th September 2017	15	Simona D'Oca
Financial aspects (cost & benefit, cost optimal, etc.)	29 th September 2017	15	Marilisa Cellurale
Monographic sessions by typology			
Health care	9 th February 2018	14	IVE
Residential (social housing)	2 nd . March 2018	15	Emilia Romagna
Office	4 th May 2018	13	CRES
Educational	4 th May 2018	13	AMORCE
Singular	25 th May 2018	7	GOZO
Total registered ONLINE PLATFORM		47	

(*)This number is for attendees in streaming, the participants can access to the recorded sessions according to the virtual classroom.

Table 9. Number of target groups participating in capacity raising activities on energy efficiency for public buildings

6.2. Regional Training

Each partner is responsible of the development of the Regional training courses adapted to the regional situation, and taking decisions regarding:

- How is going to develop the regional training sessions: methodology (face to face sessions, visits to the buildings, supported by external expertise, recording videos, webinars,)
- how is going to organize groups-only :for regional administration, for typology and expected results (number of sessions and numbers of persons involved from regional administration)
- How they are going to participate in the design of the roadmap energy of pilots

The training will be in the original language of the country and will be focused on:

- ✓ Technical, referring to the buildings envelop and service facilities
- ✓ Management, evaluating ongoing organization and processes



- ✓ Economic, to optimize energy supply contracts and exploit opportunities to access to funds and incentives.

