

# How to procure nZEB skills? A guide for public procurers

---



ICLEI Europe

1. Introduction
2. Step 1: pre-procurement
3. Step 2: Procurement
4. Step 3: Post-Procurement
5. Additional resources

# How to use this guide?

**nZEB**  
ready



# About this guide



## What are the aims of this procurement guide?

This step-by-step guide is designed for public authorities and procurement professionals. It aims to show **how public procurement can help stimulate demand for (n)ZEB construction skills, by highlighting measures that can be implemented throughout the procurement process.** It focuses on the “how to do it”.

By highlighting relevant examples from pilot projects, lessons learned from sister projects, insights from the nZEB Cities Working Group, as well as additional resources, this guide will help public procurers better understand how to encourage the uptake of (n)ZEB skills in the construction sector.



# About this guide

## How is this guide structured?

This guide follows the different steps of the procurement process, from identifying needs to awarding the contract to monitoring the outcomes of a tender. For each step, it outlines strategies for how public procurers can incorporate nZEB skills requirements into their tenders, as well as stimulate demand for skills through procurement.

### 1 - Introduction



- About this guide
- Construction skills
- nZEB skills
- Procurement and nZEB skills

### 2 - Pre-procurement



- Identify upcoming projects
- Communicate your nZEB ambitions
- Cross-departmental collaboration
- Provide training to your staff
- Analyse the skills gap
- Conduct market dialogues

### 3 - Procurement



- Competency-based clauses
- nZEB certification clauses
- Training clauses

### 4 - Post-Procurement



- Monitor and evaluate outcomes
- Share lessons learned
- Inform public procurement policies

### 5 - Additional resources



- nZEB ready resources
- Sister projects
- Additional resources



# Introduction



© Khara Woods | Unsplash

# About nZEB Ready



## What are the aims of the project?

[nZEB Ready](#) is an EU-funded project, under the Horizon 2020 Programme. Within the project consortium, 5 countries, from different parts of European Union and with different implementation status are involved as pilot cases: Bulgaria, Croatia, Poland, Portugal and Romania. The project outcomes are easily scalable to all member countries and easy to implement in any other country, regardless of the nZEB implementation level and knowledge. This is why the [nZEB Ready project](#) has a key role in developing the nZEB market needs and skills all around Europe.

1 - Introduction



# Construction skills





# The large footprint of buildings



## And what can public authorities do about it?

The built environment in Europe accounts for about **50% of all extracted material**, for **35% of CO2 emissions**, and for over **35% of the EU's total waste generation** ([Build Up, 2022](#)). Greenhouse gas emissions from material extraction, manufacturing of construction products, as well as construction and renovation of buildings are estimated at **5-12% of total national GHG emissions** ([European Commission, 2024](#)).

Transitioning to a nZEB building sector presents opportunities for large cost-effective energy and carbon savings. Public authorities are owners of large building assets, big buyers of construction and building maintenance services, and employers of practitioners responsible for building programmes and urban project managers. By stimulating demand for nZEB buildings and skills, public authorities in their exemplary role can accelerate the green transition.

1 - Introduction



# The EU construction workforce

## Why does this sector matter ?

The EU construction industry currently represents **9.5% of the EU's GDP** (or € 1,324 billion) and **employs 6.1% of EU's workforce**, or 12.7 million workers active in about 3.2 million enterprises ([European Building Confederation, 2022](#)).

In 2021, only 2% of construction workers were women. The employment of construction workers is expected to continue to grow, as **an estimated 4.2 million job openings will need to be filled between 2022 and 2035** to replace workers leaving the profession or retiring ([Cedefop, 2023](#)).



# The importance of skills



## What role do skills play in the green transition?

To achieve the goals of the **European Green Deal** and **Skills Agenda**, and achieve a climate-neutral built environment at scale, massive investments in skills are required.

Upskilling and reskilling the construction workforce and developing the skill sets relevant to nZEB construction and renovations will ensure that the built environment brings about positive social, environmental, and economic benefits. Promoting and supporting the uptake of nZEB skills could help to reduce the carbon footprint of the EU construction sector.

1 - Introduction



# The European skills agenda

## What is the EU doing to promote skills?

To address the current skills gap in Europe, the EU has adopted the [European Skills Agenda](#), a five-year plan to help individuals and businesses develop more and better skills and to put them to use, by:

- Strengthening sustainable competitiveness, as set out in the [European Green Deal](#), and Green Deal Industrial Plan. The Plan aims to create a more supportive environment for scaling up the EU's manufacturing capacity for the net-zero technologies and products.
- Ensuring social fairness, putting into practice the first principle of the [European Pillar of Social Rights](#): access to education, training and lifelong learning for everybody, everywhere in the EU;
- Building resilience to react to crises, based on the lessons learnt during the COVID-19 pandemic.

1 - Introduction



# What are nZEB skills?

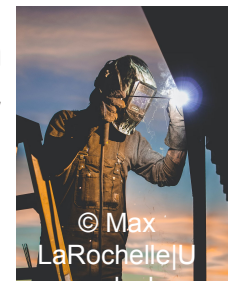




# What are nZEB construction skills?

## A definition

Nearly Zero-Energy Building (NZEB) means a building that has a very high energy performance, while the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby ([European Commission, 2024](#)).



To **design, construct, operate, and maintain nearly Zero-Energy Buildings (nZEBs)**, construction professionals such as architects, engineers, and builders need a **certain set of competencies, knowledge, and abilities**. This broad skillset is referred to as “nZEB skills”.

