



Comune di Cesena



# PASSIVE HOUSE REGIONS WITH RENEWABLE ENERGY

## Success Model **Municipality of Cesena**

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# ENERGY AND BUILDING POLICY

## ○ CURRENT LONG-TERM NATIONAL POLICY ON ENERGY EFFICIENCY IN BUILDINGS

European Directive 2010/31/EU implemented by the Italian Government through Law No. 90 (3/8/2013):

- **Before 30 June 2014**, the definition of the **Action Plan** aimed at increasing the number of NZEB, to set the standard for NZEB, as well as the policies and financial measures to promote NZEB;
- **From 31 December 2018**, the new buildings occupied by public authorities and the buildings they own must be NZEB
- **From 1 January 2021** all new buildings must be NZEB

In Italy there is still no definition of “Nearly Zero Energy Building”

## ○ LOCAL CLIMATE AND SUSTAINABLE ENERGY POLICY

- The Municipality of Cesena joined the **“Covenant of Mayors”**: requiring the local Administration to reduce their carbon dioxide emissions by 20% compared to 1990 by 2020 at the latest
- **Sustainable Energy Action Plan (SEAP)**
- **Specifications in the building Regulations** to promote, through the use of forms of incentives, technology and design that can guarantee high energy performance for Cesena’s building

## ○ NEW POLICY INSTRUMENTS FOR ENERGY EFFICIENCY IN BUILDINGS

- The Administration of Cesena has recently presented the **10 strategic guidelines** for future planning instruments
- **New Municipal Structural Plan**: forms of incentives to build NZEB and redevelop the existing buildings, which is the real challenge for the future

# ECONOMICS AND FINANCE

## ○ ECONOMIC INDICATORS

### ○ *Public buildings:*

- Annual energy consumption for heating (natural gas, district heating, ...) and electricity
- Annual CO2 emissions saved by interventions (installation of photovoltaic systems,...)
- Coefficient of consumption for heating and domestic hot water:  $[\text{gas consumed m}^3 \cdot \text{Hi}(\text{kWh/m}^3)] / [\text{m}^3 \text{ building} \cdot \text{degree days}]$

### ○ *Non-public buildings:*

- Average annual consumption per consumer type (MWh/m<sup>2</sup>)
- Annual CO2 emissions due to production by district
- Average annual energy bill per consumer type (€/m<sup>2</sup>) and energy carrier (electricity, gas, heat)

## ○ ECONOMIC LEVERS TO PROMOTE NZEB

- *Certificati Verdi (Green Certificates)*: securities that guarantee the production of energy from renewable sources
- *Titoli di Efficienza Energetica (Energy Efficiency Certificates)*: securities that certify the achievement of energy savings (measured in TEO)
- *Conto Termico (Thermal Account)*: support system for the promotion of small-scale interventions for increasing energy efficiency in buildings and for the production of thermal energy from renewable sources.
- *Tax deduction for energy requalification of existing buildings*

## ○ FORMS OF FINANCING FOR ENERGY EFFICIENCY IN BUILDINGS:

- *Energy Performance Contracts (EPCs)*
- *Third Party Financing (TPF)*
- *Project Financing*
- *Subsidized rate loans*

# KEY ACTORS

## ○ LOCAL ADMINISTRATIVE CAPACITY

- ***“Energie per la Città S.p.a.”:***

The Municipality of Cesena’s “in house” company, that deals with the management of the assets and the territory of Cesena, for the purposes of environmental protection and energy saving, performs maintenance services for installations in public buildings, energy improvements, design, construction management and activities related to the efficient use of energy; designs and operates energy plants powered by renewable energy sources

- ***Environment and Protection of the municipal area sector:*** involved in the implementation of the Covenant of Mayors
- ***Urban Planning municipal sector:*** involved in the implementation of urban plans

## ○ POTENTIAL FOR IMPROVEMENTS

- ***Energy help desk*** with technical staff to which citizens can ask consultancy on energy efficiency measures in buildings and forms of public incentives

## ○ EXTERNAL STAKEHOLDERS

There is not yet a collaboration between the Municipality and external stakeholders for the development and implementation of policies in the field of nearly zero-energy buildings, because until a few months ago there were not any local and national regulations implementing the European Directive 2010/31 and therefore a systematic and continuous relationship had not yet been established

## ○ ATTRACTION OF NEW PLAYERS

National and regional energy Agencies, Trade associations, ESCOs, educational institutions, research centers, local media

# CAPACITY FOR PLANNING, DESIGN AND CONSTRUCTION

## ○ TRAINING OF LOCAL AUTHORITIES

At present, in the Municipality of Cesena there is not yet a sector able to fully apply the principles of NZEB in a sustainable development plan. However, some sectors, such as the Urban Design, are already developing the integration of these buildings in future urban planning.

