Mapping competences for Energy Renovation towards nZEB-levels

Horia Petran
The Building Knowledge Hub – Romania
NIRD URBAN-INCERC, Romania
Bucharest, Sos. Pantelimon 266 | www.incd.ro
nZEB: Challenges for implementation

Legal obligations are provided in the National legal framework (transposing EPBD), but the Nearly Zero Energy Building (nZEB) concept does not seem to be easily applicable yet in Romania.

Main barriers:
- Mobilization of required investments,
- Optimal integration of the technologies suitable for the construction and/or renovation of buildings at nZEB levels,
- Skills gaps experienced by the building sector → the current qualification courses and training schemes are generally not satisfactory and underdeveloped to face the challenge of effective nZEB implementation.
Train to nZEB: The Building Knowledge Hubs

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649810

www.train-to-nzеб.com

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ToR @ www.train-to-nzеб.com

On-site workers

High level specialists, designers

Decision makers

Technology demonstration

Theory. & Practical Training

Tech. consultancy, R&D

Technology integration - nZEB

Advanced practical training for 21st century construction
Participants in Train-to-nZEB Programs ~ 4000

- **2437 on-site personnel**
  - Bulgaria: 623
  - Czech Republic: 485
  - Ukraine: 275
  - Romania: 469
  - Turkey: 585

- **614 designers / specialists**
  - Bulgaria: 207
  - Czech Republic: 109
  - Ukraine: 45
  - Romania: 126
  - Turkey: 127

- **894 decision makers**
  - Bulgaria: 245
  - Czech Republic: 153
  - Ukraine: 82
  - Romania: 229
  - Turkey: 185

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Photovoltaic Panels Installers in RO

- 5 courses (120 h)
- 103 participants
- 89 certified (NQ system)

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Fit-to-NZEB: Innovative training schemes for retrofitting to NZEB-levels

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Fit-to-NZEB: Logic of the action

- H2020 project (June 2017 –June 2019)
- Tackling the most pressing issue around
- Covering the full scale of the academic & VET system (EQF levels 2-7)
- Complementing and providing sustainability of T2NZEB & BUILD UP Skills
- Local capacity for trainings on deep energy retrofit
- Broadening of the geographical scope and large-scale networking
Fit-to-NZEB: Why?

Crucial argument

Lower energy consumption leads to the decrease of energy poverty, energy sources dependency and increase of energy security.

Renovation of existing buildings
- The most significant ENERGY SAVING POTENTIAL

European Commission Recommendation

“The Member States should accelerate progress in the development of support policies addressing the refurbishment of existing building stocks towards NZEB levels.

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Fit-to-NZEB: Challenges

2020 and 2030 objectives represent a major challenge

Inclusion of training on intelligent EE and RES solutions in building renovation

**READINESS OF CONSTRUCTION SECTOR TO DELIVER HIGH LEVEL ENERGY RENOVATIONS AND nZEB**

Accessibility and quality of educational programmes

Increase of the number of construction specialists at all levels
Elaborate a set of required technological competences related to the EE and RE solutions in building renovation.

Develop new training programmes at all levels of the vocational education. Develop training system employing the newly elaborated technica competences.

Review the national educational plans for the relevant professions. Introduce the necessary changes.

Establish capacity for professional training of trainers. Train and certify a sufficient number of trainers.

Support and monitor the first courses on the new programmes at all levels.

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Increased interest in training on energy efficiency in buildings and particularly on building renovation

Increased number of qualified workers and specialists

Raised quality of renovated buildings

Acceleration of energy renovation of existing building stock

Fit-to-NZEB: Expected impacts

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Fit-to-NZEB: Learning Outcomes

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<table>
<thead>
<tr>
<th>General</th>
<th>Cognitive &amp; Practical</th>
<th>Completion of tasks</th>
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<tbody>
<tr>
<td>EQF 3</td>
<td>EQF 4-5</td>
<td>EQF 6-7</td>
</tr>
<tr>
<td>Knowledge (factual and theoretical)</td>
<td>Skills (cognitive, practical and social)</td>
<td>Autonomy and Responsibility</td>
</tr>
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<thead>
<tr>
<th>General</th>
<th>Cognitive &amp; Practical</th>
<th>Management and supervision review, eval.</th>
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</table>
| EQF 3   | EQF 4-5               | EQF 6-7 |}

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F2NZEB: Learning Outcomes

Energy retrofit nZEB

Planning and design instruments
Achieving measurable results

Project management

Optimal solar gains
Basics of building physics

Step-by-step retrofit plans

Ecology and Sustainability

Conservation of historic building fabric

Engaging stakeholders

Cost effectiveness

Energy efficiency and building renovation policies

Building services

Building Envelope

Airtightness, vapour and moisture movement, windtightness

Comfort, health and safety (incl. IAQ)

NZEB Neighborhoods

- Distributed energy production & EMS
- Energy cooperatives

- MVHR
- Heating and Cooling
- DHW
- Control & Automation
- Lighting

- Energy storage

- Thermal insulation
- Minimizing thermal bridges
- Highly efficient windows

- Summer comfort / passive cooling strategies
- Fire safety

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Fit-to-NZEB: Programs

1) For institutions of higher education (EQF 6-7): 60 h (30 h lectures & 30 h seminars)

2) For professional high schools
   - “Construction” professional direction (EQF 3-5): 60 h (24 h lectures & 36 h practical lessons)
   - “Electrical engineering & energy sector” prof. direction (EQF 3-5): 36 h (12 h lectures & 24 h practical lessons)

3) For Vocational Training Centres (incl. on-site, EQF 2-5): 12/16/40 h
   - Building Envelope,
   - Mechanical Systems

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Thank you!

Horia Petran

NIRD URBAN-INCERC
The Building Knowledge Hub
Bucharest, Romania
Șos. Pantelimon 266
hp@incerc2004.ro