# What are nZEB construction skills?



## Examples of nZEB skills

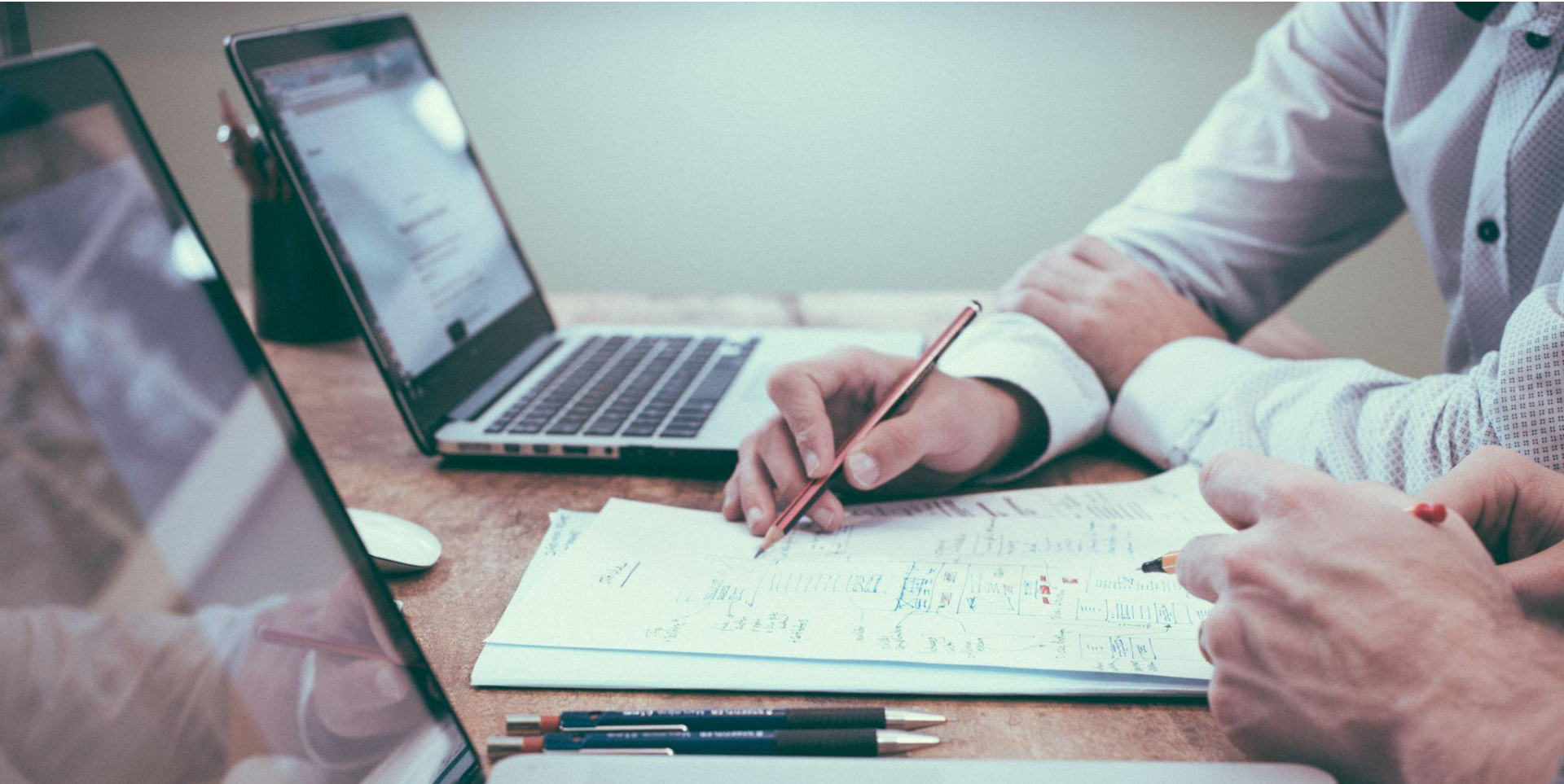
The construction workforce needs a variety of skills to design, build and maintain nZEB, such as:

- **Knowledge of energy-efficient building design;**
- **Soft skills and the ability communicate effectively with building owners, project managers, contractors, and workers;**
- **Ability to integrate a variety of energy sources in a building;**
- **Knowledge of material properties and use;**
- **Practical experience with nZEB projects;**
- **Knowledge of nZEB standards and how to meet these standards;**
- **Ability to accurately measure energy use in a building;**
- **Technical ability to apply certain construction techniques,**
- **and more....**

1 - Introduction



# How can procurement support nZEB skills?



# The role of public procurement



## A powerful lever

Representing **14% of the EU's GDP**, public procurement is a powerful market force that public authorities can use to stimulate nZEB construction skills. The public sector also **employs more than 25% of the European workforce**.

By embedding criteria in tenders for nZEB building standards, certain certifications, or qualifications, as well as on-site training clauses public buyers can send a signal to the market and encourage the development and learning of nZEB construction skills.

Through public procurement, public authorities can provide the industry with real incentives for upskilling, and other stakeholders with the confidence they need to upgrade their buildings.

1 - Introduction



## A requirement

The EU's GPP criteria on [Office building design, construction and management](#) (currently under revision), on Minimum Energy performance:

*“The procurer shall award points according to the modelled improvement in the energy performance of the building either:*

- *In proportion to how close the proposed design approaches the Member States national Nearly Zero Energy requirements in kWh/m<sup>2</sup> or, if these are not defined,*
- *On the basis of a comparison of design proposals that, depending on the prevailing national minimum requirements, have a primary energy demand.”*





## A requirement

The EU's GPP criteria on [Office building design, construction and management](#) (currently under revision), on Minimum Energy performance of buildings states that:

*“Where the national minimum requirement or, the national requirement for 'Nearly Zero Energy Buildings' as of 31st December 2018, is stricter than the above requirements, award criterion B8.1 (Minimum Energy performance requirements) shall be used instead in order to encourage further cost effective improved performance and deep renovations. Technical specification B9 (Low or zero carbon energy sources) shall also be used to require contributions from low and zero carbon energy technologies”*

1 - Introduction



# The nZEB legislation



## A requirement

The [Energy Performance of Buildings Directive](#) required that all new buildings in the EU met nearly zero-energy standards by the end of 2020, while all new public buildings to be nearly zero-energy after 31 December 2018.

Each Member States define their nZEB requirements. EU countries share their [nearly zero-energy buildings national plans](#) with the Commission and describe how they intend to increase the number of nearly zero-energy buildings in their respective country.

1 - Introduction



# The nZEB legislation



## Upcoming legislative changes

The legislative framework on buildings is expected to be informed by the combination of four key documents:

- [The Revision of the Energy Performance of Buildings Directive](#) which will introduce ZEB requirements;
- [The recast of the Energy Efficiency Directive 2023/1791](#) that extends the annual 3% buildings renovation obligation to all the levels of public administration;
- The creation in 2023 of a [new EU emissions trading scheme](#) (ETS 2) that will include the buildings sector in the next five years. The carbon price set by the ETS 2 will provide a market incentive for investments in building renovation;
- The [Renewable Energy Directive](#) introduces stronger measures to ensure that all possibilities for the further development and uptake of renewables are fully utilised in buildings.

1 - Introduction



# The ZEB legislation



## A requirement

The [Energy Performance of Buildings Directive](#) is being revised to increase the rate of renovation, particularly for the worst-performing buildings in each country and support the EU's energy and climate goals. It will also facilitate targeted financing to investments in buildings. The revision introduced the ZEB requirements.

A 'zero-emission building' means **a building with a very high energy performance, where the very low amount of energy still required is fully covered by energy from renewable sources generated on-site, from a renewable energy community or from a district heating and cooling system.**

The ZEB requirement should apply as of 1 January 2030 to all new buildings, and as of 1 January 2027 to all new buildings occupied or owned by public authorities.

1 - Introduction



# Step 1: pre-procurement





# Preparing the procurement procedure



## Why is the pre-procurement phase so important?

Conducting a successful nZEB construction or renovation project **requires good preparation**. Before launching the call for tenders it is important to understand the needs of the project, engage the market ahead of time, consult relevant stakeholders, including building owners and users, and explore different options. Investing time and resources to prepare the procurement procedure will help to ensure the success of the project.

2 - Pre-procurement



# Identify upcoming projects



## Are there any upcoming opportunities?

When the need to construct a new building or to renovate one arises, there might be **an opportunity to embed nZEB skills requirements in the tender documents**. Understanding the needs of the project and identifying what kind of skills or competencies will be required to achieve the project's objectives, can help to prepare the procurement process.

