



SKILLS  
INSTRUCT  
INSTRUMENTS  
CONSTRUCTION

## New legislative frameworks



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## D3.3 New legislative frameworks

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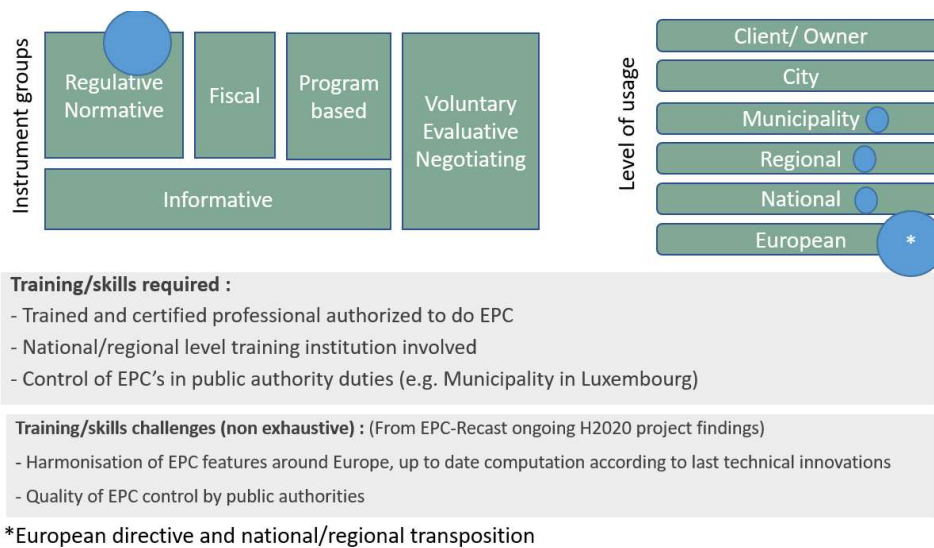
**Glossary**

<b>Acronym</b>	<b>Full name</b>
AEC	Architecture, Engineering and Construction
CA	Consortium Agreement
CEDEFOP	European Centre for the Development of Vocational Training
EC	European Commission
EASME	The Executive Agency for Small and Medium-sized Enterprises
EQF	European Qualifications Framework
ERD	Entity Relation Diagram
GA	Grant Agreement
PC	Project Coordinator
WP	Work Package
TL	Task Leader
DoA	Description of Action
PSC	Project Steering Committee
SQM	Scientific and Quality Manager
DEC	Dissemination and Exploitation Committee
KOM	Kick-off meeting
ASM	ASM – Market Research and Analysis Centre
VET	Vocational Education and Training
VTT	Technical Research Centre of Finland
LIST	Luxembourg Institute of Science and Technology
RIL	Finnish Association of Civil Engineers
CU	Cardiff University
R2M	Research to Market Solution France
DTTN	Distretto Tecnologico Trentino
ENEFFECT	Center for Energy Efficiency EnEffect
GER	General Exploitable Result
AB	Advisory Board
PM	Person month
M	Month
LO	Learning Outcome
NZEB	Near Zero Energy Building
ECSCO	European Construction Sector Observatory

## 1 Executive summary

Legislative frameworks for enhancing energy/environmental performance of building sector are put in place all over Europe. Some of them are transposed from European regulations and some other are completely developed at regional or national level. This deliverable describes the methodology used to identify the current regulation and legislative mechanisms that will strengthen the recourse to skilled workers. The legislative landscape in Europe is not easy to figure out on a skills and trainings point of view, therefore a sorting and a listing of these mechanisms are proposed. The training and certification are emphasized for those mechanisms. As detailed in deliverable 2.1, the energy efficiency is well correlated with the trainings of stakeholders. Relying on the work achieved in task 3.1 as well as the feedback from demonstrations of WP4, some challenges and ideas of new regulations and legislative mechanisms that will strengthen the recourse to skilled workers are presented.

A structured way for sorting legislative framework instruments is proposed. Based on literature, it encompasses several group categories: *Regulatory and normative* instruments, *fiscal* instruments, *program-based* instruments, *voluntary* instruments, covering *evaluative* and *negotiating* instruments, *informative* steering instruments, which are often used in connection with the three first groups. The level of usage is also defined as well as some fields dedicated to our concerns: training and skills. This leads to a consistent and easily readable way to illustrate the legislative instruments, as presented on Figure 1.



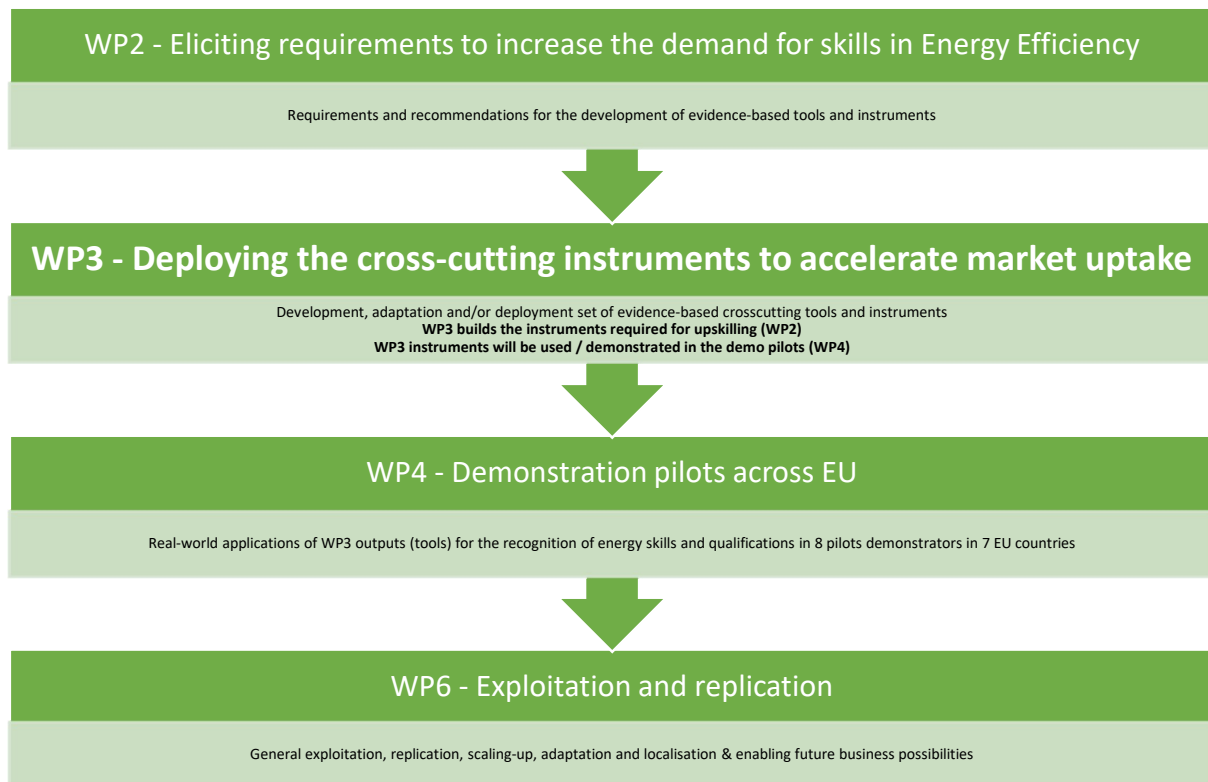
**Figure 1: INSTRUCT approach to illustrating and sorting of legislative frameworks (example of the Energy Performance Certification)**

## 2 Introduction

The various analyses and market activities conducted in INSTRUCT WP2 have highlighted the need for novel, adapted instruments, enabling to tackle the key challenges faced by the construction sector in relation with energy efficiency of built assets.

WP3 aims to formulate those instruments which will be then used by the project partners to address the market through real-life demonstration pilot activities which are foreseen in WP4. Particularly, this document focuses on legislative and regulatory instruments currently in use and what the project partners propose for new future mechanisms.

Figure 2 summarizes the links and rationale amongst these activities.



**Figure 2: WP3 in the project course**

In the following sections, a presentation of the methodology followed to address legislative instruments is proposed. Then a description of the legislative instruments considered in the project is given, including the proposal for future developments.

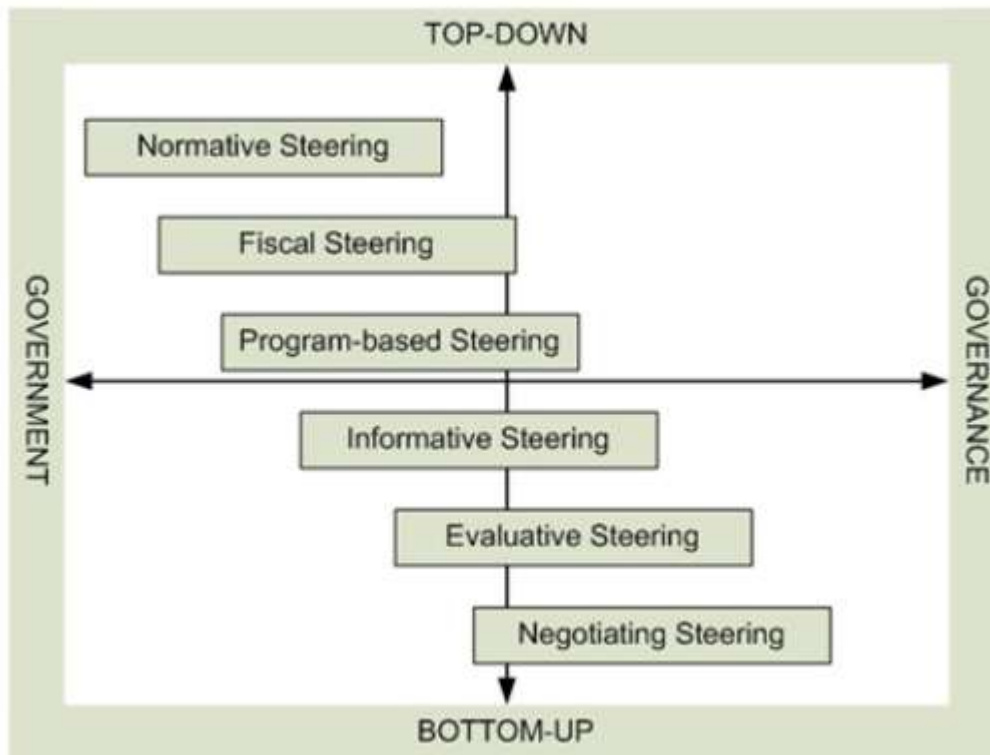
### 2.1 Methodology

As there are many steering methods under legislative instruments for energy efficient and sustainable building, a specific structure is developed. INSTRUCT relies on other existing frameworks explaining policy steering instruments on the level of societal development (city planning, district interventions) in civic societies. The same framework is usable for the levels of property management and investment



projects, especially from the viewpoint of professionals and public building owners and clients (Tarja Häkkinen, 2016).

