TRAIN4 SUSTAIN

Establishing future-oriented training and qualification quality standards for fostering a broad uptake of sustainable energy skills in the European construction sector

D4.4 Launch of a "pilot" Green Procurement Process (GPP) based on the findings and initial guideline design in a case study

Project no.	894514
Project acronym:	TRAIN4SUSTAIN
Project title:	Establishing future-oriented training and qualification quality standards for fostering a broad uptake of sustainable energy skills in the European construction sector
Call:	LC-SC3-EE-3-2019-2020
Start date of project:	01.05.2020
Duration:	30 months
Deliverable ID:	D4.4

Due date of deliverable: 31 October 2022

Organisation name of lead contractor for this deliverable:

DTES, Partner No. 5

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Document history

Version	Date	Reason	Revised by
01	29.08.2022	TOC, Draft	DTES
02	30.10.2022	Final	DTES

Table of Contents

1 Executive Summary

The aim of this document is to show how the scoring system of the CWA Methodology has been introduced in a pilot procurement case in a construction project in Catalonia and to make some guidelines in order to extrapolate it to other procurement processes.

The deliverable introduces the pilot project chosen, describes in depth the current procurement process in the Catalan region for a construction project, showing the different contracts and project phases. Once the process is understood, the requirements on sustainable construction skills are introduced in the tender process by the contractor. Thus, the client can require skills and knowledge from the members of the different teams in specific areas of expertise to ensure an optimal development of the project.

To facilitate the introduction of these requirements for both the client and the users to be evaluated, the ESR Platform is available, which will be used for this pilot case. Here, the customer will publish the project.

On the other hand, architecture teams composed by individual professionals are registered and they introduce their knowledge in the ESR Platform according to the CWA methodology. These teams apply and the customer receives the applications.

The deliverable shows how the Skill Passport score received is evaluated and how it is entered with the rest of the scores received in order to make the final evaluation and award the project to the winning team.

ABBREVIATIONS AND KEY WORDS

GPP	Green Public Procurement
T4S	TRAIN4SUSTAIN
PA	Public Authorities
INCASÒL	Institut Català del Sòl – Catalan Institute of Land
CWA	CEN Workshop Agreement
CEN	The European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
ESR Platform	European Skill Registry Platform
QS	Qualification Scheme
CQS	Competence Quality Standard
LO	Learning Outcome
AoE	Area of Expertise

2 Introduction

Throughout this project, it has been analysed from different perspectives, how the sustainability skills, knowledge and experience of construction professionals can be introduced and assessed in a public procurement process.

D4.1
Actual usage of requirements concerning sustainable skills for professionals and blue collars in public tenders

+

D4.2
Exploitable initiative for improving the public procurement processes in the building sector at European and

D4.3
Policy recommendations and a Guideline for fostering requirements on Sustainable energy skills in GPP
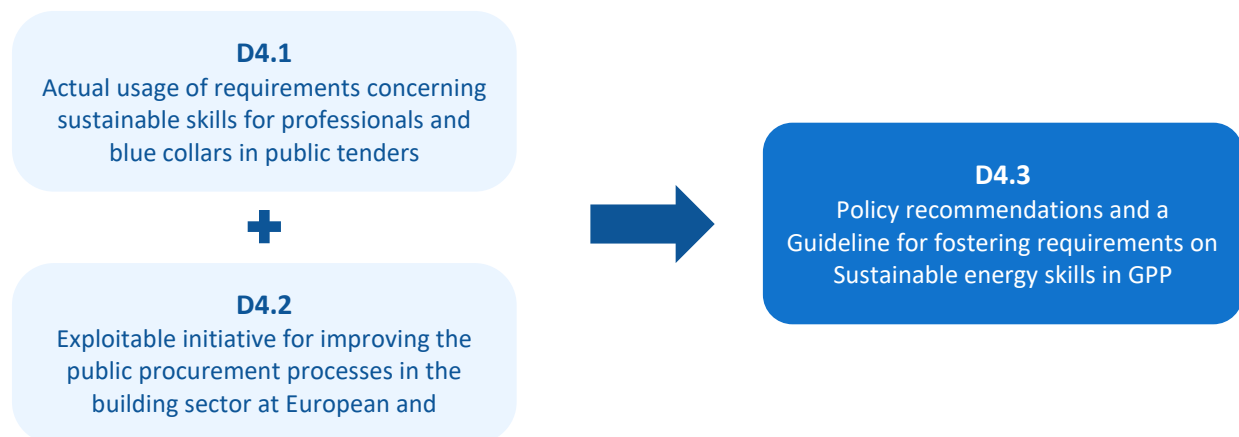
Figure 1 Initial Green Public Procurements analysis

In a first analysis, the legal framework and the different instruments that governments have at their disposal to incorporate the requirements established by the European Commission were identified. Among these instruments there is the Green Public Procurement Criteria (GPP), however, this instrument is voluntary and is mainly focused on construction criteria in sustainability and technology, rather than on the skills of the professionals involved in each of the phases of the life-cycle of a building. In general, in both European and national regulations, there are no protocols that facilitate the incorporation of the criteria to select professionals in public procurement processes and their corresponding evaluation, in particular because the free competition and equality among bidders must be ensured.

Parallel to the analysis of the legal framework, the different initiatives established by governments at all levels (local, regional and national) to create spaces where different public administrations can share their experiences in the process of GPP implementation were studied as well. In all these initiatives, reference is almost always made to technical improvements and best practice examples. Rarely are the procedures or methodologies used to choose the team that will carry out the construction project based on competency or skills criteria is discussed. Finally, the last approach was focused on the definition of a set of recommendations that administrations could apply to improve the selection of work teams in a building construction project tenders.

For all of the above reasons, this deliverable intends to show, through a pilot case and in a schematic way, how the CWA Standard, defined in previous tasks, could be applied in a public procurement procedure taking into account the limitations and the barriers found in the previous analysis.

Tender Process

1 How to find a Study Case

2 Incasòl

3 Internal Meetings

4 Project Selection

5 Analysis of 5 Contracts

6 2 Contracts Selection
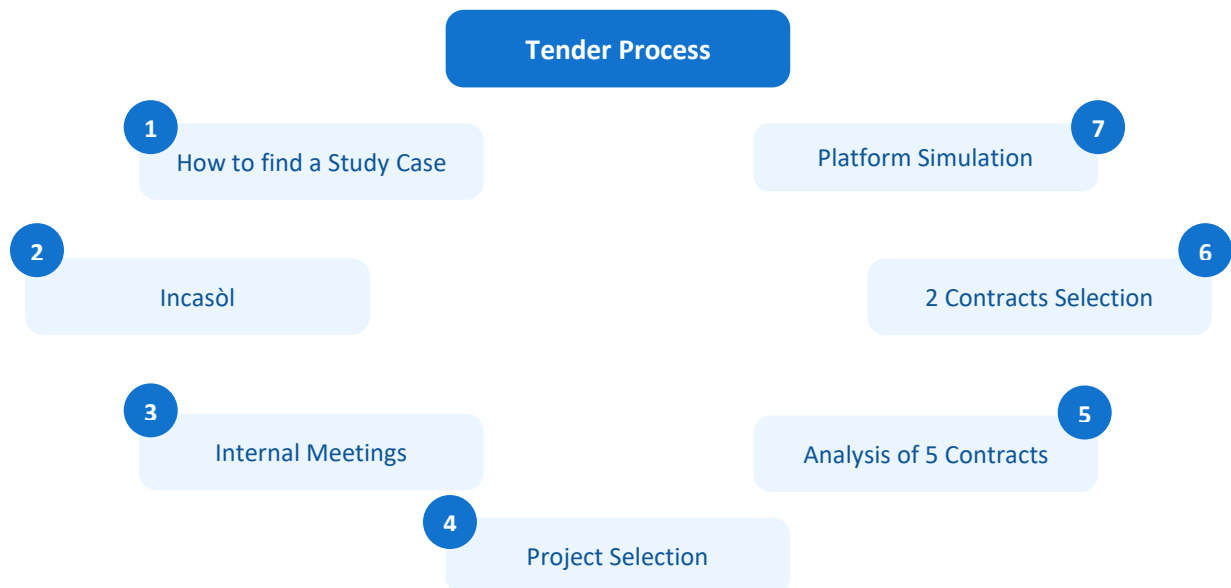
7 Platform Simulation

Figure 2 Scheme of the Pilot Tender Process

The reader will be able to see in this report, step by step, how and at what point in the tendering process the Areas of Expertise could be requested and how to implement the CW Standard.