It might also be useful to **create synergies with other departments** or non-construction related opportunities, such as sustainable transport, education, business development, etc... to identify opportunities.

2 - Pre-procurement



# Identify upcoming projects



## Checklist

- ☐ Do you know of any public buildings that will need to be renovated?
- ☐ Do you know of any new public buildings that will need to be built?
- ☐ Can you be informed of upcoming projects that will incorporate nZEB elements?
- ☐ Are the project managers aware of how their project can incorporate nZEB skills requirements?
- ☐ Are there any smaller projects that can be used as pilots?

2 - Pre-procurement



# Communicate your nZEB ambitions



## What is your nZEB strategy?

To encourage construction companies and other stakeholders to meet (n)ZEB standards and upskill their staff, they need to be **aware of your municipality's nZEB goals**. Communicating upfront your nZEB strategy and its impact on skills, will provide businesses and other relevant stakeholders with an idea of **upcoming opportunity** and give them **time to hire or train staff with the relevant skills**.

2 - Pre-procurement



# Communicate your nZEB ambitions



## What is your nZEB strategy?

The municipality can provide construction companies, potential bidders and other relevant stakeholders a **list of relevant training opportunities** available in the region or online.

This can be done through **communication campaigns, market dialogues, dedicated web pages, and events** such as “Meet the Buyer” events.

Engaging in an early dialogue with the market can help to find the contractors who will meet your needs.

2 - Pre-procurement



# Example: the nZEB roadshow



The [nZEB Roadshow](#), a Horizon 2020 project, organised events in Bulgaria, Croatia, Greece, Italy and Romania with product exhibitions, job fairs, training courses, live demonstrations, games for children and more.

The project designed and **built mobile training and demo units that served as information centres to raise awareness of the benefits of nZEBs** and will communicate with stakeholders.

[Find out more here.](#)





# Communicate your nZEB ambitions



## Checklist

- ☐ What kind of stakeholders (e.g. construction companies, architects, engineers, universities etc.) need to be aware of your municipality's nZEB targets?
- ☐ What experience does construction companies and project developers have with nZEB or ZEB projects?
- ☐ Are these stakeholders aware of nZEB standards?
- ☐ How can you engage these different stakeholders?
- ☐ Can you organise an awareness raising event, and public consultations on market readiness, to engage relevant stakeholders?
- ☐ Can you use social media and other communication means to reach these stakeholders?

2 - Pre-procurement



# Cross-departmental collaboration



## Who can you engage internally?

Bringing together public procurement officers, urban planning and construction departments, and other relevant experts from across **departments** will help to tackle the technical aspects and ensure the development of the appropriate criteria and requirements to stimulate nZEB construction skills. Having a core team of staff dedicated will help to support the promotion of nZEB skills beyond the procurement process.

This can be a newly formed group or an existing group of municipal staff. This dedicated team can be composed of staff working on construction and planning, education and training, the environment and procurement departments, among others.

2 - Pre-procurement

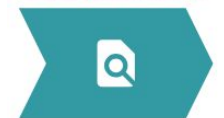


# Example: Høje-Taastrup's sustainability group

Høje-Taastrup Municipality (Denmark) participated in the EU-funded project [CityLoops](#) and implemented circular construction demonstration projects. The municipality established **an internal sustainability group to exchange across departments information and knowledge on the different sustainability projects** that the city implemented. One colleague from every municipal department attended the meetings, and the group helped to departments work together in a more interdisciplinary way.



[Find out more here.](#)



# Cross-departmental collaboration

## Checklist

- ☐ Can you form a cross-departmental group to support the promotion of nZEB skills?
- ☐ What department is in charge on the project? Can you get them to support or promote nZEB ?
- ☐ Who in your organisation or across the municipality should be invited to join the cross-departmental group?
- ☐ What expertise do you need to promote nZEB skills? (e.g. public procurers, urban planners, project managers, vocational trainers etc.)
- ☐ Can you get support from senior management?
- ☐ How often should this group meet?

2 - Pre-procurement



# Provide training to your staff



## Building internal capacity first

To encourage the market to develop nZEB skills and upskill their staff, procurement professionals might need to be **trained on how to embed relevant skills or training requirements in tenders**. This training should be extended to other departments, such as urban planning and construction departments. It can be done in-house or provided by an external expert or consultant.

2 - Pre-procurement



# Provide training to your staff



## Building internal capacity first

These trainings may include:

- An introduction to nZEB. Training may already exist at the national level;
- Green Public Procurement criteria for energy-efficient buildings;
- The (n)ZEB legislative framework at the national and EU level;
- An overview of existing qualifications and certifications relevant to nZEB and their equivalent;
- Examples of relevant criteria for tenders;
- Best practice examples from other projects or countries;
- Certification schemes for nZEB;
- How to embed requirements for certifications or training in tenders.

2 - Pre-procurement

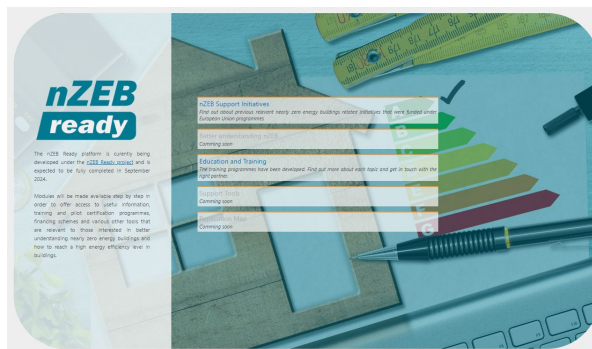




# Resource: the nZEB concept in practice for public authorities

The nZEB Ready projects has developed a **training programme for public authorities on the nZEB concept in practice**. This 14-hour training covers energy efficiency and building renovation policies (EU and national), the principles of nZEB, renovation and retrofit plans, construction work and quality assurance, economic efficiency, and engaging stakeholders.

[Find out more here.](#)



2 - Pre-procurement



# Provide training to your staff

## Checklist

- ☐ Do public procurers in your municipality know how to embed skills requirements in tenders?
- ☐ Do architects, urban planners or construction staff (or the managers of the project) in your organisation have knowledge on nZEB?
- ☐ Do public procurers have a good grasp of nZEB standards, and of nZEB skills?
- ☐ Can you ensure information flow and sharing of best practices among your staff? Can you ensure that knowledge and expertise about nZEB is retained within your organisation?
- ☐ How often do you hold training programmes for your staff? Is this kind of training taking in consideration in staff evaluation?
- ☐ Can you provide the relevant training in-house? Or do you need to outsource the training?
- ☐ Can you invite another municipality that has already conducted a nZEB upskilling training, or has included nZEB skills requirements in their tenders to present how their experiences?