Further the conceptual framework defines steering instruments by their usage in two ways: amongst more government-oriented or more governance-oriented approaches, and amongst bottom-up and top-down approaches. This is illustrated in Figure 3, taken from (Raine Mäntysalo, 2009).



*Figure 3: Conceptual framework of steering activities (Raine Mäntysalo, 2009)*

## 2.2 Sorting the different aspects in the frameworks

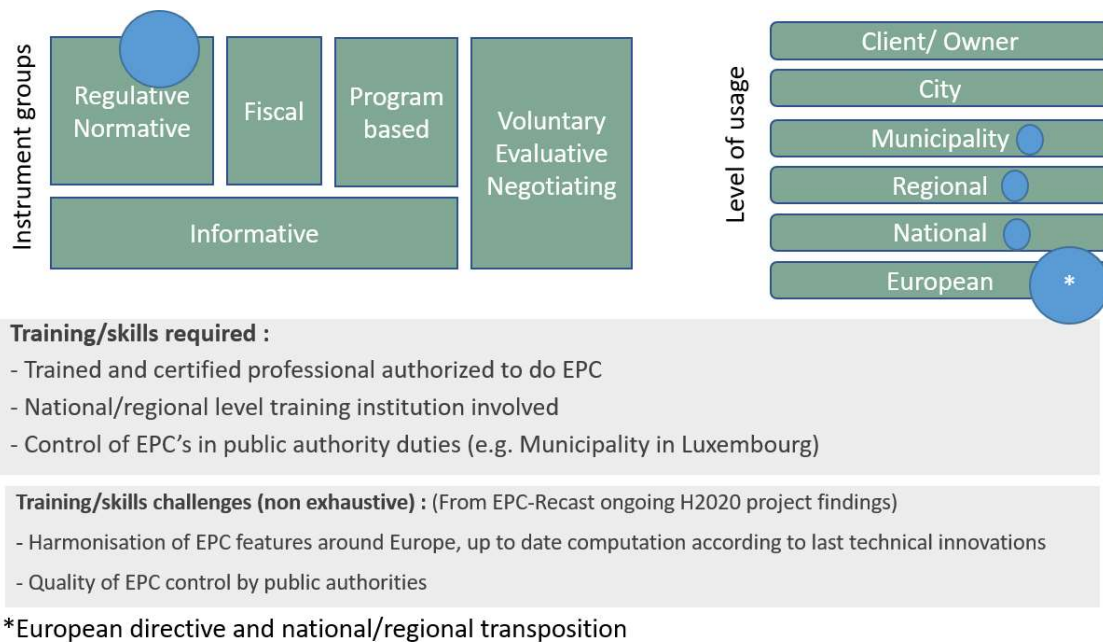
For INSTRUCT analysis we defined more aspects to the framework. A clarification between regulatory, normative and voluntary instruments was indeed required. The grouping of instruments resulted in 5 groups:

1. Regulatory and normative instruments
2. Fiscal instruments
3. Program based instruments
4. Voluntary instruments, covering evaluative and negotiating instruments
5. Informative steering instruments, which are often used in connection with the three first groups

The other aspect required was to enable the definition of the level of usage for a method. Six levels of usage have been considered: (1) European, (2) National, (3) Regional, (4) Municipality, (5) City and (6) Client/Owner level. Often, a method belongs to only one group but can be used in many levels.



Finally, the methodology defined above leads to a consistent and easily readable way to illustrate the legislative instrument.



**Figure 4: INSTRUCT approach to illustrating and sorting of legislative frameworks (example of the Energy Performance Certification)**

## 2.3 International workshop organisation

### 2.3.1 Context

The task partners decided to organize an international workshop in the frame of the WP3. The legislative frameworks present in Europe are usually resulting the application from European directives, but with a certain latitude in transposing them in National or Regional context. Meanwhile there are plenty of locally developed and implemented instruments, these are not a lot spread into other countries and regions. Moreover, the instruments encompass many stakeholders and thus many skills/competences distributed along all the value chain.

Several instruments (legislative, fiscal, voluntary) are useful to take the specificities of each sector into account. An overview of the demanded skills/competences in a certain region/country is hard to formulate because of the multiple instruments and workers involved.

Sharing initiatives and experiences seems to be a good idea to enhance future instruments and propose adequate improvements.

The online workshop has been held on the 16<sup>th</sup> of June 2022, it was opened to the public at large but a personal invitation was made to the selected authorities and representatives from trade unions and specific organizations in the field of sustainable public procurement, competences management, training, or policy steering. Content and detailed agenda of the workshop can be found in annex 1.

### 2.3.2 Objectives and content

A combination of plenary presentations and breakout rooms has been scheduled to **present the various instruments from several countries and to discuss with the audience on possible implications**. Related to one of the project objectives “*pave the way to legislative changes by supporting public authorities and industrial stakeholders for the development of new legislative frameworks*”, the workshop objectives were defined as well as its expected outcomes:

#### Objectives

- Share the status of legislative frameworks related to sustainability competences and skills in different countries and regions
- Share best practices examples and discuss ideas, methods and roadmaps
- Show the policy steering landscape from the point of view of workers qualifications

#### Outcomes

- Explore ideas to improve policy instruments and incentives based on shared cases
- Identify what are the training needs, how skills are demanded in each instrument
- Assess gaps between real and expected skills in energy efficiency in Europe

The organisers had the pleasure to host the following speakers from France, Finland, Italy, United Kingdom and Luxembourg. Introduction and conclusion as well as breakout sessions were handled by project partners:

- Overview of Local Competence Accreditation Bodies for Energy Efficiency Skills in Europe (*Mohaddeseh Maktabifard, R2M Solutions, France*)
- Embedding sustainability in our programmes – the Cardiff University perspective (*Cardiff University, United Kingdom*)
- Regulative steering, Sustainable public procurement, and the criteria framework (*Simon Le Roux, Ministry of Environment, Finland*)
- Policy instruments and adaptation: Energy audits, Energy effective Contracts (*Harri Heinaro, Motiva, Finland*)
- Voluntary scheme for environmental performance: Klimabonus (*Sarah Juchems, Klima-agence, Luxembourg*)
- Super Ecobonus 110%: a super-innovative tax allowance to stimulate the renovation market (*Gabriella Azzolini, ENEA Agency – Energy Efficiency dept. , Italy*)

### 2.3.3 Conclusions of the workshop

The workshop helped the partners to refine the classification of instruments presented in the paragraph 2.2. In addition, some conclusions were drawn based on discussion with all the participants in the breakout sessions.

Below are the lessons learned related to the **competences management in the instruments**:

- Generally, a **top-down approach** is observed. Central policy makers (state, Europe...) defines the framework, while the sector adapts itself and provides trainings to the workers.
- Sometimes, new skills and competences emerge often in relation with new technologies, therefore **skills and competences need to be regularly updated**, and the needs usually come from the sector itself (bottom – up). Innovation steers new competences definition and set new criteria for future instruments.
- The question of **skills verification/control is raised**. This refers to the understanding of skills, and how to be aware of the real skills of a consultant which has apparently the same diploma/certification than another one.
- In addition, it is well known that there are **issues of communication between actors in the construction sector** across the value chain. Difficulty in having common priorities, language issues on construction sites are barriers that add up to regulatory problems.
- The **roles** demanded by the **Building acts are not clear enough**. Clearer definition of roles, skills, certification required would benefit in a more adequate choice of qualified people, and thus better energy/environmental performance of buildings.
- The **public certification of craftsmen** (leading to subsidies) could be a new way to bring high quality work to the construction site.

**Future actions for research** are foreseen in relation to:

- Proofing of competences (find a way to proof and maintain competences in various domains).
- Improve motivation for upskilling (e.g. subsidy granted to projects with accredited professionals).
- Crosscutting instruments need to be developed ( e.g. funding energy renovation works & site technical concerns & granting subsidies & ...).

### 3 Examples of legislative frameworks in Europe

The content presented in this chapter is related to the INSTRUCT international workshop held on 16<sup>th</sup> June 2022 entitled “Legislative frameworks for enhancing demand of sustainability skills in building sector”. For each mechanism, a short description is presented as well as the structure defined above:

- Instrument group
- Level of usage with targeted audience
- Training and skills required
- Instrument possible improvements

A graphical view for each instrument is presented in each paragraph.

#### 3.1 Superbonus Initiative in Italy

Superbonus is a **fiscal incentive** introduced in **Italy** by the so called “Relaunch Decree” in May 2020. It aims at boosting a massive renovation of existing **residential buildings**, fostering the achievement of national climate and energy efficiency targets. In parallel, the measure has been designed to stimulate the recovery of the construction sector and the domestic economy severely hit by the Covid-19 crisis. Put beside other existing incentives for building renovations, Superbonus consists of a 110% tax deduction rate for eligible renovation costs originally incurred from 1<sup>st</sup> July 2020 to 31<sup>st</sup> December 2022. This deadline has been further extended until 2025 under the Italian budget law 2022. Since then, new deadlines and deduction rates have been set, decreasing from 110% to 65%, depending on the single year and on the eligible applicants (Agenzia delle Entrate, n.d.).

The main applicants are **homeowners, housing cooperatives, non-profit, social and voluntary organisations**, whereas eligible buildings are single-family buildings, apartment buildings (“condominiums”) and social housing.