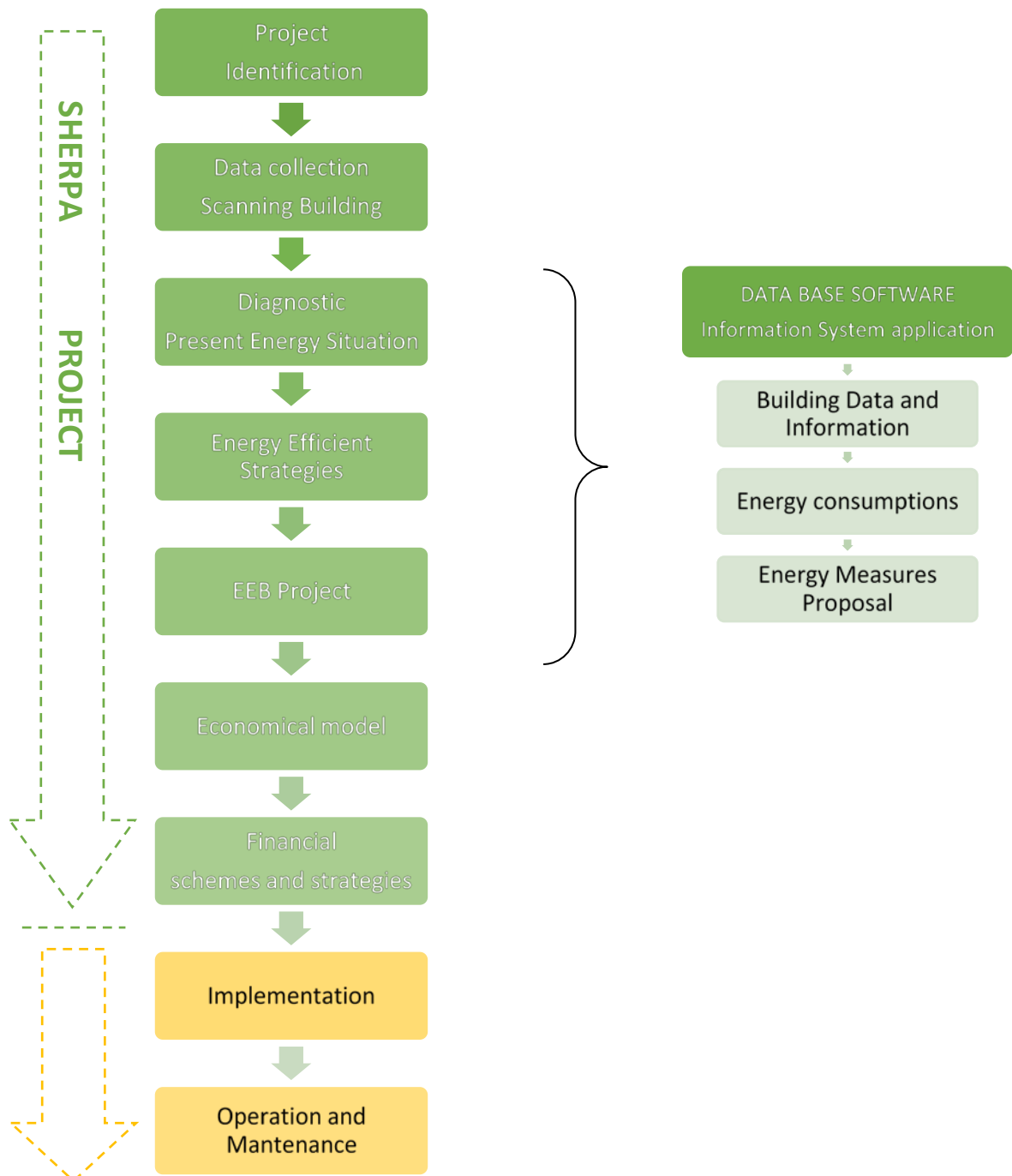


Figure 3. Scheme of SHERPA Model Evaluation



An important issue is the right timing for the organization, sending of invitations, and the implementation of the workshops. A proposed programme of the Workshops is the following:

10 min	Registration and presentation of the participants
Session 1	Framework and tools for improving the energy efficiency of SHERPA PUBLIC buildings
10 min	Welcome and introduction
10 min	The SHERPA project – Structure and goals
30 min	National and European framework for energy efficiency in buildings National mechanisms for funding energy projects
30 min	Presentation of the pilot projects selected
<i>Duration approx. Session 1: 1h 20min</i>	
20 min	Break
Session 2	DESIGNING Energy renovation PILOT PROJECTS
30 min	Technical solutions for the pilots (active and passive) Working session with experts
10 min	Presentation of results & Discussion
30 min	Technical solutions for the pilots (management and economics) Discussion
10 min	Presentation of results & Discussion
40 min	Round table: Achieving energy efficiency in public buildings – results and conclusions
<i>Duration approx. Session 2: 2h 10min</i>	

Figure 4. Proposal agenda Regional Training

The number of sessions developed by partner is:

Partner Name	Number of sessions developed
LP0 - Government of Catalonia	8
P02 – IVE	5
P05 - Emilia Romagna Region	4
P06 - Lazio Region	3
P07 - Abruzzo Region	3
P08 - Gozo	3
P09 – DUNEA	2
P10/11 - Region of Crete-CRES	5

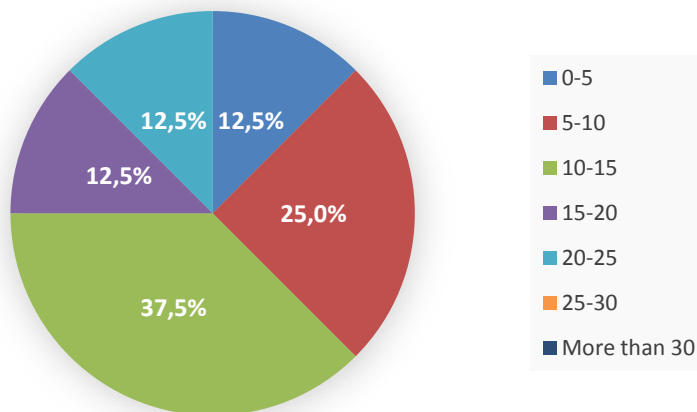
Table 10. Regional Trainings Sessions



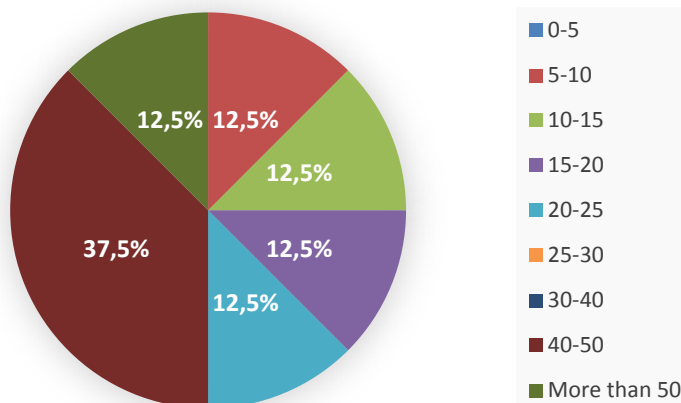
Main indicators on people trained through Regional Training phase:

Main indicators on people trained through Regional Training phase

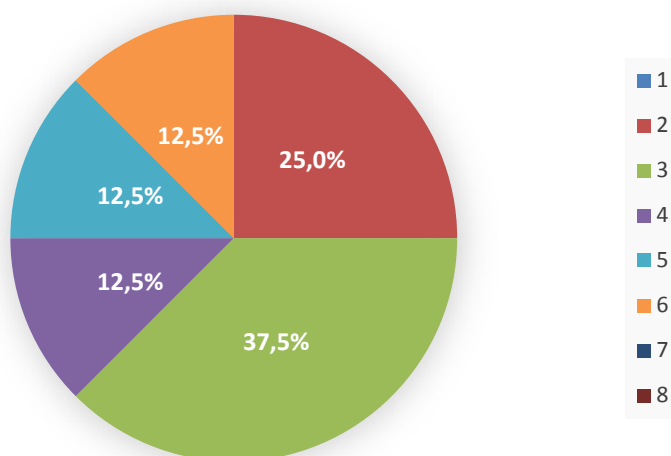
Number medium of people each session



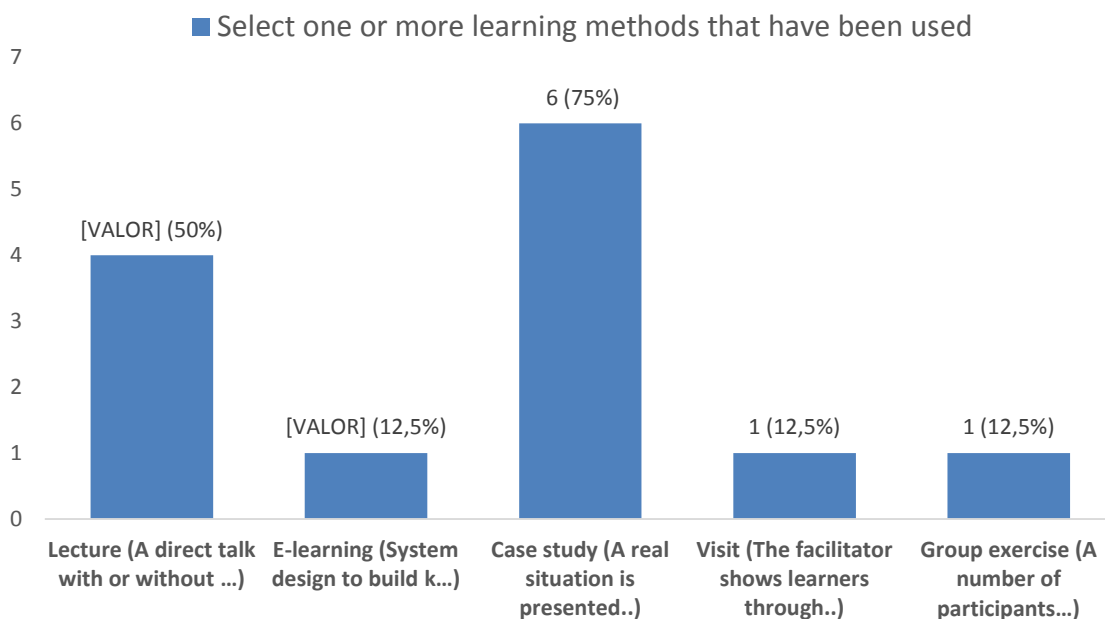
Total of people trained in Regional Working Sessions