There aren't any PH projects implemented, monitored, evaluated and certified by municipal administration or under its supervision yet.

## ○ TRAINING OF DESIGNERS AND BUILDERS

There are, at national level, companies that organize training courses to become designers and consultants Passivhaus certifiers although Cesena has not organized courses and examinations of this kind, and the number of participants in the courses organized by other regions is not available.

## ○ SUPPORT FOR SPECIFIC TARGET GROUPS

- ***Energy education day:*** training day dedicated to energy efficiency and renewable energy sources in the industry
- ***Events and forums:*** efficiency and energy savings in public and private buildings, efficiency and energy savings in enterprises, production of energy through renewable sources.

Trade associations, political parties, agencies of the territory, cultural associations, independent professionals and citizens' representatives participated in the forums

# MARKET FOR PASSIVE BUILDINGS

## ○ CURRENT LOCAL MARKET

It is necessary to estimate the economic repercussions of the energy performance of a building on its market value, but to date a database of data and experience fit for purpose isn't available

## ○ TARGETED ACTIONS AND MEASURES FOR MARKET DEVELOPMENT

In the future, different actions on several fronts:

- **on the political front**, through the recognition, in the new municipal Structural Plan, of incentives for those who choose to build nearly zero-energy buildings;
- **on the economic-financial front**, promoting, through the “energy help desk”, the knowledge of the forms of national and local incentives;
- **on the technical front**, spreading the issues related to passive buildings through an information point, conferences, forums and specific courses for designers and builders
- **on the communication front**, pointing out the importance of modernization of the buildings

## ○ MAIN OBSTACLES

- ✓ absence in Italy of implementation decrees of the European directive on NZEB
- ✓ low awareness of end consumers, suspicious of the quality of the construction refurbishment and convinced that such buildings require a more expensive initial investment

# SUCCESSFUL PRACTICES

## ○ NUMBER OF PASSIVE HOUSES BUILT

- In Cesena, there are **no passive buildings certified** by the Passive House Institute and, there has been no investigation or monitoring of the performance of NZEB;
- Voluntary census of “nearly zero energy buildings” present in Cesena (November 2012):
  - ✓ **Residential building - social housing located in Cesena** that meets the following requirements:
    - heat requirement for heating – 12 kWh/m<sup>2</sup>year;
    - demand for cooling – 13 kWh/m<sup>2</sup>year;
    - primary energy demand – 90 kWh/m<sup>2</sup>year
  - ✓ **Private residence located in Cesena** that meets the following requirements:
    - heat requirement for heating – 9 kWh/m<sup>2</sup>year;
    - demand for cooling – 11 kWh/m<sup>2</sup>year;
    - primary energy demand – 90 kWh/m<sup>2</sup>year
- Examples of buildings with low energy consumption realized by the Municipality of Cesena:
  - ✓ **New Nursery School located in Martorano di Cesena:** building envelope insulated; controlled mechanical ventilation with heat recovery; solar photovoltaic and solar thermal systems
  - ✓ **Requalification of an existing Junior High School located in Cesena:** project aimed to reduce by 75% the consumption for heating with building envelope insulation, replacement of all windows with double glazed windows, mechanical ventilation system with heat recovery and the installation of a monitoring system that allows remote setting of heating, reducing the consumption of gas

# QUALITY CONTROL

## ○ CURRENT SYSTEM OF QUALITY CONTROL

Currently, the specific control of the quality of the projects submitted and buildings has only been based on the presentation of the statements released by the technical designers and **energy performance certificates** released by accredited technicians in the Region of Emilia Romagna.

## ○ RESULTS OF MONITORING OF BUILDINGS

There is **no monitoring of the real energy performance** of new and renovated buildings, so there is no feedback between the energy performance certificate and the real consumption of the buildings.

## ○ PROPOSALS FOR FUTURE IMPROVEMENT OF THE QUALITY CONTROL SYSTEM

The system of quality control for projects and existing buildings should be improved from the point of view of the technical evaluation, sustainability and being environmentally friendly.

It is necessary the involvement and interaction between designers, builders and Public Administration, to set out an effective method to evaluate the correspondence between the energy properties declared in the projects and the real performance of buildings built after a period of adequate monitoring.