Superbonus must cover at least one of the following leading interventions:

- Energy efficiency improvements: more than 25% thermal insulation of the external envelope replacement of the existing heating systems
- Seismic structural improvements increasing building safety and resistance to earthquakes.

Leading interventions can be combined with additional and secondary ones, such as replacement of windows/doors/frames; installation of photovoltaic systems; e-vehicles charging infrastructures.

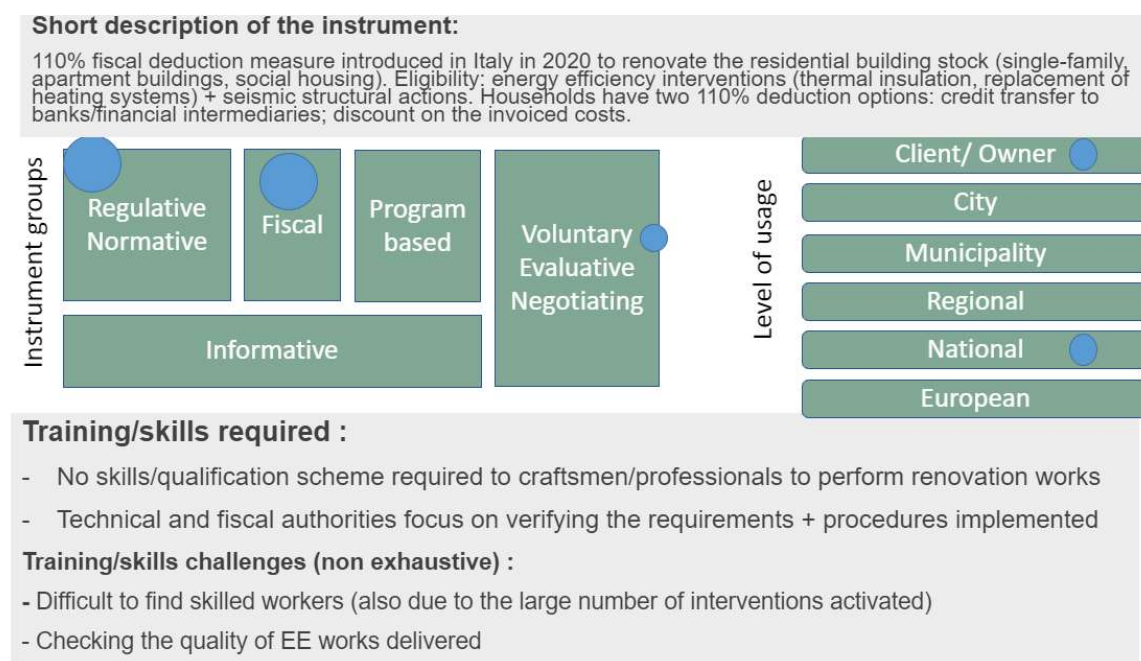
Considering the 110% deduction rate, applicants may choose between different options to benefit the scheme (European Construction Sector Observatory, 2021):

- Directly bearing the renovation costs – subject to a cost ceiling - and get a 110% deduction over a 5-year period (4-year from 2022 onwards).
- Credit transfer to banks and financial intermediaries, obtaining immediately the liquidity.
- Invoice discount up to 100% for the renovation costs incurred. Firms in charge of the works receive a tax credit equal to 110% of the discount applied.

The governance of Superbonus is overseen by the Ministry of Economy and Finance (annual budget setting), the Ministry of Ecological Transition (technical requirements), ENEA Agency (management authority) and the Revenue Agency (fiscal authority and audit).

In terms of procedures – at least for energy efficiency interventions – Superbonus applicants must appoint a technician to perform an ex-ante eligibility check of the intended interventions. Contracted works must ensure an energy efficiency improvement equal to 2 energy classes, to be proved through an EPC issued before and after the works. Upon completion of works, together with the EPC, the appointed technician must send electronically to ENEA an assessment document which certifies the compliance with technical requirements and costs ceiling. After receiving an identification code by ENEA, the applicant can claim the reimbursement of the costs incurred.

According to ENEA monthly reports, nearly 244.000 Superbonus applications were submitted by the end of August 2022, with tax deductions allowed around € 43.018 billion (ENEA, 2022).



**Figure 5: Superbonus scheme**

### 3.2 Klimabonus in Luxembourg

The Klimabonus programme aims to make homes more energy efficient, to facilitate the choice of emission-free mobility solutions and to enable us to manage our environment and forests responsibly. This change will be accompanied by measures to support particularly low-income households. It consists of state subsidies for the abovementioned points; the subsidies are granted based on certification of companies achieving the design/construction/installation/renovation of energy efficient feature.

This **instrument group** is a program based fiscal and voluntary as Klimabonus program grants taxes reduction and state subsidies for projects where building owner decides to improve energy/environmental performance.

This instrument is used at **national level in Luxembourg**, every building owner is eligible to apply to it.

Klimabonus involves a Quality Assurance System for construction experts. So, all projects granted will use **trained professionals**. The quality insurance system requires passing exams on following topics: Building envelope, building physics, technical installations, legislation on energy efficiency, legislation on state subsidies. There is a continuous training program (24-hours in 3 years).

The current instrument is already updated with extra subsidies to fight current increase of energy prices. In Autumn 2022, the training requirement is extended to craftsmen. This is real challenge, indeed nowadays there is a lack of qualified craftsmen and no certification in the field of energy efficiency for those people.

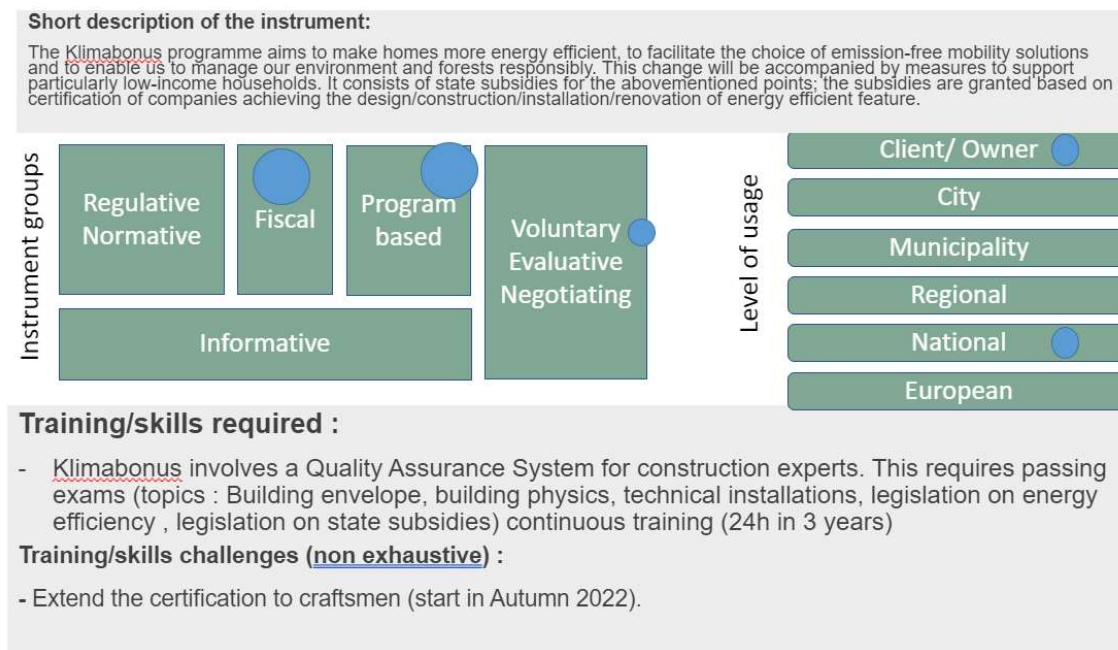


Figure 6: Klimabonus instrument

### 3.3 Public procurement in Finnish context

Strategic public procurement is an efficient **voluntary steering method**, used by **municipalities, cities and social housing** and student housing organisations. In Finland these stakeholders and clients are amongst the early adapters in innovative construction projects in the built environment. Energy efficiency, passive housing, nearly zero energy buildings as well as low carbon buildings are the main stream concepts. Even carbon neutral buildings are piloted, as well as the concept of Nordic Plus Energy buildings. Figure 7 shows the rapid progress toward reaching carbon neutral buildings (including energy efficiency and the use of RES) in Finland. The four steps show the public building owners' progress from year 2021 to 2022. Many owners are now moving from (#1) the early steps with setting low carbon footprint requirements via (#2) calculation of carbon footprint and (#3) minimizing it in every construction project towards (#4) reaching and targeting for carbon neutral buildings.