2 - Pre-procurement



# Analyse the skills gap

## What is the current skills gap?

Once potential nZEB construction or renovation projects have been identified, it is important to **understand the current skills gap in the market**. It might be worth exploring the following questions:

- What skills do your contractors need to have to deliver your project objectives?
- What skill set do your potential contractors already have?
- What skills and knowledge might your potential contractors be lacking?
- What can be done to address the skills gap?

Conducting market research to analyse the skills gap can help your procurement department develop criteria for your project.

2 - Pre-procurement



# Resource: Mapping of Required Skills and Skill Gaps

The EU funded BUS Go-Circular project has developed a [framework to map the skills gap](#) existing within the construction industry throughout Europe. While this framework focuses on circular construction skills, this can be adapted to map the nZEB skills gap.

[Find out more here.](#)



2 - Pre-procurement



# Resource: Learning Programs for nZEB



The EU funded nZEB Ready project has developed a set of [learning and training programmes](#) necessary to complete and support the common learning outcomes and to facilitate mutual recognition.

[Find out more here.](#)

## Learning Programs for nZEB



August 2022

2 - Pre-procurement



# Analyse the skills gap

## Checklist

- ☐ Do you know whether your potential contractors have the required skills and experience to undertake your nZEB project?
- ☐ What knowledge, competencies and experience should your contractors have to be able to deliver your nZEB projects? How could they prove that they right skill set (e.g. certification, references from a previous client, portfolio of nZEB projects, etc...)?
- ☐ What skills and competencies should key staff in your organisation should have to deliver an nZEB project?
- ☐ Can you conduct research to understand the skills gap in the market?
- ☐ Are you aware of relevant certifications, training and courses on nZEB construction and renovations in your region?
- ☐ Do you need to outsource this skills gap analysis?

2 - Pre-procurement





# Conduct Market dialogues



## How to engage your potential contractors?

Market dialogues, nZEB fairs, and “get to know the buyer” events, are good opportunities to engage businesses and raise awareness of the importance of meeting nZEB standards and developing the relevant skills.

Through these events, public authorities can make potential contractors aware of the municipality’s nZEB objectives as well as outline how potential contractors could support these.

It is also important to understand what challenges potential contractors currently face, what standards they can realistically meet, and whether they know how they can upskill their staff to meet (n)ZEB standards.

2 - Pre-procurement



# Resource: Market engagement: Best practice report

The Sustainable Public Procurement (SPP) Regions report on [Market engagement](#) provides examples of best practices on how to engage suppliers. It outlines how to engage the market across the procurement procedure.

[Find out more here.](#)



Market engagement



# Resource: Driving sustainable innovation through public procurement in your region

This guide provides practical advice for public authorities on how to procure in an “innovation friendly” way. It will help to achieve the most innovative, energy efficient and cost-effective solutions for your needs.

[Find out more here.](#)



Driving sustainable innovation  
through public procurement  
in your region

Lower your costs  
Reduce your CO<sub>2</sub> footprint  
Improve your operations and services

2 - Pre-procurement



# Conduct Market dialogues



## Checklist

- ☐ How often do you organise meet the buyers or market dialogues?
- ☐ Are your contractors aware of your upcoming nZEB construction, renovation, or retrofitting projects?
- ☐ Are your potential contractors aware of the knowledge, skills and competencies their staff would need to have to deliver upcoming nZEB projects?
- ☐ What courses or trainings can you recommend?
- ☐ How can you encourage more construction companies to attend these events?

2 - Pre-procurement



# Step 2: Procurement

**nZEB**  
ready





# Prepare the tender process

## What will you ask your contractors?

Once you have conducted internal and external consultations and gained a better understanding of **what kind of nZEB skills are required to deliver the project**, you can start preparing the tender documents. You will also need to choose what kind of procurement procedure to follow.

It is important that the **skills requirements match the technical specifications of the project**. These requirements should apply to the contractor(s) and their subcontractor(s).





# Prepare the tender process



## What will you ask your contractors?

There are three main types of skills requirements clauses that you can include in your tender documents:

**Competency-based clauses:** Specific training or education may be requested in a tender, but they can only be requested as selection or award criteria and must specifically relate to the subject matter of the contract (e.g. nZEB renovation, nZEB construction, installation of nZEB features).

**Training clauses:** A training clause may be included whereby the company who won a tender commit to train all staff working on the project on a specific topic. It is important that the learning outcomes match the requirements of the tender.

**Performance-based clauses:** Specifications that ensures that the building will meet the nZEB standard. Requiring contractors to perform a blowerdoor test, or similar to demonstrate the that the building features meet nZEB standards, will indirectly show whether the bidders have the relevant skills and knowledge.

3 - Procurement



# Competency-based clauses

## How to include competency clauses in tenders?

It is possible to use this criterion to ensure that the project managers, engineers, designers, specialists and contractors etc. have the right qualifications, skills and experience to perform the contract. The technical specifications must be accompanied by the words ‘or equivalent’.

Art. 67 of [Directive 2014/24/EU](#) states that the “*organisation, qualification and experience of staff assigned to performing the contract, where the quality of the staff assigned can have a significant impact on the level of performance of the contract*” can be a criterion for awarding a contract.



# Example: Renovating the façade of an unused warehouse - Spain



The Energy Department of the Consorci de la Ribera wanted to sustainably refurbish an unused warehouse and transform it into a Youth Centre for Alzira. The Suppliers were asked to provide innovative façade renovations (principally windows—including glazing, frames, and shading) which would significantly reduce the overall building energy consumption and associated CO2 emissions without compromising the building's functionality and comfort. This renovation aimed at meeting nZEB standards.



In the selection criteria, **bidders had to prove recent experience in energy rehabilitation of buildings, and professional competency (relevant qualification and experience of project team).**

[Find out more here.](#)

3 - Procurement



# Include nZEB certification requirements



A number of **certifications and qualifications related to nZEB already exist**. Including requirements in tenders that potential bidders should have these qualifications or equivalent, is one way to ensure that your future contractor has the necessary skills, knowledge and competencies to undertake the project.

If the skills gap analysis and market dialogues conducted in the pre-procurement phase reveal that most contractors do not have the relevant certifications, it may be necessary to **provide a list of available certifications that the contractors could undertake**.