The starting point is the Project definition and the Public tender (GPP) preparation and publication. During this phase the technicians of a public administration must describe the technical needs, the construction project and what they expect to be built and with what criteria in terms of sustainability. In this report, we will see how to translate these needs into Areas of Expertise.

Apart from that, the jurists and legal department of the same public administration, have to prepare the public tender process, define the terms and conditions to present the mandatory documentation and how to prove that the organisations who participates achieve or not the minimum score for each Areas of Expertise defined in the project. In this deliverable, it would be mentioned the different contracts involved in the same Pilot. In order to understand better how to implement the Standard, one of the different tenders will be selected and it will the basis to simulate the scoring through the ESR Platform.

The main chapters of this report are those where it has been explained the introduction and selection of the areas of expertise of the project in the ESR platform by the administration and the introduction of the AoE of the different members of the organisations that will participate in the procurement process by submitting their Skillpassport.

To conclude, in the last chapter it will be explained the selection of the winner by comparing the different scores obtained in each bidder's Skillpassport. And the adjudications by the Public Administration.

3 Presentation of the "Pilot" GPP Project

3.1 Presentation of the project

The chosen housing project is a ground floor plus four storey apartment building in Santa Coloma de Gramenet, a municipality adjacent to the city of Barcelona, as shown in the image below:

Image 01. Project Location

The client, Incasòl (Catalan Institute of Land) is a public body of the Generalitat of Catalonia and its aim is to promote public housing. In addition, the client focuses on moving towards sustainable buildings. Currently, during the competition phase, Incasòl gives more points to those proposals that use architectural criteria or installations to achieve a higher energy efficiency rating.

Image 02. Project Previsualisation

The project was launched as an open competition, where architectural studios were free to apply. In the competition terms, the client specified sustainability criteria that the proposal had to meet, including achieving an A-rated energy rating, having photovoltaic panels and integrating an aero-thermal pump for the building's installations.

The requirements the client had previously written in the tender documents referred to the building are converted into requirements referred to the minimum knowledge the team has to meet. To do this, Incasòl analyses the Areas of Expertise of the CWA methodology, choose the ones that refer to his criteria and enter them in the platform with a minimum required score. To establish this score, the client studies and chooses the Learning Outcomes of each Area of Expertise.

Image 03. Project Previsualisation

3.2 Involved agents

Nowadays, when Incasòl wants to develop a project, he contracts these five agents as shown below. In each of these tender processes, the applicant has to attach the required documentation as usual, with the difference that in this pilot process the candidate has to attach also the Skill Passport of the team. With all the documentation, it can be assessed numerically according to the

established score and it is an easy way to check whether they meet the required skills or not.
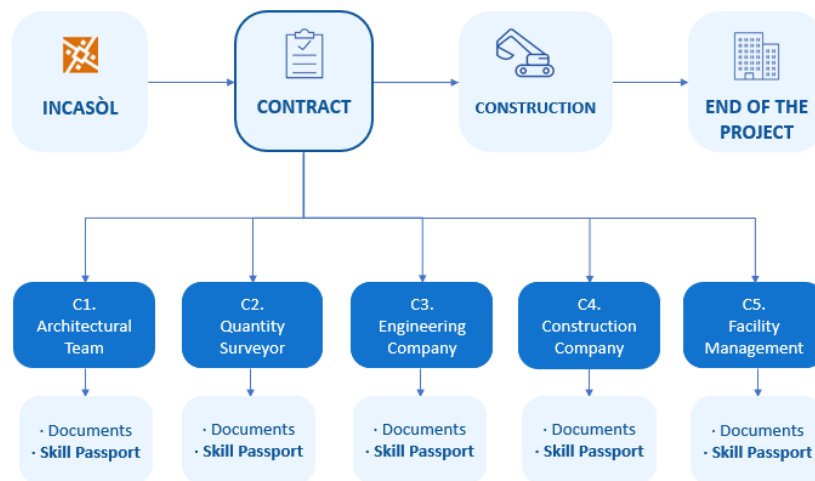

Image 04. Contracts Project

In the pilot case it is analysed how the Areas of Expertise are required in the recruitment process of one agent: Architectural Team. By choosing this agent we are looking at a recruitment process for Whitecollars. Three architectural studios will be compared in this activity.

3.3 How to introduce the requirements in the GPP Process

There are different types of tender process: each agent has a tender process.

As mentioned in the section above, we are going to analyse the case of the Architectural Team. The tender process has two phases as shown below:
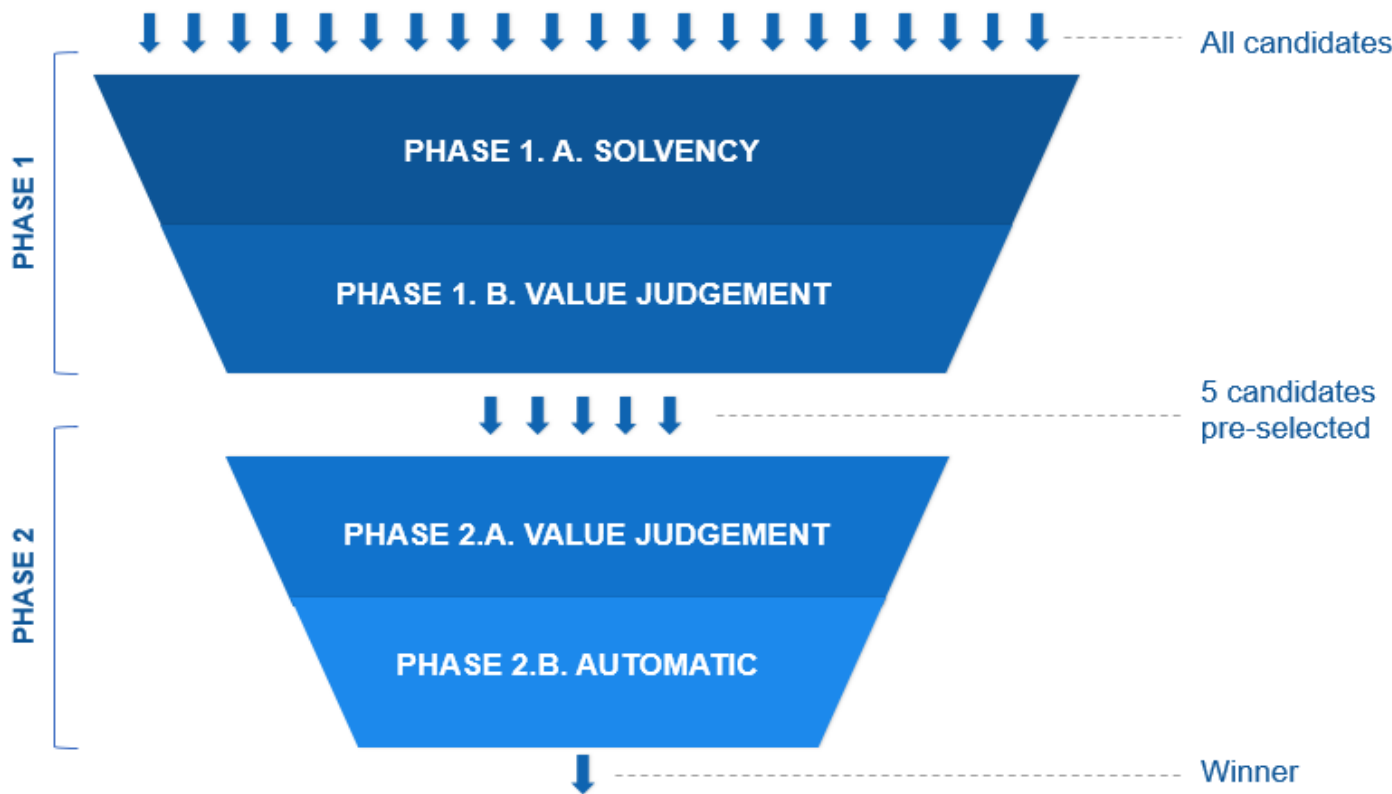
Image 05. Tender Process