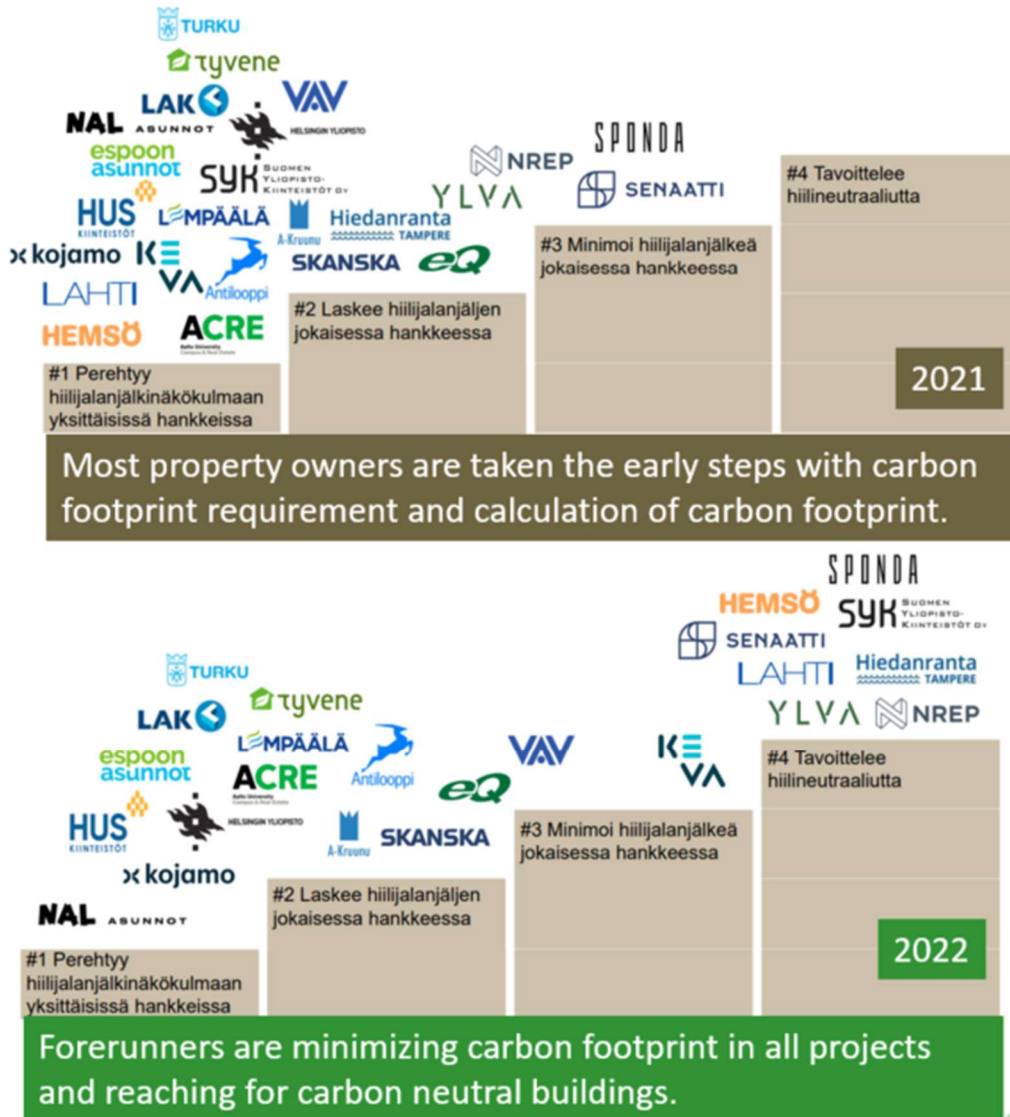


Figure 7: Development steps showing public building owners' rapid progress (from year 2021 to 2022)<sup>1</sup>

The Figure 7 shows development from the early steps with setting low carbon footprint requirements towards reaching and targeting for carbon neutral buildings.

### 3.3.1 Guidelines for sustainability of the built environment

Ministry of Environment in Finland started to develop guidelines as early as 2017. These guidelines belong to **normative and informative** steering groups.

- Guideline for green public construction (2017)

“Public procurement is an efficient way to steer funds towards environmentally responsible construction projects. After the reform of the Act on Public Procurement, using criteria which require environmental friendliness in the description of the subject of procurement or in the selection criteria has become easier than before. This guide presents recommendations to implement in green public building

<sup>1</sup> Figure reference: Presentation by Liisa Jäätvuori, A- Consulting Company in seminar for low carbon buildings <https://www.rakli.fi/wp-content/uploads/2022/03/vahahiilinen-rakennuttaminen-klinikkatkajtkot-30-3-2022.pdf>





### 3.3.3 Skills verification methods

#### Deep methods for competence verification

Skills, knowledge and competence verification methods used in procurement process was studied with help of earlier procurement cases where procurement model itself (such as alliancing model) has been a development target. The cases cover mostly construction or maintenance of different types of transport infrastructure asset. Skills and competence verification methods are part of **voluntary steering methods**, used by clients.

A desktop study related to Demo 4.6 found different kinds of competence verification methods, which are focusing more to skills and knowledge than the commonly used methods, like references or formal qualifications of experts and/or organizations. All the identified methods have been developed and used in public procurement process, where a specific competence area or level or a new, innovative approach for solutions was required. Skills verification methods can be divided by their groups (as professional – team – company level method) and by their level of tailoring (as general methods – procurement type or project specific methods) (Figure 9).

The deep methods for competence verification recognized (with a real-life case examples) are:

1. Design competition
2. Promise based assessment
3. Connecting design and alternatives
4. Showing the competence in a specified presentation
5. Workshops and exam based on project targets
6. Psychological test of the sustainability competence and mindset
7. Development workshop to overcome challenges
8. Exam on needed elements/ competence in the projects
9. Design-built competence
10. Specific development phase
11. Exam connected to procurement type

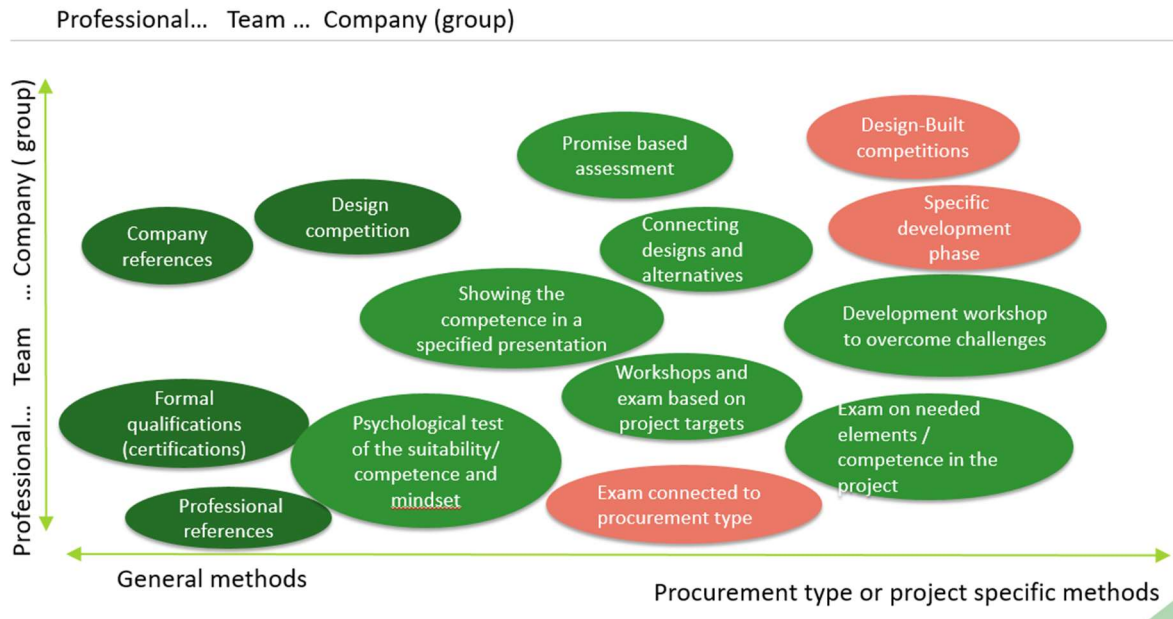


Figure 9: Methods for skills and competences verification studied and grouped in two ways<sup>3</sup>.

#### The INSTRUCT method for competence verification.

When innovative clients are setting goals which are more ambiguous than building as usual (BAU) client reaches the minimum requirements for construction, there is also extra need and place for a team and experts with high level of competence in the relevant substance. The individual reference may help here a bit, but the clients are lacking methods for assessing the levels of required skills, knowledge and competence. Here requirements can be seen quite similar to the novel learning outcomes approach used for training and education. This type of usage case was recognized also in BIMEET project for LO-frameworks. INSTRUCT demonstration 6 will describe a skills verification method to be used for instance in above mentioned use-case by utilising the INSTRUCT LO- framework as matrix for competence target setting and competence assessment.

### 3.4 Regulatory Energy audits in Finland

Finland's Energy Audit Programme (the EAP) started as a subsidy policy in 1992. EAP was developed into a program level activity in 1993 and launched in practice in 1994. The Art. 8 of EED was implemented by the Energy Efficiency Act, which came in to force on 1<sup>st</sup> of January 2015. Energy Auditing program was split into two: **voluntary and mandatory**.

Concerning the voluntary energy audit, the instrument is used by the client/owner, the city, municipality, and also, on a national and European level. Some models for audit reporting for different audit types include: Basic procedure for energy audit, 2 qualified auditors, Co-operation with maintenance department. Subsidised energy audit can be carried out every 3-10 years (40-50 % subsidy available).

For example, Motiva organizes the training of new auditors once per year. There is a 2-day training with supplementary e-learning course and an online exam that trainees have to pass to get the

<sup>3</sup> Figure and analyses by Dr. Pertti Lahdenperä, VTT.

qualification. To enter the course, one has to have at least a 3-year basic education on energy technology (for example on electricity, HVAC, energy technology, industrial processes) or sufficient work experience.

**Ways to improve** the instrument include Monitoring and impact assessment, Quality Control, energy audit models and other tools, qualified energy auditors, training of energy auditors, promotion and marketing.

With regards to the mandatory energy audit, some significant observations include:

1. On-site energy audits (part of the enterprise energy audit) cannot be older than four years in contrast to date of the enterprise energy audit
2. Energy Authority supervises fulfilment of the Energy Efficiency Act
3. Enterprise energy audit every four years

The instrument is used by the client/owner, also, on a national and European level. The law covers all enterprises and corporate groups with:

1. more than 250 employees
2. or annual turnover exceeds €50 million and balance sheet exceeds €43 million.

The law covers all companies owned by a large enterprise in Finland. Enterprise energy audit is performed by enterprise energy auditor, authorized by the Energy Authority. Enterprise energy auditor can be either an in-house expert or an external consultant. Training covers mostly what one should know about the requirements of the large enterprise audits. Supplementary training can be obtained from the voluntary energy auditor trainings.

The energy audits in Finland are illustrated in Figure 10 and Figure 11 .