3 - Procurement



# Examples of nZEB certifications or training programmes

Name	Type	Training program in English [national name between brackets]	Link
NZEB training courses Ireland	MOOC	Retrofit	<a href="http://nzeb.wwetbtraining.ie/nzeb-courses">http://nzeb.wwetbtraining.ie/nzeb-courses</a>
NZEB training courses Ireland	MOOC	Electrical (Energy efficiency and quality in dwellings)	<a href="http://nzeb.wwetbtraining.ie/nzeb-courses/course-detail/electrical">http://nzeb.wwetbtraining.ie/nzeb-courses/course-detail/electrical</a>
Fit-to-nZEB / blue-collar worker	Various	Specialist on deep energy retrofitting [Специалист по енергийно ефективно обновяване]	<a href="http://www.fit-to-nzeb.com">www.fit-to-nzeb.com</a>
Fit-to-nZEB / professional high school/college	Various	Specialist on deep energy retrofitting [Специалист по енергийно ефективно обновяване]	<a href="http://www.fit-to-nzeb.com">www.fit-to-nzeb.com</a>
Train-to-nZEB	Various	General principles of nZEB [Основни принципи на ПНЕС]	<a href="http://www.train-to-nzeb.com/">http://www.train-to-nzeb.com/</a>



# Examples of nZEB certifications or training programmes

Name	Type	Training program in English [national name between brackets]	Link
How to design new buildings after 2022 - nZEB theory and practice	CPD Seminar (webinar)	How to design new buildings after 2022 - nZEB theory and practice (Jak navrhovat nové budovy po roce 2022 – teorie a praxe nzeb)	<a href="https://www.nzeb.cz/">https://www.nzeb.cz/</a>
NZEB Buildings - PASSIVHAUS Standard	Online	NZEB BUILDINGS - PASSIVHAUS STANDARD	<a href="https://www.escolasert.com/es/oferta-formativa/curso-estandar-passivhaus">https://www.escolasert.com/es/oferta-formativa/curso-estandar-passivhaus</a>
Fit-to-nZEB / higher education	CPD course	Energy renovation of buildings to the NZEB level [Energetska obnova zgrada do razine gotovo nulte energije (NZEB)]	<a href="http://www.fit-to-nzeb.com">www.fit-to-nzeb.com</a>
Design and construction of NZEBs	CPD course	Design and construction of NZEB [Projektiranje i izvođenje zgrada gotovo nulte energije (NZEB)]	



# Examples of nZEB certifications or training programmes

Name	Type	Training program in English [national name between brackets]	Link
NEWCOM (flat roofer)	Various	New competence for building professionals and blue collar workers – certified qualification schemes to upgrade the qualification for building nZEBs	<a href="https://www.newcomtraining.com/">https://www.newcomtraining.com/</a>
NEWCOM (ventilation installer)	Various	New competence for building professionals and blue collar workers – certified qualification schemes to upgrade the qualification for building nZEBs	<a href="https://www.newcomtraining.com/">https://www.newcomtraining.com/</a>
NEWCOM (building inspector)	Various	New competence for building professionals and blue collar workers – certified qualification schemes to upgrade the qualification for building nZEBs	<a href="https://www.newcomtraining.com/">https://www.newcomtraining.com/</a>

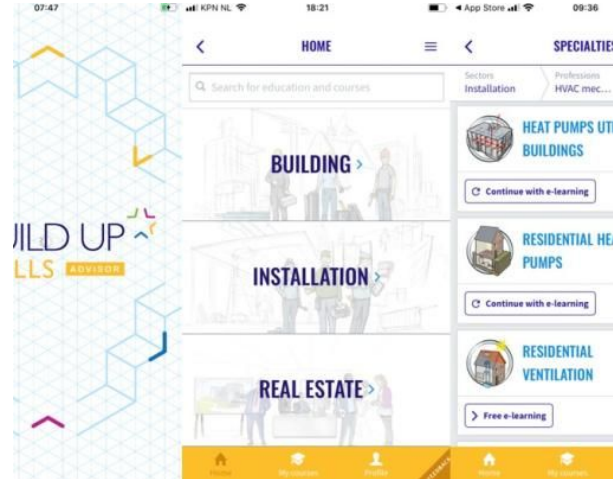




# Resource: BUILD UP Skills Advisor app: an easy tool for professional trainings

The BUILD UP Skills Advisor app is a free tool for practitioners and craftsmen to look for opportunities for trainings in Europe and some specific EU countries. It also contains a community-managed content repository and can facilitate the use of micro-credentials for personal recognition and lifelong learning.

[Find out more here.](#)



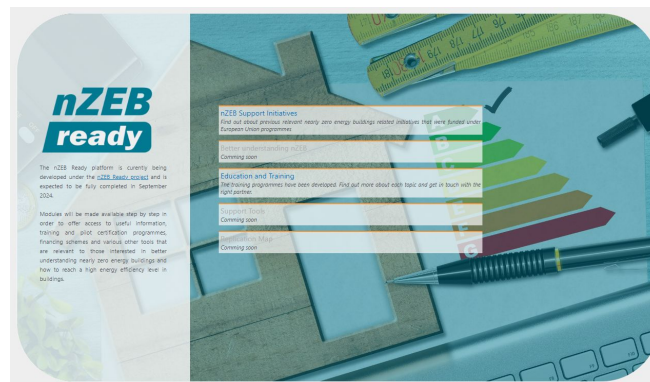
3 - Procurement



# Resource: the nZEB Ready Platform

The nZEB Ready project has developed **training programmes on nZEB for different target audiences** including Designers (Architects and Engineers), Energy Auditors and Assessors, Execution Engineers, Public Authorities, Key specialists for nZEB Certification, and other professionals.

[Find out more here.](#)



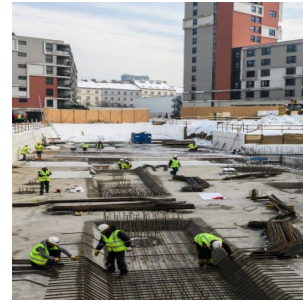
## 3 - Procurement



# Example: net-zero energy building for the Czech Supreme Audit Office



When the Czech Supreme Audit Office (SAO) decided to build its first permanent headquarters, it wanted a nZEB building. To ensure that the construction contractors have the relevant experience, the SAO used the most economically advantageous tender (MEAT) and quality criteria to evaluate the bidders. The quality award criteria consisted of:



**Qualification and experience of the core team members** (100 points, weighted 15%), which was divided into:

- **Qualifications and experience** of the core team members in the construction of BIM-designed buildings (100 points, weighted 50%)
- **Qualifications and experience** of the core team members in the civil construction (100 points, weighted 50%)

[Find out more here.](#)

3 - Procurement



# Example: Energy Efficient Data Centre in Vienna

The City of Vienna realised that the many, small data centres used by the City administration, were economically and ecologically inefficient. It procured in 2011 the construction of a highly energy-efficient building to house the Data Centre and several city council offices. In the selection criteria it **asked bidders to provide references proving that similar projects with the specified minimum technical characteristics had been previously conducted**. The tender was awarded on the basis of the most economically advantageous tender (MEAT) and the award criteria also considered the expertise of the stakeholders.

[Find out more here.](#)



3 - Procurement



# Example: Poland's first passive energy swimming pool

In 2018, Sulejów municipality (Poland) procured the construction of a passive swimming pool and sports hall at the primary school. In the open tender procedure, **bidders were asked to prove they have the necessary knowledge and experience to perform the works i.e. in the last 10 years they have performed the following:**



The construction of at least one building which obtained a **certificate of tightness test** at a level not worse than 0.6 litres of air change per hour (1/h) performed in accordance with the PN-EN ISO 9972: 2015-10 standard or equivalent, and;

- Execution of at least **one building in which a geothermal pump with vertical collectors is installed** with a minimum heating capacity of 15 kW, and;
- Execution of at least one swimming pool building with a reinforced concrete basin structure, with a water surface of at least 60m<sup>2</sup>.