The tender process is a public process where everybody can apply. The first phase is an eliminatory phase where the candidates are filtered. The applicants who have submitted the five best evaluated proposals according with the punctuation will be invited to participate in the second stage: the adjudication phase. The first phase is formed by two parts:

Phase 1.A Solvency
1.1 Economic and Financial
1.2 Professional Technique
1.3 Minimum Technique

Figure 01. Phase 1.A: Solvency

In the first sub-phase (Phase 1.A. Solvency) the result is eliminatory, being 'yes' or 'no' the result. The second sub-phase (Phase 1.B. Value Judgement) the jury gives a score based on the evaluation criteria specified in the terms and conditions of the competition.

Phase 1.B Value Judgement	30 points
1.1 Adaptation of the proposal to the existing environment	8 points
1.2 Building Layout	10 points

1.3 Spatial quality of the housing typology proposal	8 points
1.4 Energy Strategy	4 points

Figure 02. Phase 1.B: Value Judgement

The five most scored applicants in the first phase will be invited to develop their architectural proposal in a second phase. In this stage, the proposals will be scored according to quality criteria that depend on a value judgement, with a maximum score of 30 points and assessed by a Jury, and quality criteria that can be assessed automatically, with a maximum of 25 points and assessed by the Incasòl Project Management, making a total of 55 points, as shown in the tables below:

Phase 2.A Value Judgement	30 points
1.1 Adaptation of the proposal to the existing environment	8 points
1.2 Building Layout	10 points
1.3 Spatial quality of the housing typology proposal	8 points
1.4 Energy Strategy	4 points

Figure 03. Phase 2.A: Value Judgement

Phase 2.B Quality Criteria - Automatic	25 points
1.1 Total built area/Usable area	10 points
1.2 Architectural criteria for energy efficiency.	7 points
1.3 BIM	1 point
1.4 Skills Passport	**7 points**

Figure 04. Phase 2.B: Quality Criteria - Automatic

The Skills Passport is introduced in the Phase 2.B. with a punctuation of 7 points. The Phase 1 is an eliminatory phase, and for Incasòl is important that the Skills Passport is not a determining factor to move on the next phase. The phase 2 is where criteria related with technical aspects of the proposal. And in particular in the phase 2.B the criteria are related to energy efficiency, BIM and Skill Passport.

This mentioned criteria has been stablished in this pilot case with Incasòl's agreement, but for other cases the Skill Passport can be added to other phases, adapted to the client's tender process and needs. For example, in case the client has the same phases as the Incasòl's tender process, and would like to ensure that the team meets a group of minimum skills, he could

add minimum requirements in sub-phase 1.B. Thus, the customer would set the Skill Passport at two stages: in the elimination phase (1.B) basic requirements, and in the next phase (2.B.) more specific and demanding requirements.

In the case of the pilot of Incasòl, the Skill Passport is only introduced in the phase 2 with a punctuation of 7 points. Each client can decide how many points gives to the Skill Passport within his tender process. If he wants to give more priority to the sustainable skills of the team, he will increase the punctuation for the Skill Passport.

4 How to choose the Areas of Expertise

Once it is clear at what stage of the tender process introduce the Skill Passport, we have to specify the minimum qualifications we will ask from the candidate teams. To achieve this point, Incasòl goes to the CWA methodology where all the Areas of Expertise are shown, and he looks for the AoE corresponding to his requirements written on the terms of the project competition. To specify the minimum score, we will look at the corresponding Learning Outcomes on the CWA Methodology, which are ranked according to a score from 1 to 5.

Incasòl has chosen the following areas of expertise with the corresponding scores:

				Incasòl score
Energy	Energy Production and HVAC Systems	EN3.3	Hot water Systems	3
		EN3.1	Heating and cooling Systems	3
		EP5	Planning and design of heat pump installations	3
		EN3.7	Solar power Systems for electricity generation	3
	Energy Reduction	EN4.1	Thermal insulation	3
		EN4.2	Building air tightness	2
		ER4	Envelope systems	4
Materials	Sustainable Materials	MS6	Design for adaptability and renovation	5
		MS2	Environmental impact of construction materials	4
		MS5	Certified materials	3
Water	Water Efficiency	WA1.2	Indoor water use management	3
	Effluents Management	WA2.1	Rainwater collection and reuse systems	4
		WA2.2	Greywater collection and reuse systems	4
Innovative Digital Solutions	Building Information Modelling	ID1.1	Operation of BIM systems	5
	Thermal Comfort	CO2.1	Indoor Thermal Comfort	4

Comfort and wellbeing		CT2	Ambient Thermal Comfort conditions	3
	Quality of air	CQ2	Natural Ventilation	4
		CQ3	Mechanical Ventilation	4

Figure 05. Areas of Expertise required by Incasòl

There are two ways to ask for this table of required AoE in the tender process. The first one is to ask directly for this table. And the second option, and the one we will perform in this activity, is to introduce this data in the ESR platform in order to facilitate the applicants to check if they meet the requirements and to ensure that we can compare all candidates under the same platform, in an easy and simple way.

5 ESR Platform

5.1 Agents Registration

On the ESR platform you can register as a client (public or private), an organisation (company who applies for a tender) or as an individual professional (who alone forms a company and applies for a project or who is part of a company).

In the case of the pilot, Incasòl is the public client that creates a project, publishes it and receives the Skill Passport through the platform.

Three architectural studios (PPMM Architects, A&A Architects and TAAS Arquitectura) register on the platform and invite their employees, who have previously entered their data and areas of expertise. The organisation will then get the company's Skill Passport with the resume of the individual professional qualifications and attach it to the rest of the documents for the tender process.