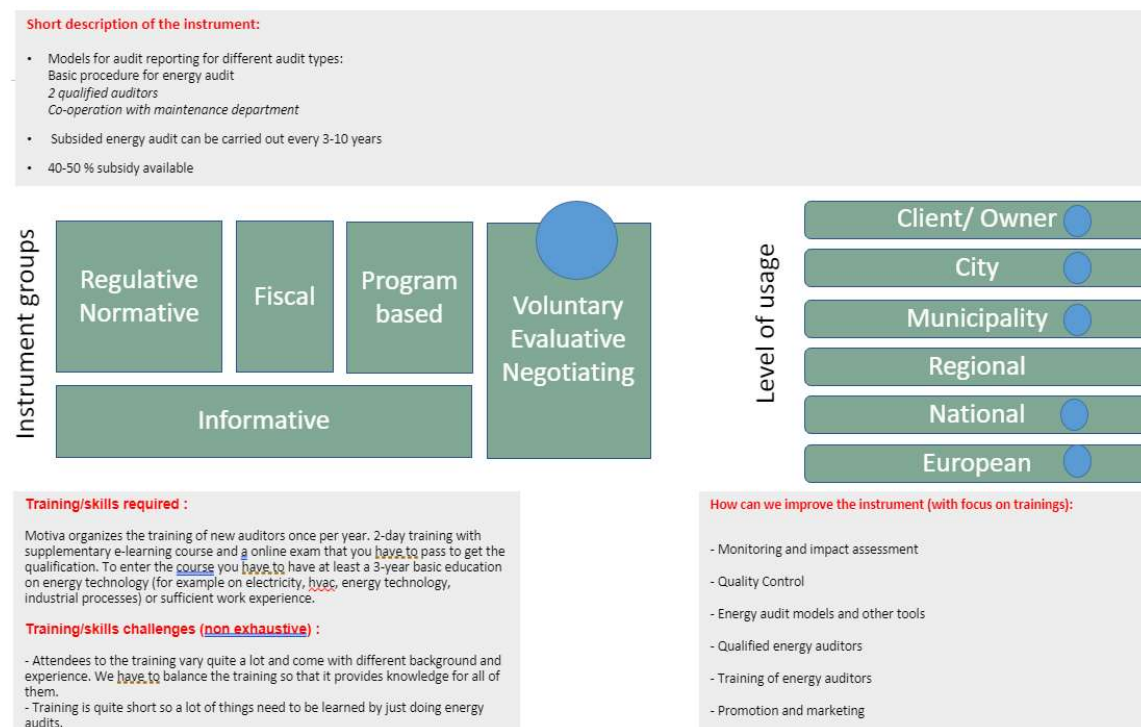


Figure 10: Voluntary energy audit in Finland

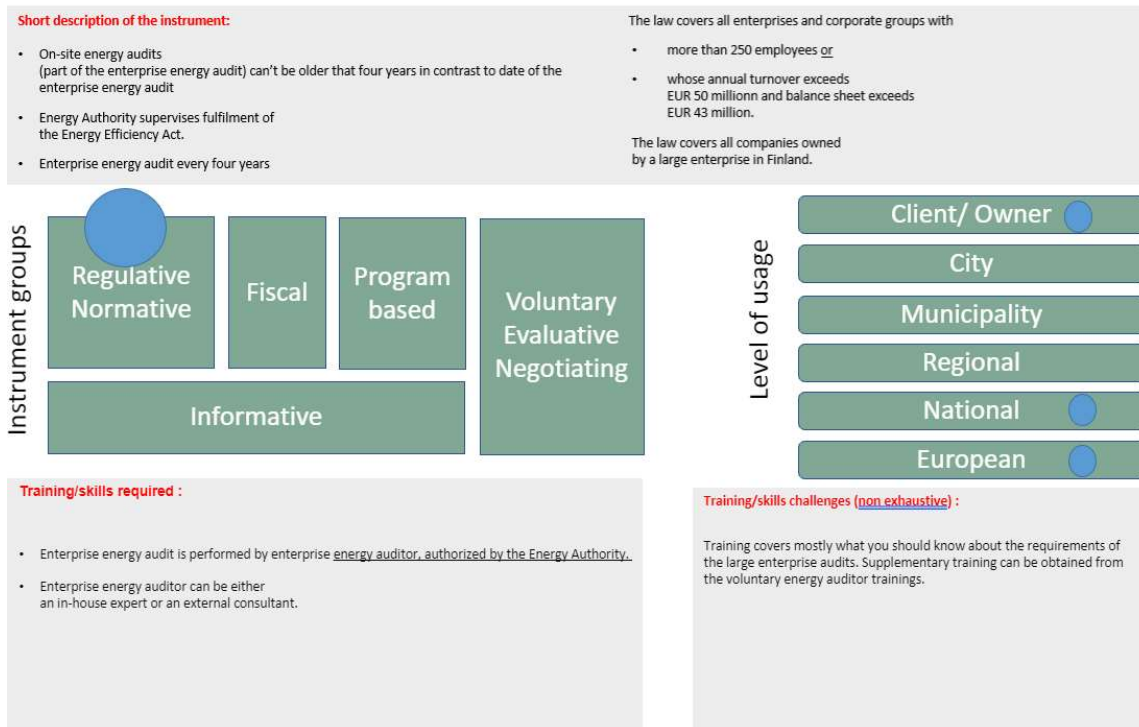


Figure 11: Mandatory energy audits in Finland

### 3.5 Qualification-related legislative framework on public procurement: Bulgarian current situation

Policies at national and supranational level to address climate change and energy efficiency require a multitude of energy efficiency activities and projects to be implemented in a relatively short timeframe. For example, the Integrated national plan in the field of energy and climate of the Republic of Bulgaria 2021-2030<sup>4</sup> envisages measures to encourage public buildings to serve as an example of energy-efficient **public procurement**; in the Long-term national strategy for renovation of the building stock until 2030<sup>5</sup>, the need to establish **legal practices for sustainable and innovative public procurement in the construction sector is specifically pointed out**.

It is also assumed that procurement procedures should allow the setting of qualification and / or experience criteria, as well as setting of requirements for the final result. This is proven by the experience of the implementation of the National programme for energy efficiency in multi-family residential buildings<sup>6</sup> and the public projects executed under the ESIF-based national Operational Programmes, which have shown that there is a distinctive lack of skilled construction workers in the labour market. The expected development of the market for innovative building materials with better energy performance, driven by the emerging EU and national legislation, and the introduction of new technologies and knowledge in the field of energy efficiency and circular, also require that the workers on site are familiar with energy efficiency technologies and materials.

<sup>4</sup> <https://www.strategy.bg/FileHandler.ashx?fileId=20478>

<sup>5</sup> [https://www.me.government.bg/uploads/manager/source/EE/LTRS\\_Bulgaria.pdf](https://www.me.government.bg/uploads/manager/source/EE/LTRS_Bulgaria.pdf)

<sup>6</sup> <https://www.mrrb.bg/bg/energijna-efektivnost/nacionalna-programa-za-ee-na-mnogofamilni-jilistni-sgradi/>



However, **there is still no specific requirement in the national legislation to apply green public procurement** criteria even in cases when the renovation projects are supported by public resources. Even if there are strategic plans at national level and guidance documents developed by the National Procurement Agency, the actual examples are very limited and do not cover any qualifications criteria, mostly due to the lack of experience and established examples, and, hence, the unwillingness of the public procurers to risk court appeals and delays in the projects. On the other hand, the introduction of such requirements is perceived as highly desirable, as precisely this type of projects represent the major market development factor, especially as regards the public buildings, and they have the utmost capacity to set the trends and demonstrate new approaches and technologies.

In order to develop the conditions for faster and unproblematic **implementation of procurement criteria** requiring specific qualification of the contractors, ENEFFECT and Municipal Energy Efficiency Network EcoEnergy have developed and implemented together with the Municipality of Gabrovo a model for public procurement for building renovation requiring on-site training of the contractor's team. These requirements may be supplemented by the Contracting Authority in a separate section to the Technical Specification for construction and installation contracts involving the installation of materials and components related to both the building envelope and the building systems, depending on the specifics of the contract and the specifics of the project. In essence, they consist of a 2-day training programme delivered by an expert consultant on expenses of the procurer, together with a set of obligations for the contractor to carry out the construction works with the workers who have undergone the training.

These model/specific requirements and clauses have been developed in line with EU policies to promote socially responsible and sustainable public procurement<sup>7</sup>. The set requirements and clauses<sup>8</sup> are expected to contribute to a better performance of the contracted works, achieving better results in the renovation of the building stock in Bulgaria, respectively to the reduction of the carbon footprint in the long term. In addition, it will increase the qualification of the workers, respectively their competitiveness. Such clauses in the contracts would also encourage long-term contracts with the trained workers.

### 3.6 EPC Luxembourg situation

As already introduced in deliverable 3.1, legislative framework has a strong impact on the day to day work of professionals in the building sector. It steers the strategies of companies and reduces uncertainties for the future. EPC (Energy Performance Certification), defined under the EPBD, is the one of the main **regulatory instruments** that supports the global energy performance of buildings and contributes to lowering their environmental impact.

***Why is the instrument present in this document?*** EPC is probably the best example to illustrate a legislative framework to various partners all over Europe. It is largely spread and concerns nearly everyone (as a building owner or as a construction professional). Moreover, this instrument is

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<sup>7</sup> [https://ec.europa.eu/info/policies/public-procurement/tools-public-buyers/social-procurement\\_bg](https://ec.europa.eu/info/policies/public-procurement/tools-public-buyers/social-procurement_bg)

<sup>8</sup> Gabrovo municipality (2022) Major repair with reconstruction of the buildings and facilities of the "Summer Theater" complex to create a Youth Center in Gabrovo. Public procurement procedure. Available at <https://app.eop.bg/today/183488>. Last checked: 05.02.2023.

*implemented since several years, which should be enough for collecting feedback on training and skills requirements. Finally EPC is mandatory for each building, this lead to a gigantic impact in terms of energy consumption reduction.*

The **instrument is used at all levels**, the transposition of the European Directive in each country is mandatory, in some countries (e.g. Belgium), the regions are the level of authority responsible of the transposition. In addition, the municipalities are involved for checking EPC linked with building permits. The following lines are related to Luxembourg.

The instrument is mandatory and exists for nearly 10 years, it applies for each new and existing building; unless some exceptions (LEGILUX, 2021). The implementation of the EPC is the routine, and the awareness of the scheme is quite large. As the number of certified people/companies is quite large, this allows a certain competitiveness and availability of trained professional for investors and homeowners.