[Find out more here.](#)



# Example: Pavilion Y of the Olomouc University Hospital

Olomouc University Hospital is one of the largest hospitals in the Czech Republic. Pavilion Y, a new six-storey building with a 100-bed capacity that was completed in 2018, was designed with innovative features to achieve energy efficiency and reduce carbon emissions. The construction of Pavilion Y at the Olomouc University Hospital provided an opportunity for the **construction industry to develop new skills and knowledge in sustainable building practices**. The project required the contractor to comply with strict energy performance standards and implement sustainable design features. This requirement encouraged the contractor to adopt new construction techniques and technologies that promote energy efficiency and reduce carbon emissions.

[Find out more here.](#)



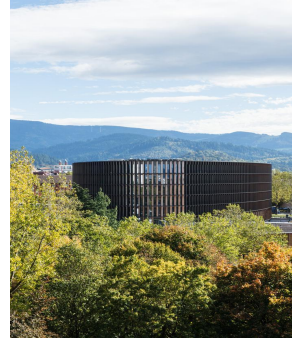
3 - Procurement



# Example: Freiburg's New City Hall



For the construction of its new city hall, the City of Freiburg took bold steps to develop a state-of-the-art building that embodies the city's commitment to environmental responsibility, incorporating cutting-edge green technology and energy-efficient design principles. As **one of the world's first public buildings with a zero-energy concept**, the project required the use of new and innovative building technologies and materials, which required the construction teams to develop new skills and knowledge. The building's outstanding environmental sustainability credentials and positive impacts have been recognised by award nominations such as the 2019 DGNB Sustainable Building award for outstanding implementation of ecological and architectural standards (winner) and the 2018 Balthasar Neumann Preis (nominated).



[Find out more here.](#)

3 - Procurement

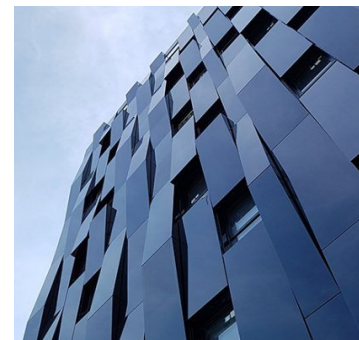




# Example: Bolueta Tower of Bilbao

Built between 2015 and 2018, its construction represents a transformation from industrial heritage to modern, eco-conscious urban living. The Bolueta Tower is **the highest passivhaus building in the world**. Such a feat required the development of new approaches that helped to promote nZEB construction. The building's unique design and technical requirements necessitated specialised knowledge and skills, starting from the planning stage and throughout the whole construction process into the maintenance phase. The construction of this first-of-its-kind tower in the immediate vicinity has set a precedent for further developments in the area.

[Find out more here.](#)



3 - Procurement



# Competency-based clauses

## Checklist

- ☐ What nZEB certifications can you require your contractors to have?
- ☐ How will you verify these certifications?
- ☐ What competencies and experience will you require from:
  - ☐ Designers (Architects and Engineers)?
  - ☐ Energy Auditors and Assessors?
  - ☐ Key specialists for nZEB Certification?
  - ☐ Construction workers?
  - ☐ Engineers?
  - ☐ Site supervisors?
- ☐ What previous experience do you expect your contractors to have?
- ☐ How will you evaluate the previous relevant experience of your contractors?
- ☐ Are there enough people in your region that have the relevant certifications?



# Include training clauses in tenders

## What training can you require contractors to do?

Including training clauses in tenders is one way that public procurers can have a direct impact on stimulating demand for nZEB construction skills. When the winning contractor is awarded a contract, these clauses **ensure that they commit to training their staff during the project, or on certain aspects of nZEB**. Alternatively, these **trainings can be organised ahead of the tendering process**, as a prerequisite for potential bidders. This could help to ensure that the tender is competitive.

Contractors have to dedicate some time, budget, and means to train their employees (construction workers and site supervisors), possibly directly on-site. It is possible to have enforce **penalties** in cases where contractors and subcontractors do not comply with the training clauses.



# Example: Energy efficiency training clauses in Ireland

Dublin City Council piloted a Passive House project in St. Bricin's Park. To achieve the EnerPhit standard, Dublin City Council embedded in the tender a **requirement to complete a Passive House Tradesperson's training**. The winning contractor construction team undertook a bespoke Passive House Tradesperson's Course, along with members of Dublin City Council's design and maintenance staff.

A clause was included in the contract to **require workers to complete the Passive House Tradesperson's training**. The training was paid for by the Dublin City Council and organised at the outset of the contract. The training was organised in 5 sessions. The first session was theoretical and took place before the start of the project. The following sessions were highly practical and occurred on site at the beginning of relevant activities.



[Find out more here.](#)

3 - Procurement



# Example: Energy efficiency training clauses in France

Energy efficiency training clause was used by **social housing** provider called CLESENCE for the renovation of four residential units within a multi-family dwelling in Avesnes-les-Aubert. The project aimed to be certified to the nZEB label by Effinergie Rénovation, within the French High Environmental Quality Standard (NF HQE). The contracting authority used an **energy efficiency training clause**, requiring the implementation of a multi-trades onsite training, through the Integrated Work Training - FIT (Formation Intégrée au Travail). Once the project began, a project coordinator organised training for site operators (apprentices, workers, journeymen, team leader, etc.) and site managers (site foremen, works managers, managers, etc.).

[Find out more here.](#)



3 - Procurement



# Example: Gabrovo Restoration of the summer theater

The city of Gabrovo, Bulgaria, decided to restore its summer theater in 2022. The project had a value of 1.9 million EUR. The municipality included **training requirements** in the tender for the construction workers including training programme. The training was **provided by EnEffect for free**. The programme provided on-site training and the winning contractor could face penalties for untrained workers on site.

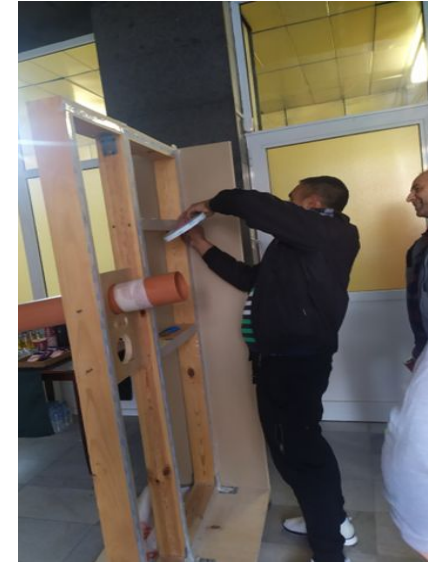


# Example: Gabrovo Restoration of the summer theater

## TRAINING PROGRAMME

(9 h theory and 7.5 h practice)

1. Basic principles of deep renovation (1.5 h theory)
2. Approaches to achieve air tightness of buildings (2.5 h theory, 3 h practice)
3. Installation of thermal insulation systems (2 h theory, 2.5 h practice)
4. Installation of windows (2 h theory, 2 h practice)
5. Critical points and responsibilities of teams from different areas when working together (1 h theory)



3 - Procurement





# Example: Gabrovo Restoration of the summer theater

## Lessons learned:

- The design team should also receive nZEB training.
- Capacity building of municipal staff and procurers on nZEB is also needed.
- The training programme should be designed in light of the technical specifications.

