

Step by step guide on HOW TO TURN PUBLIC BUILDINGS INTO NZEB



ABOUT THIS GUIDE

The present guide aims to support public authorities to identify and manage the renovation process, with a particular focus on eCentral project countries.

The guide identifies the main important phases of the renovation process, from the early stage of the project development, through the design and construction phase, up to the service life of the buildings.

Public tenders are crucial for the success of the project: how they are carefully defined and managed can have an impact on the later stages of the process.

EU REGULATION ON PUBLIC TENDERS

Public tenders and public procurement have a very strong impact on the economic performance in Europe. EU Commission developed harmonized tender processes regulations to ensure a fair environment for all businesses across Europe.

MAIN REFERENCE REGULATION:

- Directive 2014/24/EU on public procurement
- Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal service sector
- Directive 2014/23/EU on the award of concession contract

DEFINITION FROM DIRECTIVE 2014/24/EU, ART. 2:

- (6) 'public works contracts' means public contracts having as their object one of the following: the execution, or both the design and execution, of a work, or realization of a work specified by the contracting authority
- (9) 'public service contracts' means public contracts having as their object the provision of services
- (21) 'design contests' means those procedures which enable the contracting authority to acquire, mainly in the fields of town and country planning, architecture and engineering or data processing, a plan or design selected by a jury after being put out to competition with or without the award of prizes

nZEB TARGET IN ECENTRAL PROJECT COUNTRIES

PROJECT PARTNER COUNTRIES MAIN REFERENCE REGULATION (application of the EPBD directive)	RESIDENTIAL PE DEMAND (kWh/m ² ·a)		NON-RESIDENTIAL PE DEMAND (kWh/m ² ·a)		OTHER NZEB REQUIREMENTS
	New	Existing	New	Existing	
Austria OIB guidelines 6, National Plan 2018	41*	44*	84**	87**	Individual calculations: limits for heating demand and final energy demand (Energy Efficiency factor). Non-Renewable PE * for heating energy demand, ** for heating and lighting energy demand.
Croatia Technical Regulation on rational use of energy and thermal protection in buildings OG128/15	35-80	n/a	25-250	n/a	Minimum 30% of PE consumption must be generated from RES. Ranges of PE are depending on climate zone and use of the building.
Hungary Amended Decree 7/2006 (V.24.)	100	n/a	Office: 90 Educational: 85	n/a	New buildings: limits for heat transfer coefficient of structures, and specific heat loss factors. Specific requirements to prevent summer overheating of buildings and for building engineering systems.
Italy Law 90/2013 Decree DM 26 of June 2015	Individual calculations: limits according to comparable reference building. Fixed indicator: Minimum 50% of energy for DHW, heating and cooling provided by RES.				
Slovenia National Plan for nZEB in Slovenia approved in 2015	75-80	90-95	55	65	Minimum 50% of PE consumption must be generated from RES.

EU REGULATION ON NZEB

Achieving the nZEB target means bringing additional benefits to the economy and the society. The EU Commission boosts the building market to increase energy renovation, gain significant saving and improve the citizen health.

MAIN REFERENCE REGULATION:

- Directive 2010/31/EU (EPBD) and 2018/844/EU on energy performance of buildings
- Directive 2012/27/EU (EED) on energy efficiency
- Directive 2018/2001/EU on renewable energy

RENOVATION SCENARIO

A positive approach to develop a renovation strategy solution set needs to include:

- IED to integrate a collaborative multidisciplinary approach
- Energy audit, before the renovation to identify the building needs and improvements, and one to support the renovation strategy and the solution set decision making process
- Cost-optimality evaluation approach
- LCC analysis
- Identification of the tools

ENERGY RENOVATION GLOSSARY

- ☒ CF / Crowdfunding
Practice of raising a capital through collective efforts of a large number of individual investors to finance a project.
- ☒ DBOFM / Design Build Operate Finance Maintain
- ☒ EPC / Energy Performance Contracting
Form of creative financing for capital improvement which allows funding energy upgrades from cost reductions.
- ☒ GPP / Green Public Procurement
- ☒ IED / Integrated Energy Design
Multidisciplinary, collaborative and participatory process where the work team is composed of different stakeholders with differing knowledge and experiences.
- ☒ nZEB / nearly Zero Energy Buildings
Buildings which have a very high energy performance standard impacting both new build and existing (retrofit). The very low amount of energy should be covered to a very significant extent from RES produced on-site or nearby.
- ☒ PE / Primary Energy
- ☒ PPP / Public Private Partnership
Agreement between the government and one or more private partners (which may include the operators and the investors).
- ☒ PV / Photovoltaic panels
- ☒ RES / Renewable Energy Source

Further information at

☒ tinyurl.com/ecentral-publications

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Tools developed within the project

Living EPC Tool

☒ nzeb.thorium.software

Living Lab

Version 11/2020





RENOVATION PROCESS OF PUBLIC BUILDINGS

The implementation of the IED process results in a positive approach that enables to achieve valuable results and to guarantee an effective management of the renovation process.

The working team should be composed of **experts with different knowledge** to develop the renovation project identifying the best solution sets in a wide range of possibilities, through a cost-benefit analysis.

Tools, software and processes have to be identified at the beginning of each phase in order to **guarantee the quality of the results** that needs to be achieved and verified.

Follow the green line to see the steps of the most commonly used renovation processes.

STAKEHOLDERS INVOLVED

- PUBLIC AUTHORITY**
Building owner
- BUILDING MANAGER**
Building facility manager
- USERS**
People who use the building
- BUILDING EXPERTS TEAM**
Architecture, Design & Engineering team
- CONTRACTOR**
Building construction or Operation contractor
- CONSTRUCTION SUPERVISOR**
Building construction works supervisor
- PRIVATE INVESTOR**
Single or multiple investors financing the project

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