EPC in Luxembourg must be performed by a trained professional. There is a **mandatory training** without exam. A list of trained people is available for residential buildings<sup>9</sup>, for non-residential new buildings<sup>10</sup> and for non-residential existing building<sup>11</sup>. Those three lists refer to three different trainings that are given by the same training company<sup>12</sup> leading to a certain uniformity in the training content. There is no mandatory course update to be taken by the professional. The training certificate is linked to the company for residential and non-residential existing building. For new non-residential buildings, the certificate is linked to the professional, it is worth mentioning that those people must be registered with the federation of architects and engineers in Luxembourg<sup>13</sup>. The legislative framework has been fully updated recently and merges all information in one regulation (LEGILUX, 2021).

On a skills point of view the possible improvements are related to the **training of people verifying the EPC** and their implementation. Nowadays, the public authorities validate building permit whom EPC is attached. There is a lack of awareness of all the tips and tricks used in EPC for improving artificially the note. Moreover, an **uniformization of the methodology** among countries is required to facilitate implementation of the last updates. In a small country such as Luxembourg, the time and money spent to update the software and methodology are high, this implies slower implementation of new innovative technologies (related to building material or technical equipment) in EPC computation. These are results from ongoing EPC Recast project<sup>14</sup>

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<sup>9</sup> <https://guichet.public.lu/dam-assets/catalogue-pdf/listes-experts-batiments/liste-experts-batiments-habitation/liste-des-experts-pour-batiments-d-habitation.pdf>

<sup>10</sup> <https://guichet.public.lu/dam-assets/citoyens/fr/logement/construction/performances-energie/demande-passeport-energetique/liste-experts-batiments-fonctionnels-neufs.pdf>

<sup>11</sup> <https://guichet.public.lu/dam-assets/catalogue-pdf/listes-experts-batiments/liste-experts-batiments-fonctionnels-existants/liste-des-experts-pour-batiments-fonctionnels-existants.pdf>

<sup>12</sup> Energie agence <https://www.energieagence.lu>

<sup>13</sup> OAI, Ordre des Architectes et Ingénieurs-Conseils, <https://www.oai.lu/>

<sup>14</sup> <https://epc-recast.eu/>



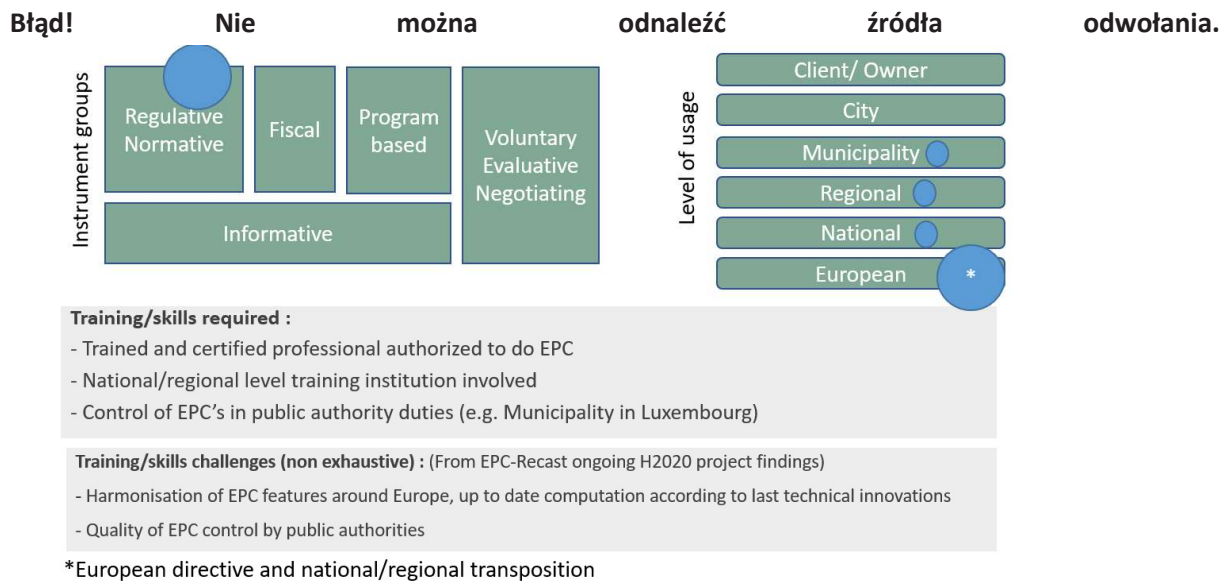


Figure 12: EPC instrument Luxembourg

### 3.7 EPC in Bulgaria

The EPC calculation methodology and the auditing process in Bulgaria are often evaluated as ones of the most sophisticated and precisely formulated in Europe, with the quality of the EPC theoretically fully responding and, in some respects, exceeding the requirement of the applicable EU legislation and EN ISO:13790 family of standards.<sup>i</sup>

EPCs are mandatory for **all new buildings > 250 m<sup>2</sup>**, for **all existing public buildings > 250 m<sup>2</sup>**, and for buildings for rent or sale, although there are still problems with the practical implementation of the later. EPCs for individual apartments are also possible to issue. The certification is performed by trained and accredited energy certifiers, which are either legal entities, with teams which team must include 3 employed energy certifiers (architect/civil engineer, HVAC engineer, electrical engineer), or certified natural persons with one of the backgrounds, who are however limited to audits for buildings <500 m<sup>2</sup>. Currently, 262 legal entities and 22 natural persons are officially accredited to perform energy auditing in Building and issue EPCs. The certification for energy certifiers consists of a **two-week full day training course**, finishing with **examination**. Its content and curricula are prescribed in a special ordinance to the Spatial Act<sup>15</sup>, as the training courses could be organised and performed by 6 pre-selected technical universities in the country possessing the necessary accreditations.

However, despite the well-developed methodology and certification requirements, the share of certified buildings is still very low. There are 5081 residential buildings (single- and multifamily) with 15 195 937 m<sup>2</sup> gross floor area that have an EPC, which gives us a coverage of about 5.4% of the gross floor area of the total number of residential buildings. There are 7730 non-residential buildings with 23 404 813 m<sup>2</sup> gross floor area, as for this type of buildings the coverage is 22.3% of the gross floor area, excluding non-obligated buildings such as military buildings and buildings within the

<sup>15</sup>

[http://seea.government.bg/documents/NAREDBA\\_ERD041\\_ot\\_3012018\\_g\\_za\\_obstogtelstvata\\_podlejasi\\_na\\_v\\_pisvane\\_v\\_registrite\\_po\\_Zakona\\_za\\_energ.pdf](http://seea.government.bg/documents/NAREDBA_ERD041_ot_3012018_g_za_obstogtelstvata_podlejasi_na_v_pisvane_v_registrite_po_Zakona_za_energ.pdf)

manufacturing enterprises. While the cost undoubtedly plays a part for the slow market adoption, it is surely not decisive, as it varies from 2-3 €/m<sup>2</sup> for small buildings to 0.3-0.5 €/m<sup>2</sup> for large buildings. For new buildings, the issuance of the EPC is done on the basis of the calculations presented in the Energy Efficiency part of the technical design documentation. In some cases, if changes are made during construction in comparison to the design, the EPC issuer has to make new calculations and the cost can increase; still a negligible share of the investment costs.

Recent research shows that the actual reason is different: for example, iBroad project<sup>16</sup> survey on the attitudes of active home buyers/renters shows that there is **a general lack of trust in energy advice tools**. Only 26% of owners would trust builders or contractors, whereas 61% would rather trust family and friends<sup>17</sup>

To counteract this negative trend, in coordination with the major commercial banks in Bulgaria, ENEFFECT together with the Sustainable Energy Development Agency has developed and issued a guidebook for homebuyers<sup>18</sup>, focusing on the advice offered by the EPCs, which is expected to be distributed in all bank offices to clients applying for mortgage loans. Additionally, technical working groups are formed for the next-generation upgrade of EPCs within projects as U-CERT<sup>19</sup>, CrossCERT<sup>20</sup> and iBROAD2EPC<sup>21</sup>, with the ambition to promote additional elements as quick and easy step-by-step assessment of renovation projects, recording the individual steps as separate packages within step-by-step renovation plan, integrating SRI component, automated linkage to the national EPC database and possibility for access to digital building logbooks. This is expected to reflect on the requirements for certification of energy auditors, whereas certain inputs from the INSTRUCT sets of units of learning outcomes (ULOs) could be exploited. Within this perspective, the curricula of the certification course for energy auditors is expected to be revised to include the above-listed improvements, which will also be reflected in the training courses and materials used by the universities providing the training and certification service.

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<sup>16</sup> <https://ibroad-project.eu/>

<sup>17</sup> BPIE (2018) Understanding potential user needs A survey analysis of the markets for Individual Building Renovation Roadmaps in Bulgaria, Poland and Portugal. Report under iBROAD project, supported by the Horizon 2020 research and innovation programme of the EU under grant agreement N<sup>o</sup> 754045. Available at <https://ibroad-project.eu/news/understanding-user-needs/>. Last checked: 05.02.2023.

<sup>18</sup> [http://www.eneffect.bg/images/upload/123/Eneffect\\_Digital\\_Brochure\\_260722\\_long.pdf](http://www.eneffect.bg/images/upload/123/Eneffect_Digital_Brochure_260722_long.pdf)

<sup>19</sup> <https://u-certproject.eu/>

<sup>20</sup> <https://www.crosscert.eu/>

<sup>21</sup> <https://ibroad2epc.eu/>

## 4 Legislative frameworks in INSTRUCT Demonstrations

The legislative frameworks presented in this document are obviously relating to the demonstrations pilots of INSTRUCT project (WP4). In this paragraph the matching amongst the demonstrations and the instruments presented is clarified. This link reveals the practical aspects of the instrument implementation and therefore emphasizes some limitations and possible developments for future instruments.

The demo list is presented in Table 1 and the matching between demos and instrument is showed in the Table 2. The matching is described in the following paragraphs.