Templates of specific contract clauses and technical specifications to facilitate procurers will be useful

- Energy auditing and EPC
- Minimum energy and comfort requirements
- Verification of results



3 - Procurement



# Resources on training clauses in procurement

Public authorities can draw on these resources, among others, to gain a better understanding on how to include training clauses in public procurement processes.



[Using Public Procurement to Incentivise Upskilling – Best Practice Guide](#): presents some examples and best practice of how public procurement can be used to incentivise (directly and indirectly) energy efficiency upskilling in the construction industry



The report on [Main barriers to incorporate “Energy efficiency/nZEB” training clause into Public Procurement](#) summarises the main challenges faced by public bodies who want to use public procurement to better incentivise energy efficiency upskilling.



# Resource: Guide for Green Public Procurement in construction

In 2020, the regional government of Valencia launched a Guide for Green Public Procurement in construction. The guide has a high exemplary value, and influences the market, encouraging the private sector towards new forms of production and more responsible consumption where circularity and the efficient use of resources prevail. In May 2021, the guide was updated to cover “competency-based clause”.

[Find out more here.](#)



3 - Procurement



## Checklist

- ☐ What skills, knowledge and competencies might your potential contractors lack?
- ☐ What type of training will help your potential contractors achieve the nZEB objectives of your construction or renovation project?
- ☐ Which organisation can provide the training to your winning contractor?
- ☐ What will be the key learning outcomes of the training?
- ☐ How much time and resources should your contractor dedicate to upskilling its staff?
- ☐ How will you verify that the training has been conducted and the key learning outcomes have been met?



# Step 3: Post-Procurement





# Monitor and evaluate the outcomes



## How to evaluate the impact on skills of a nZEB project?

Public procurement should ensure that public money is spend in a manner that provides the greatest economic, environmental and social benefits. To ensure that public procurement achieves the intended objectives and yielding positive results, **it is important to assess and evaluate its impacts**. Public procurers should ensure that contractors have complied with the contract clauses, such as providing evidence that trainings have taken place and insights on the results of the trainings.

By **evaluating and monitoring the impact** of the procurement or renovation or construction projects on the uptake of nZEB skills can help to inform future projects. It is important to gather insights about the project results once the contract has been awarded, and dedicate resources to monitoring and evaluating the outcomes of nZEB projects and tenders. This can be done by surveying your contractors.

4 - Post-Procurement



# Monitor and evaluate the outcomes

## Checklist

- ☐ Did the contractor have the relevant skills, competencies and experience to undertake the project?
- ☐ Over the course of the project, did the contractor train or upskill its staff?
- ☐ What trainings or courses did your contractor undertake during the course of the project?
- ☐ What skills or competencies is your contractor still lacking?
- ☐ What certifications, courses, or training can you recommend in future nZEB projects?
- ☐ What are the lessons learned from the project?
- ☐ Has the project meet the nZEB standards and the technical specifications? Does the use phase of the building meet the standards?

4 - Post-Procurement





# Share lessons learned

## Who can benefit from learning from your experience?

Sharing lessons learned from your various nZEB projects can help to **identify solutions that can be implemented in future projects**. The results and lessons learned from a project can be shared internally among your relevant colleagues, as well as with other municipalities and at EU level. These lessons learned can be share in various forms:

- Presentation at an internal meeting;
- Posts on social media;
- Case studies or articles;
- Presentations at events;
- Study visits.



# Where to share your lessons learned

## Who can benefit from learning from your experience?

A number of platforms at the EU-level collect lessons learned from nZEB projects. Here are a few places where you could share your experiences:

- [Build Up Skills](#)
- [The European Commission's GPP Helpdesk](#)
- [The Procura+ European Sustainable Procurement Network](#)
- Relevant LinkedIn groups

It may also be useful to share these lessons at the national level with:

- The ministry or office in charge of public procurement;
- GPP stakeholder groups;
- policymakers responsible for construction and education;
- National training centers;
- Universities

4 - Post-Procurement



# Share lessons learned

## Checklist

- ☐ Can you share lessons learned with colleagues across different departments?
- ☐ Can you or your communications team draft a case study, article, or social media post to share the lessons learned and results from your nZEB project?
- ☐ What platforms can you use to share your experiences?
- ☐ Which other stakeholders in your country could benefit from learning from your project?

4 - Post-Procurement



# Inform future policies and regulations



## How to influence the regulatory framework?

The **results from projects, analysis of current challenges, and monitoring of outcomes forms the evidence-base to improve the public procurement process over time.** Identifying regulatory challenges and discussing potential solutions with relevant stakeholders can inform the revision of the regulatory framework to further support the upskilling of the construction workers and the transition to a nZEB built environment at scale.

4 - Post-Procurement



# Inform future policies and regulations



## Checklist

- ☐ What regulatory challenges do you currently face in the implementation of nZEB projects?
- ☐ What challenges do you face with the upskilling of the construction workforce?
- ☐ Can you share your insights and lessons learned with policymakers and decision makers?
- ☐ Are there any upcoming public consultations that you could contribute to?

4 - Post-Procurement



# Additional resources



# nZEB Ready resources



## Where to find out more?

<a href="#">The nZEB Ready Platform</a>	The nZEB Ready Platform offers modules, information, training and pilot certification programmes, financing schemes and various other tools that are relevant to those interested in better understanding nearly zero energy buildings and how to reach a high energy efficiency level in buildings.
<a href="#">Learning Programs for nZEB</a>	This report presents a set of learning and training programmes necessary to complete and support the common learning outcomes and to facilitate mutual recognition.
<a href="#">nZEB examples</a>	Explore examples of nZEB buildings from across Europe.
<a href="#">Set of highly applicable nZEB evaluation criteria and nZEB indicators</a>	This report brings together the nZEB evaluation criteria and indicators for the pilot countries in the project.
<a href="#">nZEB Ready website</a>	Find out more about the project and its outcomes on the website.

