

CEI conference, 26-27 September 2018



Energy Efficiency in Buildings - for a Better Tomorrow

New competences for the construction sector to achieve NZEBs

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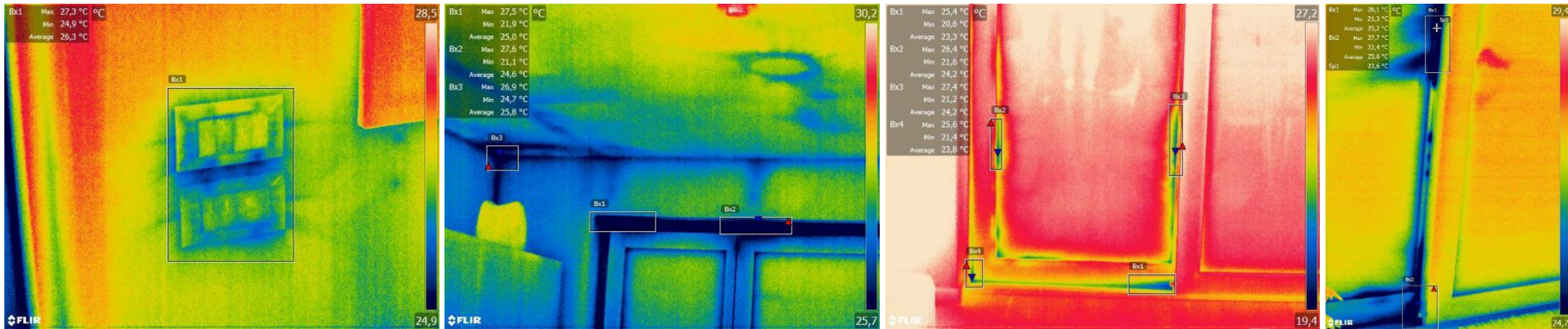
Introduction

- the most **challenging aspect** of reducing energy use in the building sector lies in **increasing the rate, quality and effectiveness of building renovation** since the current rate of renovation is only 1.2 % per year.
- **Lack of adequate construction skills**
 - important barrier that hampers the development of NZEBs and effective renovations.
- **Improving the skills is of key importance**
 - of middle- and senior-level building professionals,
 - various trade professionals



Practical experience

- many construction mistakes happen
 - greatly affect building's energy performance and the appearance of construction damage.
 - particularly when details and joints are considered,



WHAT ARE OUR GOALS?

CREATING JOBS & GROWTH, BRINGING DOWN GREENHOUSE GAS EMISSIONS, SECURING ENERGY SUPPLY



“CONSUMERS BY DEFINITION, INCLUDE US ALL. THEY ARE THE LARGEST ECONOMIC GROUP, AFFECTING AND AFFECTED BY ALMOST EVERY PUBLIC AND PRIVATE ECONOMIC DECISION. YET THEY ARE THE ONLY IMPORTANT GROUP WHOSE VIEWS ARE OFTEN NOT HEARD.”