**Table 1 List of demonstration in INSTRUCT**

<b>Demo 1:</b> Energy skills certifications in Helsinki, Finland (north Europe), Leader: RIL
<b>Demo 2:</b> BIM for Energy Efficiency Training and Standard in Luxembourg (West Europe), Leader: LIST
<b>Demo 3:</b> Partnership with producers, retailers and contractors for energy skills recognition (Central Europe – Poland), Leader: ASM
<b>Demo 4:</b> Energy skills recognition in policy making (Central Europe – Poland), Leader: ASM
<b>Demo 5:</b> Initiatives for building and homeowners (South Europe – Italy), Leader: DTTN
<b>Demo 6:</b> Energy gap reduction and initiatives for building owners (North and European level), Leader: VTT
<b>Demo 7:</b> Engaging key stakeholders to stimulate demand of energy skills (Eastern Europe - Bulgaria), Leader: Eneffect
<b>Demo 8:</b> Developing capacity for supply of continuing qualification services through blended learning systems (Eastern Europe - Bulgaria), Leader: Eneffect

**Table 2: Use of legislative framework in INSTRUCT demonstrations**

Instrument	Demo 1	Demo 2	Demo 3	Demo 4	Demo 5	Demo 6	Demo 7	Demo 8
EPC		X				(x)		
Klimabonus			X		X			
Superbonus					X			
Energy audits							X	X
Sustainable procurement	X			X		X	X	X

**Demo 1** focuses on increasing Energy skills certification and the demand for certification. First Energy Efficiency schemes are designed together with local cluster including FISE Finnish Certification body, Ministry of Environment, City of Tampere (building owner), Energy Authority and Finnish

Association of Architects and Finnish Association of Civil Engineers. After design of EE schemes the EE schemes will be implemented in EE courses to enable certification.

The task includes the testing of EE as a part of project management certification. In Demo 1 the material of demo 6 was used to improve sustainability of the procurement of the projects of the attendees. The local actors involved in testing are: FISE, Finnish Certification body, Ministry of Environment (responsible for building energy efficiency legislation), City of Helsinki, Energy Authority, ATL (Finnish Association of Architect companies), RIL (Finnish Association of Civil Engineers).

In Finland the FISE, Finnish Certification body, is preparing a new certification for the sustainability experts on construction sector in co-operation with the demo leader RIL (Finnish Association of Civil Engineers). Demo 1 results will be used as part of that certification requirements.

In **demo 2**, the question of use of BIM for energy efficiency is tackled, especially for new building projects. The need of a standardized methodology has raised to compute the building energy use in an efficient way (quick computation and advice to the design team with recurring project modifications). The energy performance certification (EPC) is a standardized way particularly adapted to energy use computation. Some trainings developed in the frame of demo 2 (namely “*BIM for EPC, ArchiCad and Revit workflows with LESOSAI*” and “*BIM for EPC*”) aim to evaluate the possibility of use BIM for semi-automatic energy computation with the EPC methodology. The main finding related to the EPC legislative frameworks is a **lack of global European approach leading** to many computer programs for doing the same thing in different countries. The EPC programs have to be adapted to achieve BIM integration, this seems to be slow and difficult due to the small budget devoted to maintenance of programs. On a skills point of view, the learning should be carried out on as many programs as there are countries and regions where the expert works. BIM is standardized in an international way, thus conversion to a more local EPC methodology seems to be a waste of time/money for building design experts and software development.

**Demo 3** addressed partnerships among the construction value chain which are essential for achieving energy efficiency in the sector. The construction value chain involves various stakeholders, such as architects, engineers, contractors, suppliers, and clients. Each of these stakeholders plays a vital role in delivering energy-efficient construction projects.

Collaboration among these stakeholders is essential to achieve energy efficiency goals. By working together, they can ensure that energy efficiency measures are implemented at every stage of the construction process. This includes designing energy-efficient buildings, using sustainable materials, and using energy-efficient technologies during the construction process.

Moreover, partnerships among the construction value chain can also help in recognizing energy efficiency skills among construction workers. During demonstration number 4, various activities were performed to inform construction workers on energy efficiency measures. These activities helped workers and other actors to understand the importance of energy efficiency and how to implement it in their work.

By recognizing the energy efficiency skills of construction workers, they can be incentivized to improve their skills and work towards more sustainable construction practices. This, in turn, can help in achieving energy efficiency goals and reducing the carbon footprint of the construction industry.

In conclusion, partnerships among the construction value chain are crucial for achieving energy efficiency goals in the sector. Moreover, recognizing the energy efficiency skills of construction workers

can incentivize them to work towards more sustainable construction practices, leading to a more sustainable and energy-efficient construction industry.

In **demo 4**, The workshops held in Poland emphasized the importance of energy efficiency in the construction industry. One of the key outcomes of the workshop was the recognition of the need for skilled and certified workers in energy efficiency. It was noted that certified workers could significantly improve the quality of energy efficiency work, leading to a reduction in energy consumption and costs. Moreover, the workshop participants highlighted the need for more focus on energy efficiency education in vocational education and training (VET) and higher education (HE) levels. This could help raise awareness about energy efficiency and provide workers with the necessary skills and knowledge to improve energy efficiency on construction sites.

Another crucial outcome of the workshop was the need to include energy efficiency certified workers in tenders. This would ensure that energy efficiency is given the priority it deserves and that construction projects are carried out in a sustainable and energy-efficient manner.

Lastly, the participants emphasized the need for more focus on documenting energy efficiency related work on construction sites. This would help in monitoring and evaluating the progress of energy efficiency measures and enable stakeholders to identify areas for improvement.

Overall, the workshop in Poland highlighted the importance of energy efficiency in the construction industry and identified several key actions that could help improve energy efficiency in the sector.

In **demo 5**, Superbonus was tackled through 2 dedicated events in Italy addressing homeowners, namely in September and October 2021. The demo events aimed at explaining the legislative context and functioning of the incentive, supported by the presentation of case studies of EE renovations conducted on residential buildings. As part of the main findings of the two sessions, participants recognized the **need of synergies between professionals and technicians involved** in a Superbonus renovation process. Close coordination is required in particular between the ex-ante and ex-post verifier – who has to assess the renovation works are compliant with the incentive requirements – and the workers and technicians directly performing renovations. Moreover, as Superbonus has multiple ways to benefit from the economic/fiscal discount, the assistance of qualified accountants to clients is recognized as a valuable aspect. Although Superbonus presents several technical and administrative requirements to accomplish with, a **lack of specific training and skills regulation is noticed**. Unlike other national economic incentives (I.e., the Luxembourgish Klimabonus), Superbonus does not require professionals of the construction value chain to exhibit certification of skills or accreditation schemes in order to perform the EE renovation works. The quality and compliance of works with Superbonus technical requirements is checked at the beginning and end of the process, but any specific ex-ante assessment on skills is currently required.

In **demo 6**, “Reduction of gap between designed and action energy efficiency and initiatives for building owners”, the focus was twofold. Firstly, sustainable public procurement process model which includes skills verification method, was studied. Set of different skill verification method were introduced as the main initiative for clients and building managers to ensure experts with needed competence profile are procured in their projects.

Secondly, demo 6 focused on the reasons for the gap between the designed and actual energy performance. Understanding of what role do the skills of disciplines play in the phenomena, the related skill sets and know-how was identified. The process from identifying the reasons of the energy gap to

the needed learning outcomes was shown using 3 analysing methods: 1) Analysing the reasons for energy gap, (2) Identifying the emerging skills and respective roles, (3) Cross checking the emerging skills with LO framework. Two tangible outcomes from deem 6 can be exploited:

1. Information package and competence verification methods, in form of a set of skills verification methods was identified with detailed examples from projects (different types).
2. INSTRUCT method for defining LO's for existing or new roles based on the EE gaps analyse with competence gaps. The method takes advantage of the use of any LO framework and its LO sentences or any Skills/ Knowledge/ Competence- requirements for disciplines executing the tasks in the building process.

Exploitation and valorisation activities on national level will focus on:

- o Introducing the learning outcome (LO) framework as an underlying matrix for skills definitions for the requirement of skills of the needed experts during public building procurements, as well as for training courses and programmes.
- o Guidance to building owners to support the sustainable change towards better energy efficiency.

In **demo 7** “Engaging key stakeholders to stimulate demand of energy skills” conducted in Bulgaria, the training public procurement clause requiring upskilling courses for the construction workers employed by the contractor was promoted as a suitable measure for increasing the demand for skills workers within several consultation formats, including the national nZEB Council, the process of development of the National Long-term Renovation Strategy, and the annual conferences of the Municipal Energy Efficiency Network EcoEnergy, Within these activities, a number of relevant authorities have been informed about its existence and availability, among them the Ministry of Regional Development, the Sustainable Energy Development Agency, the Bulgarian Construction Chamber, the Bulgarian Association for Insulation in Construction, the University of Architecture, Civil Engineering and Geodesy, multiple municipalities and regional energy agencies, as well as product manufacturers and suppliers, some of which have been involved in the actual training course. Still, the actual impact is expected to take place after the conclusion of the process, when the results will be properly documented and feedback from all involved stakeholders will be available.

In **demo 8** “Developing capacity for supply of continuing qualification services through blended learning systems”, the training content included in the training clause is aligned to the developed national framework for continuous vocational education and training in the area of sustainable energy in construction, thus providing basis for future recognition of the acquired competences on the bases of the uniform units of learning outcomes. This process is expected to be strongly enhanced by the ongoing BUILD UP Skills Bulgaria 2030 initiative, providing continuation of the BUILD UP Skills national consultation platform for collaborative action to empower national and local policy in support of nZEB and deep energy retrofit and to provide broad institutional endorsement of the proposed continuous professional development framework. Within the same framework – even if for a different stakeholders’ group – content for new-generation EPCs with integrated building renovation roadmaps and smart readiness indicator will be introduced, This content is expected to be included in the National Roadmap for training and qualification on the application of intelligent energy efficient solutions in buildings in Bulgaria until 2030, which is scheduled to be concluded and broadly endorsed by the beginning of 2024. As mentioned above, this process is also expected to lead to amendments of the curricula for certification of energy audits, which is a part of the national regulatory framework.



## 5 Conclusion

In this deliverable, examples of legislative frameworks and the analysis of their structures are presented. The international workshop held in the frame of this subtask made possible an adequate choice of instruments and an open discussion on the improvements. Some insights for current and future legislative tools are proposed.