The mentioned processes of each agent mentioned above are described in the following diagram:
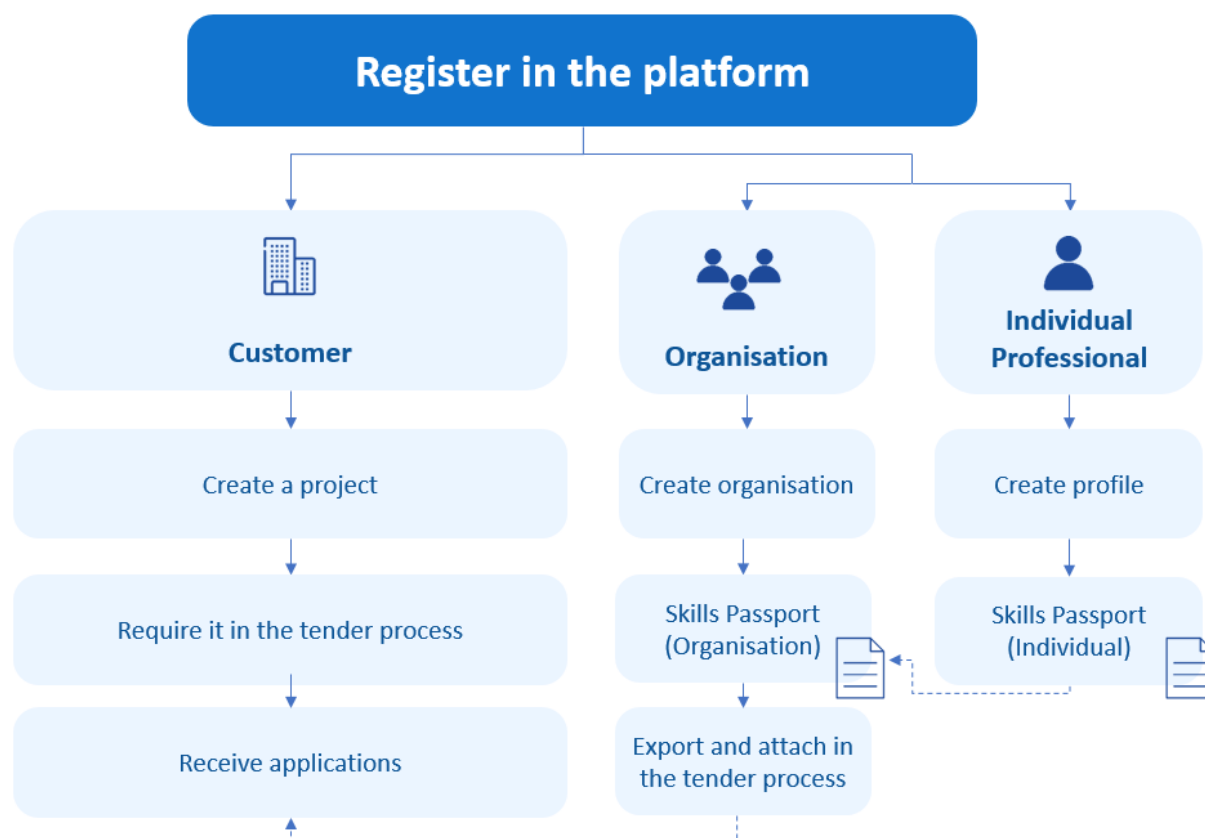
Image 06. Registration of the three agents

A process of accompaniment has been carried out with Incasòl and the team leader who creates the organisation and the rest of the team's professionals. The professional profiles that have been added into the ESR Platform to perform the pilot are the following:

Organisation	Professional	Role
PPMM Architects	Núria Llisó	Architect
	Mercè Vila	Architect
	Marc Verdú	Civil Engineer
	Anabel Bernardos	Energy Engineer
A&A Architects	Josep Comelles	Architect
	Mireia Sunyer	Architect
	Josep Comelles	Energy Engineer
	Mireia Sunyer	Civil Engineer
TAAS Arquitectura	Manuel Santillana	Architect
	Àlex Carrer	Architect
	Pau Manubens	Civil Engineer
	Helena Font	Energy Engineer

Figure 07. List of registered professionals

In order to facilitate the understanding of the registration on the platform, a guide has been elaborated and used for this activity as well as for carrying out the trainings by the different partners.
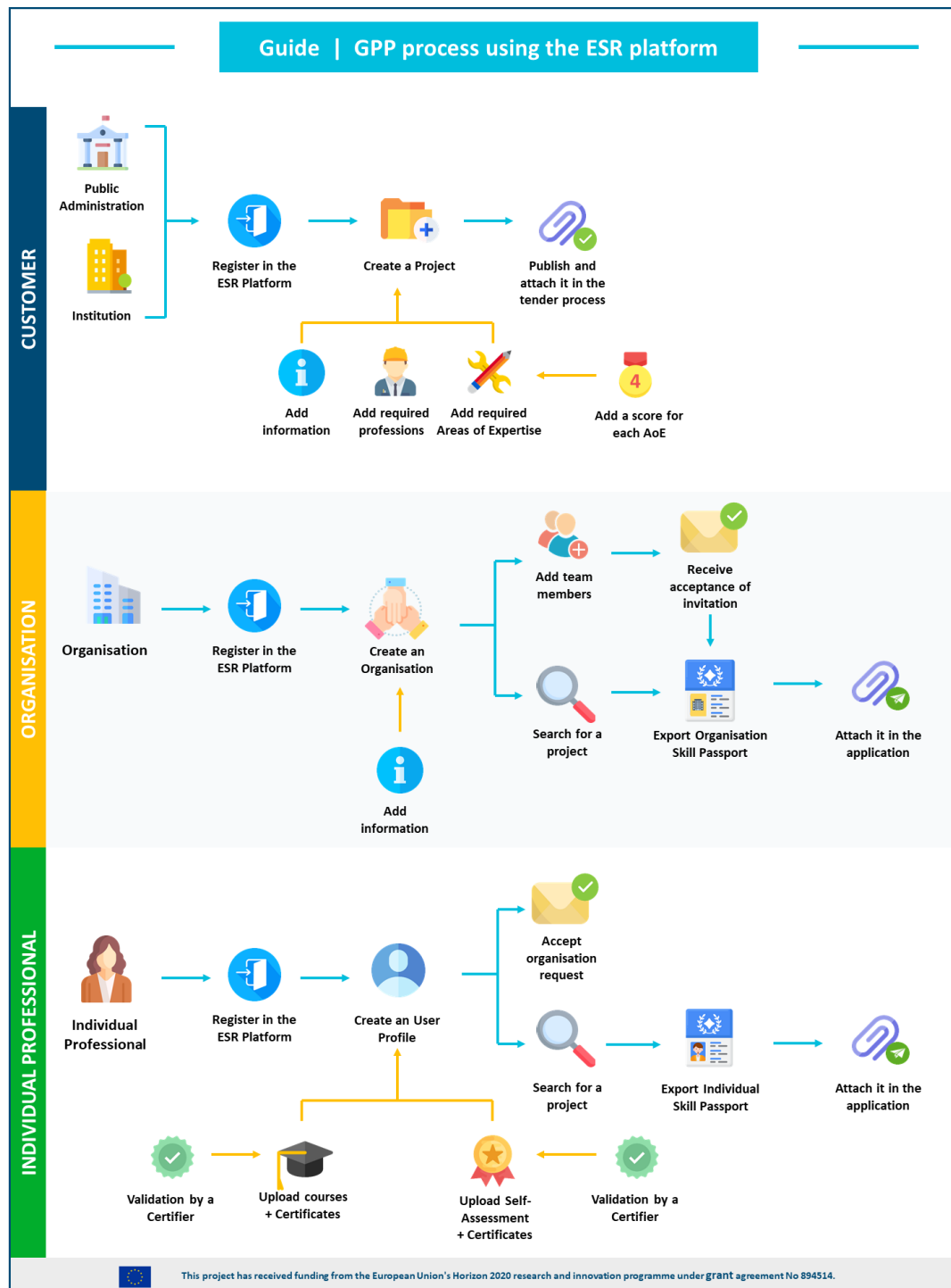

Image 07. Guide. GPP process using the ESR Platform

6 How the Public Administration announces the offer on the platform

Once Incasòl has selected the AoE's with their scores (Figure 05), the client registers on the platform where he creates the project asking for these AoE's as requirements and also which Workfields he is looking for.