## ○ RESULTS OF THE INTRODUCTION OF ENERGY CERTIFICATES

Number of energy certificates recorded in the Forlì-Cesena Province

Energy class	Total certifications	Residential building	Primary energy [kWh/(m <sup>2</sup> *year)]
<b>A+</b>	<b>52</b>	<b>52</b>	EP <sub>tot</sub> <25
<b>A</b>	405	367	25≤EP <sub>tot</sub> <40
<b>B</b>	1784	1508	40≤EP <sub>tot</sub> <60
<b>C</b>	3223	2689	60≤EP <sub>tot</sub> <90
<b>D</b>	3586	3062	90≤EP <sub>tot</sub> <130
<b>E</b>	2855	2396	130≤EP <sub>tot</sub> <170
<b>F</b>	2429	2085	170≤EP <sub>tot</sub> <210
<b>G</b>	5639	5202	EP <sub>tot</sub> ≥210



# PUBLICITY AND PUBLIC SUPPORT

## ○ COMMUNICATION PLAN OF THE REGION/MUNICIPALITY

- **The purpose of the communication plan** is to identify the target groups to be involved in the spread of nearly zero-energy buildings, to increase their numbers in the Cesena municipal area
- **The identified target groups are:** Policy Makers, Professional Associations, Students, Environmental Associations, Designers, Builders, Press. For each group objectives of the strategy and how to involve them according to their function were identified
- **Major events:** a series of events and training courses directed at students, teachers, educators and citizens
  - Educational workshops
  - Meetings at the headquarters of neighborhoods
  - Big events (Energy Days,...)
- **Most suitable communication channels:**  
Forums/press/action plans (Policy Makers), open table of discussion (Professional Associations), websites/workshop/lessons (students), meetings (environmental Associations), Press conferences (Press)



Energy efficiency, renewable energy sources, energy-efficient buildings

## ○ COMMUNICATION ACTIVITIES WITHIN THE PASSREG PROJECT

- **Events** dedicated to renewable energy sources, sustainable development and the dissemination of the principles of passive houses;
- **Course "Train the trainer"**, held by Susanne Theumer;
- Inauguration of an **"Energy Point"**;
- **"Passive House Days"**: some owners of buildings with low energy consumption of the municipal area will open their homes to the public, showing constructive solutions adopted and making a testimony on how it is leaving inside high performance buildings;
- **Regional Building Forum:** the future political strategy aimed to buildings with low energy consumption and key points of the new Municipal Structural Plan and the basic concepts of NZEB will be introduced

# SWOT ANALYSIS

## ○ STRENGTHS

- ✓ **Commitment by the city administration to disseminate** the knowledge gained from the examples of good practices of the Front Runners Regions
- ✓ Next study and approval of **Municipal Structural Plan**
- ✓ **Events for training** and awareness
- ✓ **Economic and financial levers** already existing in Italy, to support energy requalification of existing buildings

## ○ WEAKNESSES

- ✓ **Limited dissemination** of issues related to NZEB outside of the professional groups involved in their implementation
- ✓ **Few professionals able to apply** the principles of NZEB, especially within the local administration
- ✓ The **market for materials** used for NZEB and the market of these buildings is still not very large
- ✓ The **system of quality control** doesn't include the assessment of standards for NZEB

## ○ OPPORTUNITIES

- ✓ **Events planned** to raise awareness of citizens and for the dissemination of issues related to NZEB
- ✓ **Projects** of educational activities **in schools**
- ✓ **Communication strategy** according to the different target groups identified
- ✓ Opportunity to **study examples of good practices** that already exist in Europe

## ○ THREATS

- ✓ **Future national policy** for implementation of the legislation not in line with the objectives set in relation to the NZEB
- ✓ **Economic crisis**
- ✓ **Economic and financial levers** that will disqualify new low energy buildings
- ✓ **Poor adhesion to training programs** by specialists identified in and out the local Administration

# FRR SOLUTIONS SUITABLE FOR THE REGION

- **“Exemplary Buildings” program:**

financial incentive instrument to encourage demand for environment efficiency construction. All projects must strive to be a zero-emission building and must demonstrate a high architectural quality, good visibility, and a satisfactory level of integration into existing stock

- **Sample contract for functional contracting in public buildings:**

Functional contracting replaces the description of the technical systems in buildings in usual tendering. Instead of the planned technical devices the results which have to be reached by the technical systems and which are easily to check are the quality of light, air, temperature and energy consumption

- **Sustainable building facilitator network**

it's a network of support specialists for those individuals, groups or businesses that wish to build or renovate in line with passive standards. Their mission is to offer impartial, independent consulting services on energy consumption management, rational use of energy and promotion of renewable energy

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**THANK YOU FOR YOUR  
ATTENTION!**