The following statements were emphasized regarding competencies management:

- Generally, a **top-down approach** is observed. Central policy makers (state, Europe...) defines the framework, while the sector adapts itself and provides trainings to the workers.
- Sometimes, new skills and competences emerge often in relation with new technologies, therefore **skills and competences need to be regularly updated**, and the needs usually come from the sector itself (bottom – up). Innovation steers new competences definition and set new criteria for future instruments.
- The question of **skills verification/control is raised**. This refers to the understanding of skills, and how to be aware of the real skills of a consultant which has apparently the same diploma/certification than another one.
- In addition, it is well known that there are **issues of communication between actors in the construction sector** across the value chain. Difficulty in having common priorities, language issues on construction sites are barriers that add up to regulatory problems.

More specifically, some conclusions could be drawn for some instruments linked with demonstrations (WP4).

For **EPC**, the lack of uniform uniformization of the methodology among countries is pointed out. The training of people verifying EPC is also required. The roles associated with energy performance of building in Building Acts are not clear enough. Clearer definition of roles, skills, certification required would benefit in a more adequate choice of qualified people, and thus better energy/environmental performance of buildings. EPC assessor is not the only person involved in energy performance as mentioned in the value chain in D3.4.

Craftsmen public certification (leading to subsidies) could be a new way to bring high quality work to the construction site, it has started recently within the frame of **Klimabonus in Luxembourg**.

Crosscutting instruments need to be developed: **Superbonus 110%** instrument gathers funding energy renovation works, site technical concerns, granting subsidies. It revealed a great interest for the homeowners (nearly 250 000 applications were registered).

Another important conclusion of INSTRUCT team in relation with regulatory frameworks is that even if well advanced, **sustainable procurement methods** are not largely recognised as a separate procurement model in the real estate and construction sector in Finland. Sustainable targets of environmental and social factors are managed with help of assessment tools and are seen as the qualitative goals in procurement models. Sustainable targets for economic factors are in the core of tender competitions. **Performance based procurement** is one way to manage all sustainable building factors in a more holistic way. Today, all procurement models are lacking sufficient skill verification methods. However, our studies show that many skill verification methods exist and could be part of



procurement of skilled professionals especially in projects with high energy efficiency or low CO2 targets. Mandatory EPC and Energy audit in industrial buildings are well established methods. The weakness of voluntary policy steering methods – like sustainable procurement practices - is that they rely totally on clients' and building owners' strategies and ambitious levels. They seldom have the power to make systemic change on the level of procurement or building process practices.

## 6 References

- European Construction Sector Observatory. (2020). *Improving the human capital basis*.
- LEGILUX. (2021). *Règlement grand-ducal du 9 juin 2021 concernant la performance énergétique des bâtiments*. Retrieved from <https://legilux.public.lu/eli/etat/leg/rgd/2021/06/09/a439/jo>
- Conrod, F. (2019). *Note explicative et méthodologique Relative à l'implémentation de l'accord volontaire concernant l'amélioration de l'efficacité énergétique dans l'industrie luxembourgeoise pour la période 2017-2020*. Retrieved from My energy agency: [https://www.fedil.lu/wp-content/uploads/2019/04/Note\\_explicative\\_AV\\_2019-02-13.pdf](https://www.fedil.lu/wp-content/uploads/2019/04/Note_explicative_AV_2019-02-13.pdf)
- Maud Vastbinder, G. T. (2020). *Handbook CO2 performance ladder 3.1*. Utrecht: SKAO Foundation for ClimateFriendly Procurement and Business.
- Tarja Häkkinen, M. A.-J. (2016). Role of municipal steering in sustainable building and refurbishment, b. *SBE16 Tallinn and Helsinki Conference; Build Green and Renovate Deep, 5-7 Octo*.
- Raine Mäntysalo, R. J. (2009). *Kuinka alueellista muut osta hallitaan –parhaat keinot ja käytännöt. Yhdyskuntasuunnittelun tutkimus- ja koulutuskeskuksen julkaisuja, Espoo 2009*. Espoo.
- Agenzia delle Entrate. (n.d.). *web page dedicated to Superbonus 110% implementation*. Retrieved from <https://www.agenziaentrate.gov.it/portale/web/guest/superbonus-110%25>
- Kuittinen, M. a. (2017). *Vähähiilisen rakentamisen hankintakriteerit*. Helsinki. Retrieved from [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80654/YO\\_2017\\_Vahahiilisen\\_rakentamisen\\_hankintakriteerit.pdf?sequence=1&isAllowed=y](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80654/YO_2017_Vahahiilisen_rakentamisen_hankintakriteerit.pdf?sequence=1&isAllowed=y)
- Kuittinen, M. a. (2017). *Vihreä julkinen rakentaminen*. Helsinki. Retrieved from [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80653/YO\\_2017\\_Vihrea\\_julkinen\\_rakentaminen\\_hankintaopas.pdf?sequence=1&isAllowed=y](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80653/YO_2017_Vihrea_julkinen_rakentaminen_hankintaopas.pdf?sequence=1&isAllowed=y)
- BIONOVA. (2017). *Tiekartta rakennuksen elinkaaren hiilijalanjäljen huomioimiseksi rakentamisen ohjauksessa*. Retrieved from [https://ym.fi/documents/1410903/38439968/Tiekartta-rakennuksen-elinkaaren-hiilijalanjaljen-huomioonottamiseksi-rakentamisen-ohjauksessa-4B3172BC\\_4F20\\_43AB\\_AA62\\_A09DA890AE6D-129197.pdf/1f3642e1-5d58-8265-40c1-337deeab782d/Tiekartta-rakennuksen-elinkaaren-h](https://ym.fi/documents/1410903/38439968/Tiekartta-rakennuksen-elinkaaren-hiilijalanjaljen-huomioonottamiseksi-rakentamisen-ohjauksessa-4B3172BC_4F20_43AB_AA62_A09DA890AE6D-129197.pdf/1f3642e1-5d58-8265-40c1-337deeab782d/Tiekartta-rakennuksen-elinkaaren-h)
- Häkkinen, T. a. (2018). *Rakennusten khkpäästöjen ohjauksen vaikutusten arviointi*. Retrieved from <https://www.vttresearch.com/sites/default/files/pdf/technology/2018/T324.pdf>
- ENEA. (2022). *Dati di utilizzo del Superbonus 110%*. Retrieved from <https://www.ufficienzaenergetica.enea.it/detrazioni-fiscali/superbonus/risultati-superbonus.html>
- European Construction Sector Observatory. (2021). *Policy Fact Sheet Italy – Superbonus 110%*. Retrieved from <https://ec.europa.eu/docsroom/documents/48684?locale=en>

## International INSTRUCT project online workshop 16th June 9-12AM CET

### Legislative frameworks for enhancing demand of sustainability skills in building sector

#### Project context and objectives

The European construction sector faces unprecedented challenges to achieve ambitious energy efficiency objectives, that can be met only if successful training initiatives and supporting policy instruments are put in place, acting as a springboard to stimulate the demand for energy efficiency skills.

The Horizon 2020 project INSTRUCT has started in June 2020 with a Consortium of 8 Partners from 7 European countries. Its aim is to act at a market level by providing an operational framework and set of services in order to:

- raise awareness of stakeholders in the construction value chain about environmental challenges, benefits of sustainable energy skills and the need for skilled workers in Energy efficiency in the construction sector at large,
- increase the number of skilled building professionals and construction workers along with the whole value chain,
- pave the way to legislative changes by supporting public authorities and industrial stakeholders for the development of new legislative frameworks.

#### International workshop on legislative frameworks

Related to this last objective, we propose to those involved in legislative framework at regional, national or European level to speak up to:

- Share status of legislative frameworks related to sustainability competences and skills in different countries and regions
- Share best practices examples and discuss ideas, methods and roadmaps
- Show the policy steering landscape from the point of view of workers qualifications

#### Outcomes:

Explore ideas to improve policy instruments and incentives based on shared cases  
Identify what are the training needs, how skills are demanded in each instrument  
Assess gaps between real and expected skills in energy efficiency in Europe

#### Speakers:

- Overview of Local Competence Accreditation Bodies for Energy Efficiency Skills in Europe (*Mohaddeseh Maktabifard, R2M Solutions, France*)
- Embedding sustainability in our programs – the Cardiff University perspective (*Cardiff University, United Kingdom*)
- Regulative steering, Sustainable public procurement, and the criteria framework (*Simon Le Roux, Ministry of Environment, Finland*)

- Policy instruments and adaptation: Energy audits, Energy effective Contracts (*Harri Heinaro, Motiva, Finland*)
- Voluntary scheme for environmental performance: Klimabonus (*Sarah Juchems, Klima-agence, Luxembourg*)
- Super Ecobonus 110%: a super-innovative tax allowance to stimulate the renovation market (*Gabriella Azzolini, ENEA Agency – Energy Efficiency dept. , Italy*)
- Conclusions (*Sébastien THOMAS, LIST, Luxembourg*)

*Workshop audience:*

Authorities and representatives from trade unions and specific organizations on the field of

- (1) sustainable public procurement schemes
  - a. and demanding skills for sustainable building
  - b. and demanding processes for sustainable building
  - c. when setting criteria levels for sustainable building
- (2) energy-efficient, low-carbon, green building certification/ qualification schemes for competence, incl. trainings
- (3) regulatory and normative policy steering when related to qualifications/ competences and demanding skills
- (4) voluntary agreements and incentives when related to qualifications/ competences and demanding skills
  - Informational policy steering
  - Fiscal incentives for energy-efficiency and low carbon
  - Environmental labels

**Workshop agenda**

9:00-9:05	Welcome
9:05-9:15	Overview of Local Competence Accreditation Bodies for Energy Efficiency Skills in Europe
9:15-10:00	Plenary session
10:00-10:25	Three break-out sessions, Part 1 – Regulatory instruments
10:25-10:30	Comfort break
10:30-11:15	Plenary session
11:15-11:40	Three break-out sessions, Part 2 – Voluntary instruments
11:40-11:45	Comfort break
11:45-12:00	Results from the break-out sessions, conclusions and next steps



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