Image 08. How the tenderer announces the project in the platform

6.1 Introduction of required Areas of Expertise

To introduce each AoE, the process is the same. First of all, Incasòl clicks on the button 'Add Expertise' (Image 09) and then a window appears. Here, the dimension (Image 10), the thematic field (Image 11), the Area of Expertise (Image 12) and its required score has to be chosen.
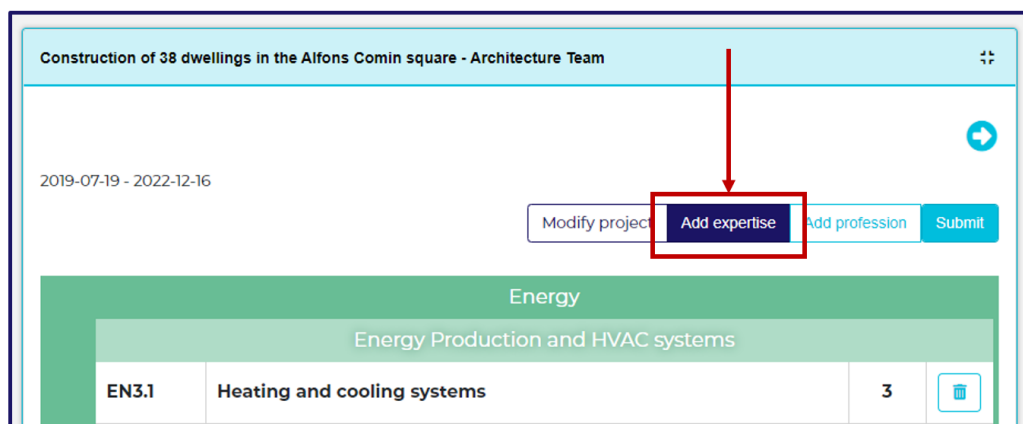

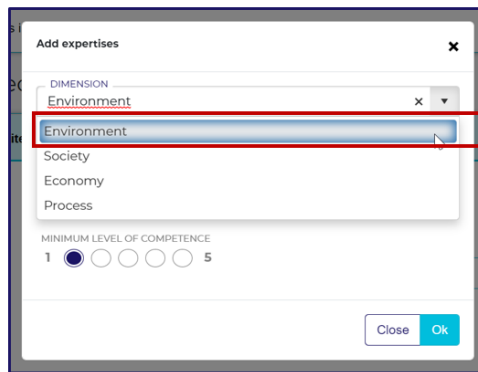Image 09. Introduction of required AoE. Step 1
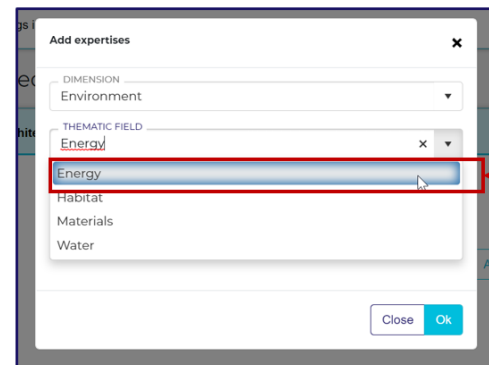
Image 10. Introduction of AoE. Step 2

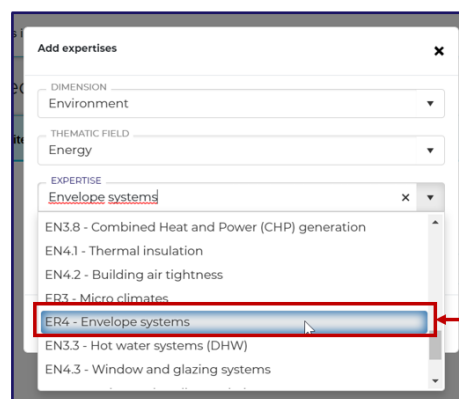Image 11. Introduction of AoE. Step 3

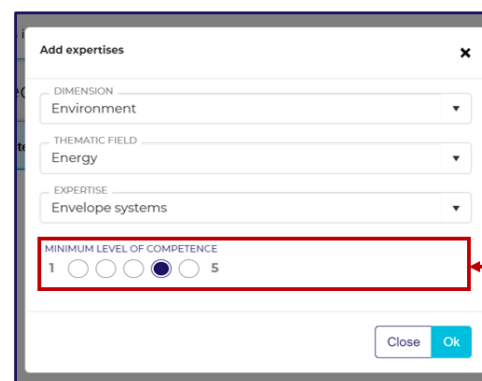
Image 12. Introduction of AoE. Step 4

Image 13. Introduction of AoE. Step 5

Once all the data is introduced, we can see the resume of it on the platform and export the required Skill Passport to add it in the tender process.

Energy		
Energy Production and HVAC systems		
EN3.3	Hot water Systems (DHW)	3
EN3.1	Heating and cooling Systems	3
EP5	Planning and design of heat pump installations	3
EN3.7	Solar power Systems for electricity generation	3
Energy Reduction		
EN4.1	Thermal insulation	3
EN4.2	Building air tightness	2
ER4	Envelope systems	4
Materials		
Sustainable materials		
MS6	Design for adaptability and renovation	5
MS2	Environmental impact of construction materials	4
MS5	Certified materials	3
Water		
Water efficiency		
WA1.2	Indoor water use management	3
Effluents management		
WA2.1	Rainwater collection and reuse Systems	4
WA2.2	Greywater collection and reuse Systems	4

Innovative Digital Solutions		
Building Information Modeling		
ID1.1	Operation of BIM systems	5
Comfort and well being		
Thermal comfort		
CO2.1	Indoor Thermal Comfort	4
CT2	Ambient Thermal Comfort conditions	3
Quality of air		
CQ2	Natural Ventilation	4
CQ3	Mechanical Ventilation	4
Visual comfort		
CO3.1	Daylighting	4
CO3.2	Interior lighting	4

Image 14. Skill Passport with the required AoE

6.2 Introduction of required Workfields

It is optional to introduce the requirements for the Workfields. In the case of Incasòl he wants to make sure certain profiles are within the winner team. So, first of all, he analyses and decides which is the best profile to answer his needs of design, energy requirements and structural calculation.
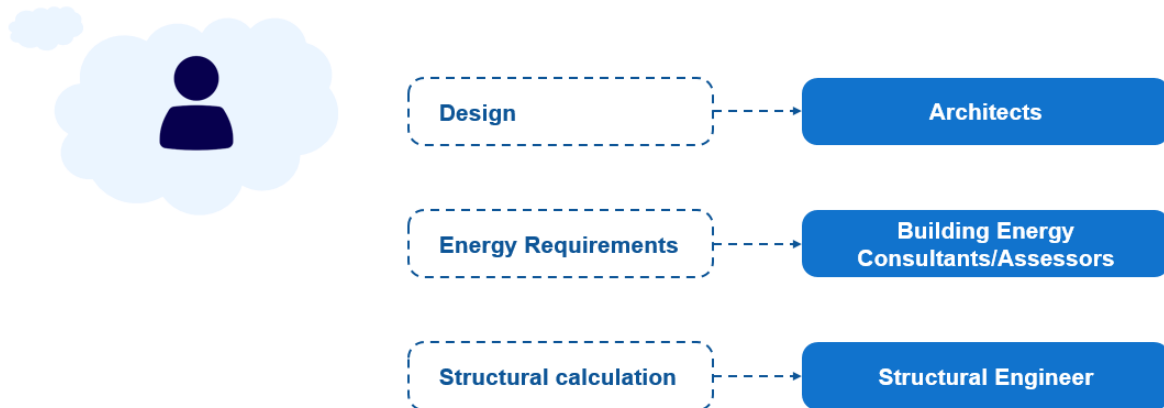
Image 15. Skill Passport with the required AoE