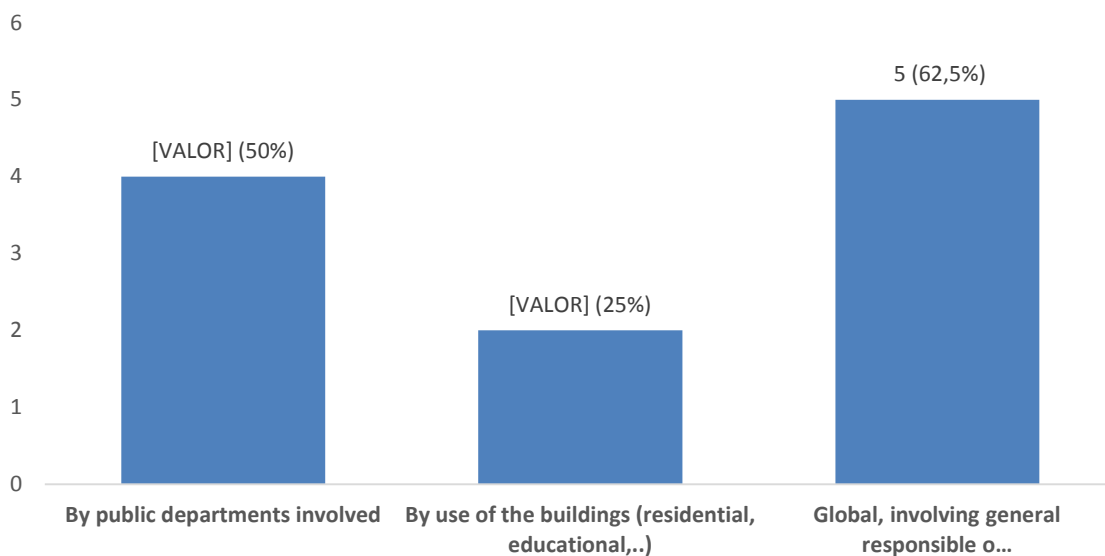
Total number of "teachers"/"leaders" of the sessions