5 - Additional resources



# Sister projects

## Where to find out more?

<a href="#">BUS League</a>	The overall aim of BUSLeague is to address and overcome the challenges of the stimulation of demand for energy skilled workforce (demand side), along with hands-on capacity building to increase the number of skilled workforce across the building design, operation and maintenance value chain (supply side).
<a href="#">BUS-GoCircular</a>	BUS-GoCircular understands the importance of a green energy workforce within the construction sector. Our aim is to address and overcome the challenges faced when implementing real change through equipping a green energy skilled workforce. Working collaboratively and connecting with partners is our goal and by upskilling both demand and supply sides of the value chain, we believe real change is afoot

5 - Additional resources





# Sister projects

## Where to find out more?

<a href="#">nZEB Roadshow</a>	The EU-funded nZEB Roadshow project performed national-level marketing and communication promotions in five EU countries, organising nZEB weeks in selected cities in each of the participant countries. The action consisted of a wide range of events including construction products, real estate exhibitions, practical demonstrations, and real-time construction, training for both designers and workers, career orientation, and job centres focusing on the local SME construction sector. Prefabricated modular mobile buildings were used as information centres to raise awareness of the benefits of nZEBs.
<a href="#">Train-to-nZEB</a>	The “Train-to-nZEB” project aimed to provide world-class training on energy efficiency and RES in buildings, based on new training programmes, business plans, and up-to-date training equipment for a set of training and consultation centers around Europe. Its goal was to improve the knowledge and skills in the construction sector and to provide practical trainings, demonstrations, and comprehensive consulting services for design and construction of Nearly Zero-Energy Buildings (nZEB) supported by RES, based on the Passive House concept.

5 - Additional resources



# Sister projects

## Where to find out more?

<a href="#">Train4Sustain</a>	The EU-funded TRAIN4SUSTAIN project will establish future-oriented training and qualification quality standards. The aim is to foster a broad uptake of sustainable energy skills in the European construction sector. The project will also address the issue of mutual recognition as a way to ensure that training accredited in one country is recognised easier in another country. Overall, it will build on the newly developed EU framework for energy and resource efficient buildings, as well as on European frameworks to expand energy skill qualifications across borders. To this end, it will promote a competence quality standard, a European Skills Registry and a Skills Passport.
<a href="#">HP4All</a>	The EU-funded HP4All project aims to allow improvement of capacity and skills within the HP industry and secure the energy efficiency benefits that HP technology offers. The project brings together a wide range of actors from the supply and the demand sides to increase, develop and promote the desired skills for high-quality HP and to optimise HP installations within residential and non-residential buildings. It will develop a package of different instruments and resources, including an HP Competency Framework to facilitate mutual recognition of HP skills and, from an end-user perspective, an HP Knowledge Hub to deliver support, instructions and tools.

5 - Additional resources



# Sister projects

## Where to find out more?

<a href="#">Fit-to-nZEB</a>	The FIT-TO-NZEB project aims to increase the competence and skills of the building professionals in all participating countries - Czech Republic, Romania, Bulgaria, Italy, Croatia, Ireland, Austria and Greece - through unique educational programmes and pilot training courses, which will contribute to both the quality and the scale of the deep energy building renovations.
<a href="#">CityLoops</a>	The CityLoops project brings together seven European cities – Apeldoorn, Bodø, Mikkeli, Porto, Seville, Høje-Taastrup and Roskilde - to pilot a series of demonstration actions to close the loop of two of the most important waste streams in Europe: Construction and Demolition Waste, and Bio-waste. Their ultimate aim is to become circular cities in which no resource goes to waste, driving the transition to the circular economy.

5 - Additional resources



# Additional resources

## Where to find out more?

<a href="#">BUILD UP Skills</a>	BUILD UP Skills is a strategic initiative initiated by the European Commission in 2011 under the Intelligent Energy Europe programme. The primary aim of the initiative has been to increase the number of trained and qualified building professionals across Europe to deliver building renovations offering high-energy performance as well as new nearly zero-energy buildings.
<a href="#">The EU GPP Helpdesk</a>	The GPP helpdesk of the European Commission publishes every month case studies and articles on GPP
<a href="#">Public Buyers Community Platform</a>	The Public Buyers Community Platform complements the European Commission's strategy to improve public procurement in the EU by bringing together public authorities and other stakeholders.
<a href="#">The Procura+ European Sustainable Procurement Network</a>	Procura+ is a network of European public authorities and regions that connect, exchange and act on sustainable and innovation procurement.
<a href="#">The Sustainable Procurement Platform</a>	The Sustainable Procurement Platform showcases examples of cities around the world of sustainable public procurement.

5 - Additional resources



# Acknowledgement



ICLEI Europe would like to thank the funders, authors, contributors and reviewers for their contributions to the preparation of this guide.

**Lead Author:** Helena O'Rourke-Potocki (ICLEI).

**Contributing authors:** Leslie Petitjean (ICLEI), Cristina Roca Álamo (ICLEI), Katarzyna Korczak (RIC), Paula Trindade (LNEG), Marion Jammet (IGBC), and Marija Somogji Loncaric (REA North).

**Reviewers:** Horia Petran (URBAN-INCERC), Simon Clement (ICLEI).

This guide also drew on insights gathered from the **nZEB Ready Cities Working Group**. We want to thank the following public authorities and city governments for their contributions to the nZEB Ready project:

Primăria Municipiului **Alba Iulia** (Romania), Câmara Municipal de **Almada** (Portugal), Municipiul **Bistrița** (Romania), Община Бургас/**Burgas** Municipality (Bulgaria), Urząd Miasta **Katowice** (Poland), Grad **Koprivnica** (Croatia), Столична община/**Sofia** Municipality (Bulgaria), Primăria **Sectorului 2 București** (Romania), Câmara Municipal de **Torres Vedras** (Portugal), Grad **Varaždin** (Croatia), Câmara Municipal de **Vila Nova de Famalicão** (Portugal), Urząd Miasta **Warszawa** (Poland), Община Ямбол/**Yambol** Municipality (Bulgaria).



# Deliverable 5.1

Version	1.0
WP	5
Deliverable	Guidance for Public Procurement of nZEB works
Date	February 2024
Dissemination level	Public
Deliverable lead	ICLEI Europe
Authors	Helena O'Rourke-Potocki (ICLEI)
Contributors	Leslie Petitjean (ICLEI), Cristina Roca Álamo (ICLEI), Katarzyna Korczak (RIC), Paula Trindade (LNEG), Marion Jammet (IGBC), and Marija Somogji Loncaric (REA North).
Reviewers	Horia Petran (URBAN-INCERC), Simon Clement (ICLEI)
Abstract	A guidance document on the incorporation of nZEB skills requirements in construction/ renovation procurement by public authorities, outlining practical how-to methods and material to directly support procurers and in particular explaining approaches to the construction itself (e.g. skills of workers).
Keywords	nZEB; Skills; Public Procurement; Cities; Guidance

# Horizon 2020 disclaimer



## Legal Disclaimer

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 101033733.

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the CINEA nor the European Commission is responsible for any use that may be made of the information contained therein.



*The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the CINEA nor the European Commission is responsible for any use that may be made of the information contained therein.*

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 101033733.*



# Thank you for your attention!

COORDINATOR:

**URBAN**  
**INCD**  
**INCERC**



PARTNERS:



**CLUSTER**  
**pRO nZEB**



**EnEffect**



**LNEG**  
Laboratório Nacional de Energia e Geologia, I. P.

Research and Innovation Centre  
**PRO-AKADEMIA**



**ICLEI**  
Local  
Governments  
for Sustainability

**UT CB**  
Universitatea Tehnică  
de Construcții București





**Regional Energy Agency North**