Once he has it clear (Image 15), Incasòl goes to the initial page of the project and clicks the button 'Add profession'. A window appears where the client selects the different profiles he wants to form the team.
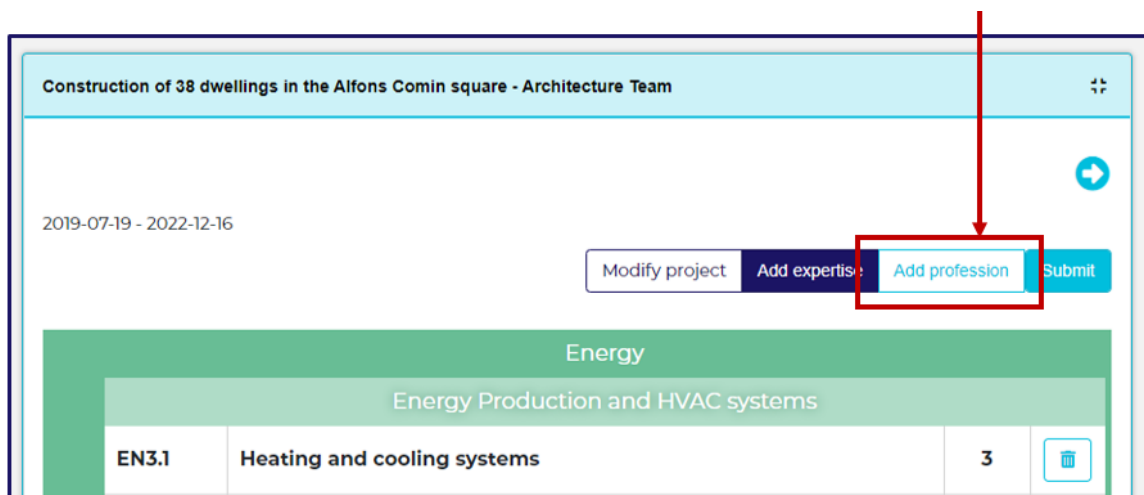
Image 16. Introduction of required Workfields

After the introduction of the Areas of Expertise and the Workfields data, the project is ready to be published and to start receiving the applications from candidates, who will attach the Skill Passport to the rest of the documentation.

7 Reception of Applications, comparison and adjudication

7.1 Reception of Applications

The published offer has received several applications consisting of the required documents and the attached Skill Passport. For this pilot, three architectural teams have been compared with their respective Skill Passports. Each organisation has attached the company Skill Passport, which is a resume of the individual professional's passports. These are also attached in the process, just in case the tenderer wants to check the AoE of each employee.

Image 17. Reception of applications

7.2 Comparison and Adjudication

In order to better visualise the scores obtained in each phase by each team, the information has been compiled in the following table:
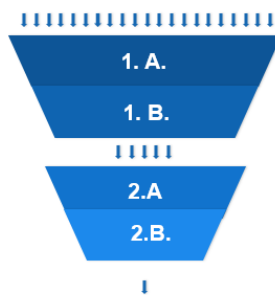
Phase	Maximum Score	PPMM Architects	A&A Arquitectes	TAAS Arquitectura
1.A. Solvency	Yes/No	Yes	Yes	Yes
1.B. Value Judgement	40 pts	34	32	32
2.A. Value Judgement	30 pts	29	27	27
2.B. Automatic	25 pts	17	18	22
TOTAL	95 pts	80	77	81

Figure 08. Resume of scoring achieved

According to the result of the table above, Incasòl has his winner: TAAS Arquitectura. But he wants to check if the team really meets the requirements of the Skill Passport and also, which was the scoring of the other teams regarding the passport.

If we analyse phase 2.B. Automatic, we see that the TAAS Architecture team is also the one with the highest passport score (6 points):

Phase	Maximum Score	PPMM Architects	A&A Arquitectes	TAAS Arquitectura
2.B. Automatic	25 pts	17	18	22
Total built area/Usable Area	10 pts	7	7	9
Architectural criteria for energy efficiency	7 pts	4	5	6
BIM	1 pts	1	1	1
Skill Passport	7 pts	5	5	6
TOTAL	95 pts	80	77	81

Figure 08. Resume of scoring achieved on Phase 2B.

Incasòl compares the required passport with the candidate skills. As it is shown in the image below, the team in three occasions has more score than required (blue rectangle). We add up the surplus score and write it down (3 points) so that, in case of a tie, we can use it to decide.

The conversion from the achieved punctuation (64 points) to the 6 points out of 7 has been done in a proportional basis as expressed in the formula below:

Image 18. Comparison of the required skills with the applicant passport

The tenderer also ensures that the professional profiles it had required are met by the candidate team. In this case, the TAAS Arquitectura Team is composed by two architects, one energy engineer and one structural enginer. So it matches with the requirements as shown in the image below:

Image 9. Comparison of the required professional profiles with the applicant passport

In this pilot, we have seen how, first of all, the recruitment process in Catalonia is studied, looking at the different phases and the influence of placing the Skill Passport in one or the other. After deciding and giving it a score with prior agreement with Incasòl's recruitment staff, the requirements that the client wants the project to have are transformed into the minimum knowledge that the team must have in these areas using the CWA methodology.

To facilitate data management and have the same format, the ESR platform is used where Incasòl creates the project with the requirements that the team must have. Once published, it receives applications from candidates interested in the offer and who have previously registered with its team members.

The applications of three selected teams are compared and the scores obtained in each of the areas are shown, specifically analysing the score obtained in the Skill Passport and checking that the team with the highest total score meets the minimum skills the client requested in the offer.

As a result, a number of steps have been established that can be replicated by other contractors to introduce the Skill Passport into their procurement processes.

8 Conclusion and next steps

This pilot shows the case of the introduction of the CWA methodology and the use of the ESR platform in a procurement process in Catalonia. But the objective is that every public or private entity that wants to incorporate it in its procurement process, can take this deliverable and use it as a basis to follow certain steps, always adapting it to its procurement process, the laws of its country and its needs.

This activity has been developed with this objective in mind: to set an example of how to apply it in a recruitment process.

It should be noted that while there is a strong focus on the Skill Passport, this is because it is what the project is about. But it is not the intention that the candidate with the highest Skill Passport score will be the winner of a procurement process, as the factors in a procurement process are much more complex. Therefore, the Skill Passport score does have an influence within the scoring system and each contractor can decide how important it is by increasing the number of points it has within its scoring system.

During the project, the ESR platform has proven to be useful as a tool to facilitate data entry and the receipt of Skill Passports by applicants, as receiving a single format makes it easier for us to compare them with each other. Nowadays, any contractor wants to simplify processes and save time, and that is what the platform offers. However, it must be understood that it is still under development and new functionalities such as direct aggregation and comparison of the received applications could be added.

Thus, the pilot serves as a guide to introduce the Skill Passport in a recruitment process in a real way, and to show how the platform is used to facilitate data entry and handling of the CWA methodology.