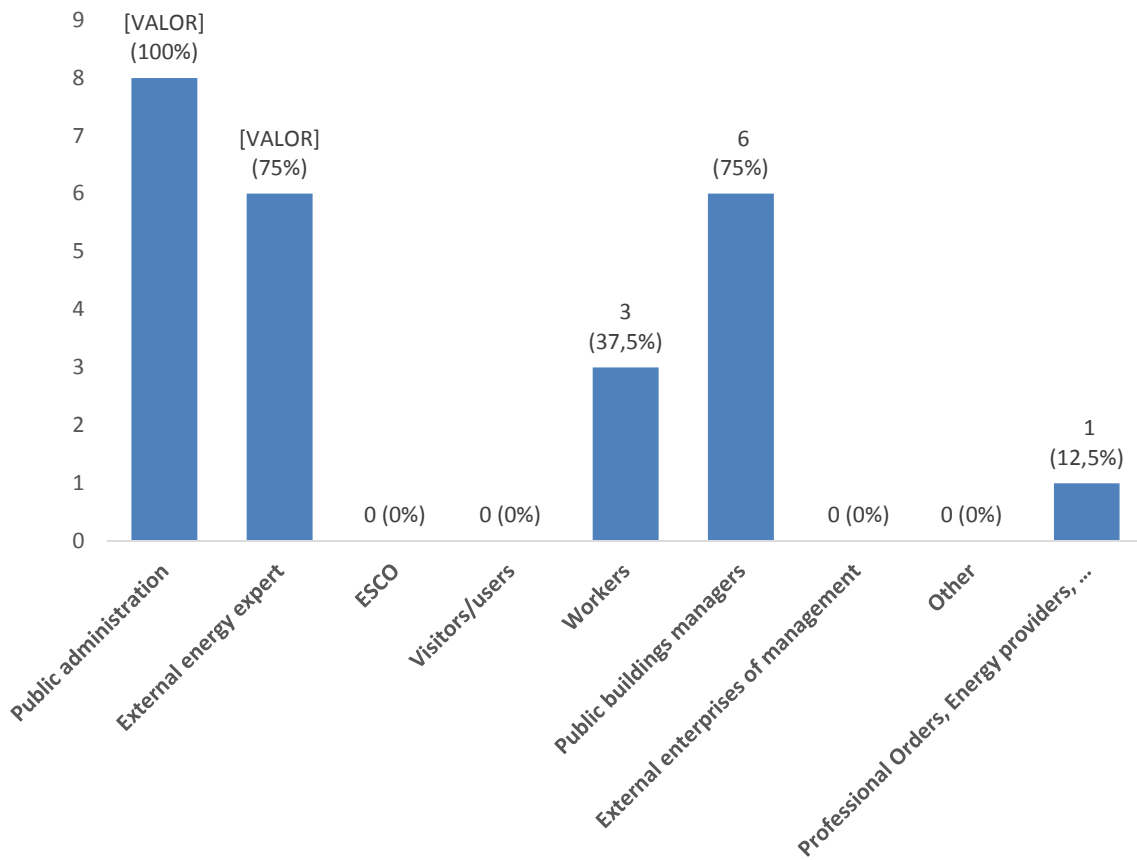
Training methodology



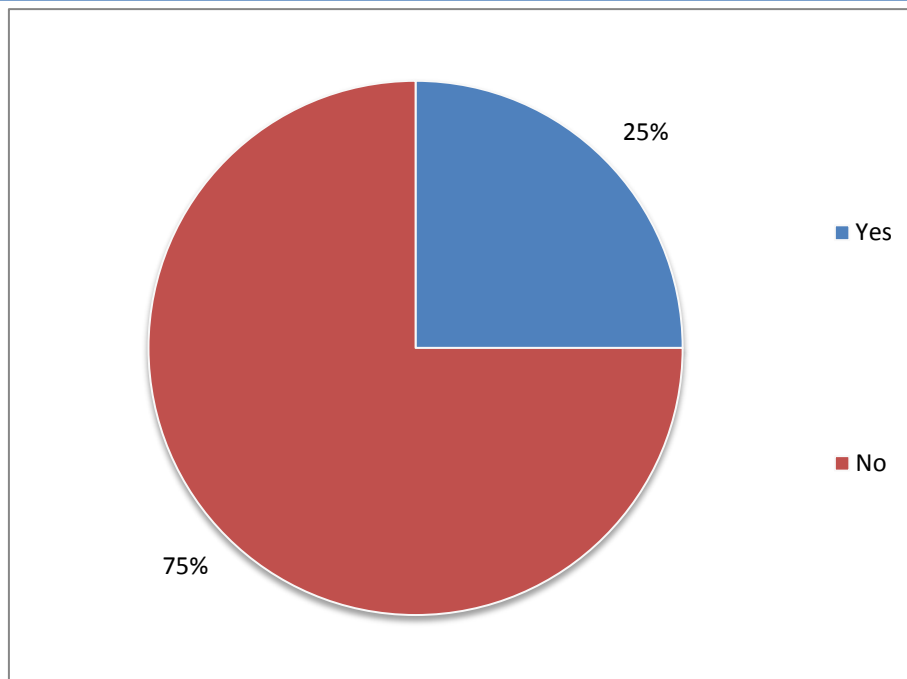
Structure of the sessions



Profile of the attendees



Have the attended been always the same people?



In view of the indicators shown, we can conclude that regarding:

1. *The number medium of people attending each session*, in the 62,5% of the sessions the number of attendees was between 5 to 15 people. In 25% of the occasions the number of the attendees was higher than 15 people (between 15 and 25 people), never exceeding the number of 25 attendees.
2. *Total of people trained through Regional Working sessions*, 50% of the partners involved in the Regional Training Phase have reached around 50 people trained through the Regional Training sessions, while the other 50% of partners have reached around 20 people trained.
3. *Total number of teacher/leaders of the sessions*, 62,5% of the partners involved in the Regional Training Phase have turned to 2-3 trainers in the Regional Training sessions, while 37,5% of partners have turned to 4-6 trainers.
4. *Learning methods that have been used*, the most used method (in 75% of the cases) was the *Case study*, followed by *Lecture methodology* (50% of cases). Other methods were used occasionally as: E-learning, Visit or Group exercise.
5. *How the sessions were structured*, there was a balance between the ones that organised sessions depending on the public departments involved and the ones that organised the sessions under a global point of view.
6. The professional profiles to which the sessions were mainly oriented are: Public Administrations, External Energy experts, and Public Building Managers. Some partners also included Workers and Energy providers & other professionals.
7. People attending the sessions, only 25% of the partners (2 of 8) involved in the Regional Training Phase counted on the same people attending the different sessions. The rest of the partners varied the attendees to the sessions.



7. Conclusions

All the work developed in the framework of Working Group 3-TRAINING has allowed us to reach the following conclusions and lessons learned:

- Different formats should be used in the training in order to make the learning experience as efficient as possible and to accommodate geographical dispersion.
- Exchange on specific challenges you encounter while implementing the EPBD has demonstrated to be a good dynamic mechanism.
- The participation of specialized experts has made it possible to learn about concrete and feasible measures to increase the energy efficiency of public buildings.
- How green skills can systematically be provided to the labour market following the proposed training methodology.
- Practitioners can lead us to the best trade-offs between energy savings and cost-efficiency.
- Exchange with international experts from across Europe and face to face discussion on particular cases enriches an active learning on feasible and proved measures.
- The use of an on-line learning platform (TELLMED) has proved to be a perfect tool for the training of all the experts involved in the development of energy renovation projects of public buildings, since it is perfectly adapted to their needs, allowing interactive learning with experts from different fields, with technicians from other administrations that have already developed similar projects (with the same technical and implementation difficulties), and collecting all the knowledge generated to enable the later replication by other administrations.



8. Annexes

8.1. Annex I. Skills profile evaluation

A knowledge and skills assessment evaluates the participants’ level of prior knowledge, as well as previous training and experience, in the area of interest. The results of this assessment are used to develop the training learning objectives, and ultimately, the content.

Competency mapping questionnaires consist of a list of questions standardized (level: low, medium, high). It has been prepared solely for the purpose of competency mapping which the attendees are expected to fill.

Position in the Organisation	KNOWLEDGE & EXPERTISE	LEVEL	DEVELOPMENT FOCUS (declaration onm interest in specific topics)
	General structure energy renovation project		
	Analysis & Diagnosis current state		
	Passive measures		
	Active Measures		
	Management		
	Financial aspects (cost&benefit, cost optimal,etc)		
	Action plan real energy renovation project		
		LOW	
		MEDIUM	
		HIGH	



8.2. Annex II. List of experts Phase I

	General structure of an Energy Renovation Project	Daniel Satue Engineer. Lavola UPC-ETSEIB - (ES)
	Analysis & Diagnosis current State	Eleni Chatzigeorgiou Energy & Sustainability Consultant, MEng, MSc Centre for Renewable Energy Sources and Saving (CRES)
	Passive measures	Ivan Luque Segura Building Engineer Energy Efficiency in Buildings, Bio- Climatic Architecture and Integrated Urban Models
	Active measures	Paolo Civiero Architect PhD in Refurbishment and retraining of built environment Sapienza University of Rome, PDTA Dept
	Management	Simona D'Oca PhD. Arch. Researcher Project Leader Huygen Installatie Adviseurs Lawrence Berkeley National Laboratory Maastricht, Limburg Province, Netherlands
	Financial aspects	Arch. PhD. Marilisa Cellurale Sapienza University of Rome - ItalyPDTA, Dipartimento di Pianificazione, Design e Tecnologia dell'Architettura



8.3. Annex III. Template report training

 <p>Project co-financed by the European Regional Development Fund</p>	Event title
Date	
Partner	
Venue	
Organizer	
Nº Participants	
Summary of main results and Feedbacks	



8.4. Annex IV. Training proof

DOCUMENTARY PROOF			
Type of evidence	Available (yes/not)	If no-explain why	Link
Agenda & posters			
Additional material			
List of channels for dissemination			
Pictures			
Scanned signed lists of attendees			
Materials: presentations, tests, etc.			
Scanned signed certificates of attendance			
List of channels for dissemination			



8.5. Annex V. Virtual classroom TELLMED

TELL-MED Platform (Teaching Engaging Listening & Learning) : TELL-MED Platform offers a solution for these barriers by developing and maintaining an Open Education Platform for Continuing Professional Development for professionals in the Mediterranean area. This platform addresses technical profiles, policy markers, etc.

The Training action has used an innovative mutual learning platform to increase professionals' skills and capabilities towards the Energy Efficient Retrofitting (EER) of buildings. EER competences and skills required in new employment opportunities are relatively new and not included in curricula from the last 30 years. That explains the lack of capacities among professionals related to this issue. To train EER workforce, the Mutual Learning approach is identified as a wise solution to develop a more flexible and open environment for accessing to this training needs. This way, the TELLMED platform is applied as a training practice in which learners interact with other learners to share and validate knowledge, thus facilitating new opportunities on the labour market.

The platform is based on MODDLE Moodle is the open source platform that lets you build the perfect education solution for your needs. With customizable management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals. Moodle (acronym for modular object-oriented dynamic learning environment) allows for extending and tailoring learning environments using community sourced plugins

Building professionals can improve their energy efficiency skills using an online platform.

Training materials are freely available to help architects, engineers and other professionals better design and build low energy renovations projects for public buildings.



Practical information

Indications, practices, about the course, content program, evaluation criteria, faculty, schedule, contacts, location or webinar et



Content courses

The documentation of the sessions will be available (presentations of the teachers in pdf) as well as the documentation of the remote sessions (videos in deferred and presentations in pdf)



Complementary material (bibliography)

Related publications, links of interest, videos, texts, audios, articles, etc.



TEST

Optionally, one or more test-type tests can be performed throughout the course.



FORUM, MESSAGE, NOTICES

Open communication between teachers and students for consultation, resolution of doubts, etc.