9 List of Annex

Annex	Document	Format	Provider
01	Organisation 1 Skill Passport	JPG	DTES
02	Organisation 1 Skill Passport	JPG	DTES
03	Organisation 1 Skill Passport	JPG	DTES

9.1 Annex 01

9.1.1PPMM Architects Skill Passport

We are experts in sustainable architectural design and Passivhaus, but we also carry out deep rehabilitation projects. Our services include landscaping and little urban planing

Organisation 1: Skill Passport Organisation

Built Environment Certification systems			
Building sustainability certification			
BE1.1	Energy Performance Certification		2
BE1.2	Building sustainability certification systems		4
Innovative Digital Solutions			
Building Information Modelling			
ID1.1	Operation of BIM systems		4
Measuring			
ID5.2	Smart Building Sensors		1
Lean Management			
ID4.1	Lean Management solutions		2
Interdisciplinary Skills			
Collaboration and Communication			
IS3.1	Motivation and communication - Design Team		2
Information management			
IS4.1	Management of information in a design process		3
Sustainable Building Design			
Integrative design			
BD1.1	Integrated Design Process		4
Comfort and well being			
Thermal comfort			
CO2.1	Indoor Thermal Comfort		5
Acoustic comfort			
CO4.1	Sound insulation		4
CO4.2	Room acoustics		4
CO4.3	Indoor noise management		2
CO4.4	Environmental noise management		1
Ergonomics			
CO6.1	Ergonomic and Active Furnishing		3
Visual comfort			
CO3.1	Daylighting		5
CO3.2	Interior lighting		2
Accessibility			
Barrier free accessibility			
AC1.1	Accessibility of public spaces		3
AC1.2	Design for All		3
Energy			
Energy Production and HVAC systems			
EN3.1	Heating and cooling systems		5
EN3.10	Energy storage systems (long duration storage, central/ decentralised)		2
EN3.4	Electric heating systems		3
EN3.5	Heat pump systems and geothermal energy systems		3
EN3.6	Solar thermal energy systems for heating, cooling and DHW		5
EN3.7	Solar power systems for electricity generation		5
EN3.8	Combined Heat and Power (CHP) generation		2
EN3.9	Mini wind power generation		2
Energy Reduction			
EN4.1	Thermal insulation		2
EN4.2	Building air tightness		2
EN4.3	Window and glazing systems		5
EN4.4	Solar shading systems		2
EN4.5	Passive systems for cooling and heating		2
Materials			
Design for deconstruction, reuse and recycling			
MA1.1	Materials and components for ease of disassembly		2
Sustainable materials			
MA2.1	Life Cycle Assessment (building scale)		5

Left vertical labels: PROCESS, SOCIETY, ENVIRONMENT

Organisation 1: Skill Passport Individual Professional

Mercè Vila, Architect

		Accessibility	
		Barrier free accessibility	
SOCIETY	AC1.1	Accessibility of public spaces	3
	AC1.2	Design for All	3
		Comfort and well being	
		Ergonomics	
	CO6.1	Ergonomic and Active Furnishing	3
		Innovative Digital Solutions	
		Lean Management	
PROCESS	ID4.1	Lean Management solutions	2
		Interdisciplinary Skills	
		Collaboration and Communication	
	IS3.1	Motivation and communication - Design Team	2
		Information management	
	IS4.1	Management of information in a design process	3

Núria Llisó, Architect

		Sustainable Building Design	
		Integrative design	
PROCESS	BD1.1	Integrated Design Process	4
		Innovative Digital Solutions	
		Building Information Modelling	
	ID1.1	Operation of BIM systems	4
		Comfort and well being	
SOCIETY		**Visual comfort**	
	CO3.1	Daylighting	5
	CO3.2	Interior lighting	2

Organisation 1: Skill Passport Individual Professional

Marc Verdú, Civil Engineer

PROCESS	Innovative Digital Solutions		
	Building Information Modelling		
	ID1.1	Operation of BIM systems	3
	Measuring		
	ID5.2	Smart Building Sensors	1
ENVIRONMENT	Materials		
	Design for deconstruction, reuse and recycling		
	MA1.1	Materials and components for ease of disassembly	2
	Sustainable materials		
	MA2.1	Life Cycle Assessment (building scale)	5

Anabel Bernardos, Energy Engineer

PROCESS	Built Environment Certification systems		
	Building sustainability certification		
	BE1.1	Energy Performance Certification	2
	BE1.2	Building sustainability certification systems	4
SOCIETY	Comfort and well being		
	Thermal comfort		
	CO2.1	Indoor Thermal Comfort	5
	Acoustic comfort		
	CO4.1	Sound insulation	4
	CO4.2	Room acoustics	4
	CO4.3	Indoor noise management	2
	CO4.4	Environmental noise management	1
ENVIRONMENT	Energy		
	Energy Production and HVAC systems		
	EN3.1	Heating and cooling systems	5
	EN3.10	Energy storage systems (long duration storage, central/ decentralised)	2
	EN3.4	Electric heating systems	3
	EN3.5	Heat pump systems and geothermal energy systems	3
	EN3.6	Solar thermal energy systems for heating, cooling and DHW	5
	EN3.7	Solar power systems for electricity generation	5
	EN3.8	Combined Heat and Power (CHP) generation	2
	EN3.9	Mini wind power generation	2
	Energy Reduction		
	EN4.1	Thermal insulation	2
	EN4.2	Building air tightness	2
	EN4.3	Window and glazing systems	5
	EN4.4	Solar shading systems	2
	EN4.5	Passive systems for cooling and heating	2

9.2 Annex 02

9.2.1 A&A Architects Skill Passport

Multidisciplinary team specialized in the rehabilitation of buildings with the main objective of satisfying the comfort of the users by applying sustainable criteria and simplicity.

Organisation 2: Skill Passport Organisation

SOCIETY	**Comfort and well being**		
	Quality of air		
	CO1.1	Low Emitting materials	5
	Thermal comfort		
	CO2.1	Indoor Thermal Comfort	2
	Acoustic comfort		
	CO4.1	Sound insulation	2
	CO4.2	Room acoustics	5
	CO4.3	Indoor noise management	5
	CO4.4	Environmental noise management	5
	Visual comfort		
	CO3.1	Daylighting	2
	CO3.2	Interior lighting	5
	CO3.3	Outdoor lighting	5
	Ergonomics		
	CO6.1	Ergonomic and Active Furnishing	2
	Accessibility		
	Barrier free accessibility		
	AC1.1	Accessibility of public spaces	3
	AC1.2	Design for All	3
PROCESS	**Innovative Digital Solutions**		
	Building Information Modelling		
	ID1.1	Operation of BIM systems	4
	Measuring		
	ID5.2	Smart Building Sensors	3
	Built Environment Certification systems		
	Building sustainability certification		
	BE1.2	Building sustainability certification systems	4
	Interdisciplinary Skills		
	Collaboration and Communication		
	IS3.1	Motivation and communication - Design Team	3
	Information management		
	IS4.1	Management of information in a design process	4
ENVIRONMENT	**Materials**		
	Design for deconstruction, reuse and recycling		
	MA1.1	Materials and components for ease of disassembly	4
	Sustainable materials		
	MA2.1	Life Cycle Assessment (building scale)	4
	Energy		
	Energy Production and HVAC systems		
	EN3.1	Heating and cooling systems	5
	EN3.10	Energy storage systems (long duration storage, central/ decentralised)	5
	EN3.4	Electric heating systems	3
	EN3.5	Heat pump systems and geothermal energy systems	3
	EN3.6	Solar thermal energy systems for heating, cooling and DHW	3
	EN3.7	Solar power systems for electricity generation	3
	EN3.8	Combined Heat and Power (CHP) generation	5
	EN3.9	Mini wind power generation	5
	Energy Reduction		
	EN4.1	Thermal insulation	5
	EN4.2	Building air tightness	5
	EN4.3	Window and glazing systems	2
	EN4.4	Solar shading systems	5
	EN4.5	Passive systems for cooling and heating	5

Organisation 2: Skill Passport Individual Professional

Josep Comelles, Architect

		Accessibility		
SOCIETY		Barrier free accessibility		
	AC1.1	Accessibility of public spaces		3
	AC1.2	Design for All		3
		Comfort and well being		
		Visual comfort		
	CO3.1	Daylighting		2
	CO3.2	Interior lighting		5
	CO3.3	Outdoor lighting		5
		Ergonomics		
	CO6.1	Ergonomic and Active Furnishing		2

Mireia Sunyer, Architect

		Innovative Digital Solutions		
PROCESS		Building information Modelling		
	ID1.1	Operation of BIM systems		4
		Interdisciplinary Skills		
		Collaboration and Communication		
	IS3.1	Motivation and communication - Design Team		3
		Information management		
	IS4.1	Management of information in a design process		4

Organisation 2: Skill Passport Individual Professional

Esteve Rius, Civil Engineer

SOCIETY	Comfort and well being		
	Quality of air		
	CO1.1	Low Emitting materials	5

PROCESS	Innovative Digital Solutions		
	Building Information Modelling		
	ID1.1	Operation of BIM systems	4
	Measuring		
	ID5.2	Smart Building Sensors	3

ENVIRONMENT	Materials		
	Design for deconstruction, reuse and recycling		
	MA1.1	Materials and components for ease of disassembly	4
	Sustainable materials		
	MA2.1	Life Cycle Assessment (building scale)	4

Inés Hernandez, Energy Engineer

PROCESS	Built Environment Certification systems		
	Building sustainability certification		
	BE1.2	Building sustainability certification systems	4

SOCIETY	Comfort and well being		
	Thermal comfort		
	CO2.1	Indoor Thermal Comfort	2
	Acoustic comfort		
	CO4.1	Sound insulation	2
	CO4.2	Room acoustics	5
	CO4.3	Indoor noise management	5
	CO4.4	Environmental noise management	5

ENVIRONMENT	Energy		
	Energy Production and HVAC systems		
	EN3.1	Heating and cooling systems	5
	EN3.10	Energy storage systems (long duration storage, central/ decentralised)	5
	EN3.4	Electric heating systems	3
	EN3.5	Heat pump systems and geothermal energy systems	3
	EN3.6	Solar thermal energy systems for heating, cooling and DHW	3
	EN3.7	Solar power systems for electricity generation	3
	EN3.8	Combined Heat and Power (CHP) generation	5
	EN3.9	Mini wind power generation	5
	Energy Reduction		
	EN4.1	Thermal insulation	5
	EN4.2	Building air tightness	5
	EN4.3	Window and glazing systems	2
	EN4.4	Solar shading systems	5
	EN4.5	Passive systems for cooling and heating	5

9.3 Annex 03

9.3.1 TAAS Arquitectura Skill Passport

SVM_projects is a group of architects with 35 years of professional experience specialized in housing, urban planning projects. Our actions are characterized by our cooperation with the promoter, in order to achieve the desired objectives, at the same time we seek to establish a respectful and sensitive relationship with the urban environment applying criteria of sustainability.

Organisation 3: Skill Passport Organisation

		Comfort and well being	
		Quality of air	
	CO1.1	Low Emitting materials	3
		Thermal comfort	
	CO2.1	Indoor Thermal Comfort	5
		Visual comfort	
	CO3.1	Daylighting	5
	CO3.2	Interior lighting	5
SOCIETY		**Acoustic comfort**	
	CO4.1	Sound insulation	4
	CO4.2	Room acoustics	3
	CO4.3	Indoor noise management	2
		Ergonomics	
	CO6.1	Ergonomic and Active Furnishing	3
		Accessibility	
		Barrier free accessibility	
	AC1.1	Accessibility of public spaces	2
	AC1.2	Design for All	2
		Innovative Digital Solutions	
		Building Information Modelling	
	ID1.1	Operation of BIM systems	5
		Sustainable Building Design	
		Integrative design	
	BD1.1	Integrated Design Process	4
PROCESS		Built Environment, Certification systems	
		Building sustainability certification	
	BE1.1	Energy Performance Certification	4
	BE1.2	Building sustainability certification systems	4
		Interdisciplinary Skills	
		Collaboration and Communication	
	IS3.1	Motivation and communication - Design Team	4
		Information management	
	IS4.1	Management of information in a design process	4
		Materials	
		Design for deconstruction, reuse and recycling	
	MA1.1	Materials and components for ease of disassembly	4
		Sustainable materials	
	MA2.1	Life Cycle Assessment (building scale)	3
		Energy	
		Energy Production and HVAC systems	
	EN3.1	Heating and cooling systems	5
	EN3.10	Energy storage systems (long duration storage, central/ decentralised)	2
	EN3.4	Electric heating systems	4
ENVIRONMENT	EN3.5	Heat pump systems and geothermal energy systems	5
	EN3.6	Solar thermal energy systems for heating, cooling and DHW	4
	EN3.7	Solar power systems for electricity generation	4
	EN3.8	Combined Heat and Power (CHP) generation	2
	EN3.9	Mini wind power generation	2
		Energy Reduction	
	EN4.1	Thermal insulation	4
	EN4.2	Building air tightness	2
	EN4.3	Window and glazing systems	2
	EN4.4	Solar shading systems	5
	EN4.5	Passive systems for cooling and heating	5

Organisation 2: Skill Passport Individual Professional

Pau Manubens, Architect

SOCIETY	Accessibility		
	Barrier free accessibility		
	AC1.1	Accessibility of public spaces	2
	AC1.2	Design for All	2
	Comfort and well being		
	Visual comfort		
	CO3.1	Daylighting	5
	CO3.2	Interior lighting	5
	Ergonomics		
	CO6.1	Ergonomic and Active Furnishing	3
PROCESS	Innovative Digital Solutions		
	Building Information Modelling		
	ID1.1	Operation of BIM systems	5

Helena Font, Architect

PROCESS	Sustainable Building Design		
	Integrative design		
	BD1.1	Integrated Design Process	4
	Built Environment Certification systems		
	Building sustainability certification		
	BE1.1	Energy Performance Certification	4
	Innovative Digital Solutions		
	Building Information Modelling		
	ID1.1	Operation of BIM systems	5
	Interdisciplinary Skills		
	Collaboration and Communication		
	IS3.1	Motivation and communication - Design Team	4
	Information management		
	IS4.1	Management of information in a design process	4

Organisation 3: Skill Passport Individual Professional

Àlex Carrer, Civil Engineer

SOCIETY		Comfort and well being	
		Quality of air	
	CO1.1	Low Emitting materials	3
PROCESS		Innovative Digital Solutions	
		Building Information Modelling	
	ID1.1	Operation of BIM systems	3
ENVIRONMENT		Materials	
		Design for deconstruction, reuse and recycling	
	MA1.1	Materials and components for ease of disassembly	4
		Sustainable materials	
	MA2.1	Life Cycle Assessment (building scale)	3

Manuel Santillana, Energy Engineer

PROCESS		Built Environment Certification systems	
		Building sustainability certification	
	BE1.1	Energy Performance Certification	4
	BE1.2	Building sustainability certification systems	4
SOCIETY		Comfort and well being	
		Thermal comfort	
	CO2.1	Indoor Thermal Comfort	5
		Visual comfort	
	CO3.1	Daylighting	5
	CO3.2	Interior lighting	5
		Acoustic comfort	
	CO4.1	Sound Insulation	4
	CO4.2	Room acoustics	3
	CO4.3	Indoor noise management	2
ENVIRONMENT		Energy	
		Energy Production and HVAC systems	
	EN3.1	Heating and cooling systems	5
	EN3.10	Energy storage systems (long duration storage, central/ decentralised)	2
	EN3.4	Electric heating systems	4
	EN3.5	Heat pump systems and geothermal energy systems	5
	EN3.6	Solar thermal energy systems for heating, cooling and DHW	4
	EN3.7	Solar power systems for electricity generation	4
	EN3.8	Combined Heat and Power (CHP) generation	2
	EN3.9	Mini wind power generation	2
		Energy Reduction	
	EN4.1	Thermal insulation	4
	EN4.2	Building air tightness	2
	EN4.3	Window and glazing systems	2
	EN4.4	Solar shading systems	5
	EN4.5	Passive systems for cooling and heating	5