JOHN F. KENNEDY, 15TH MARCH 1962



Putting energy
efficiency first

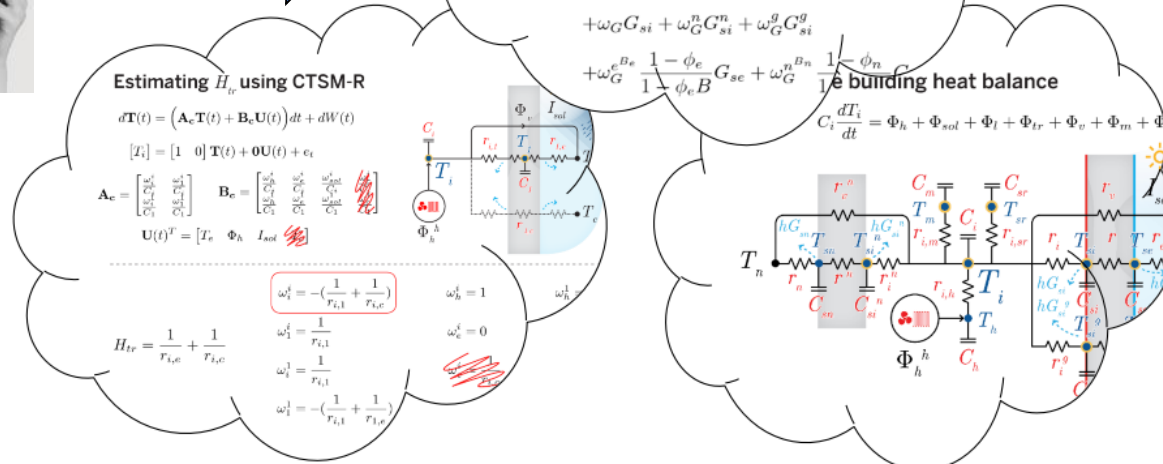


Demonstrating
global leadership
in renewables



Delivering a
fair deal for
consumers

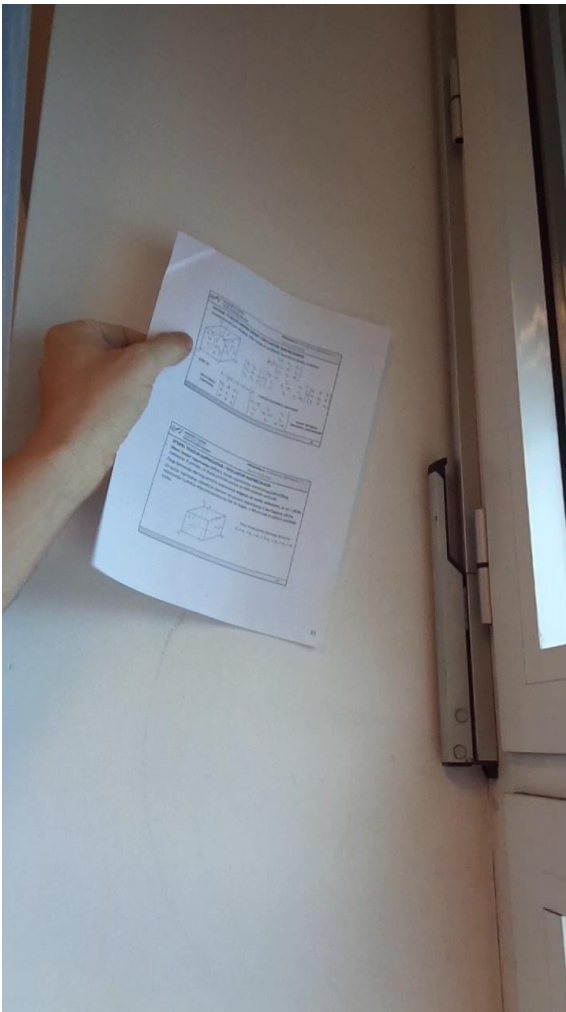
Don't forget!



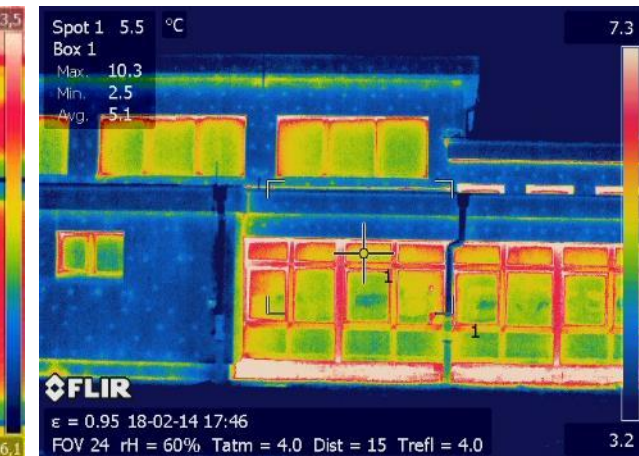
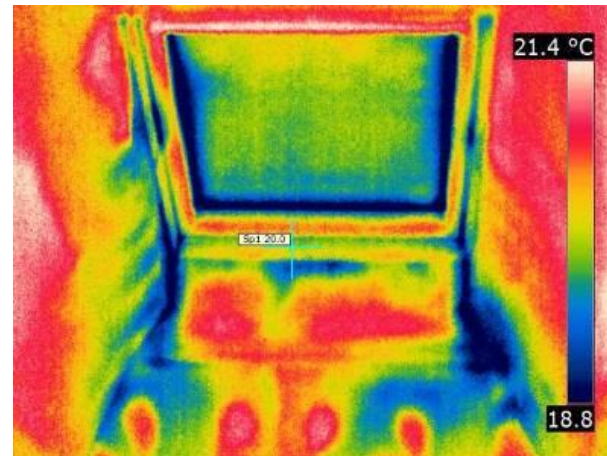
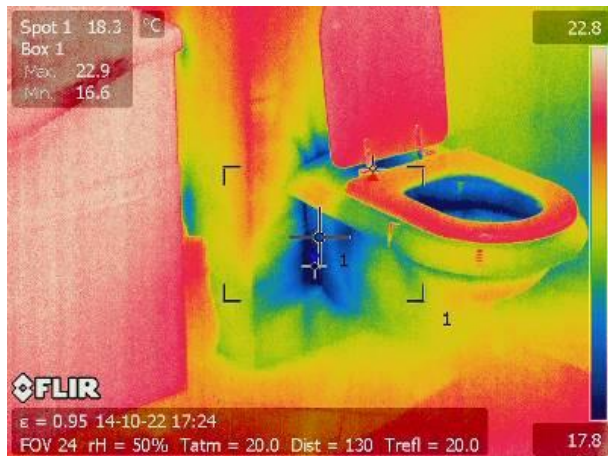
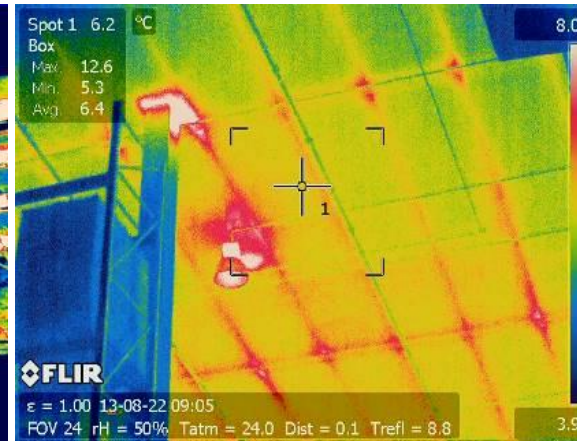
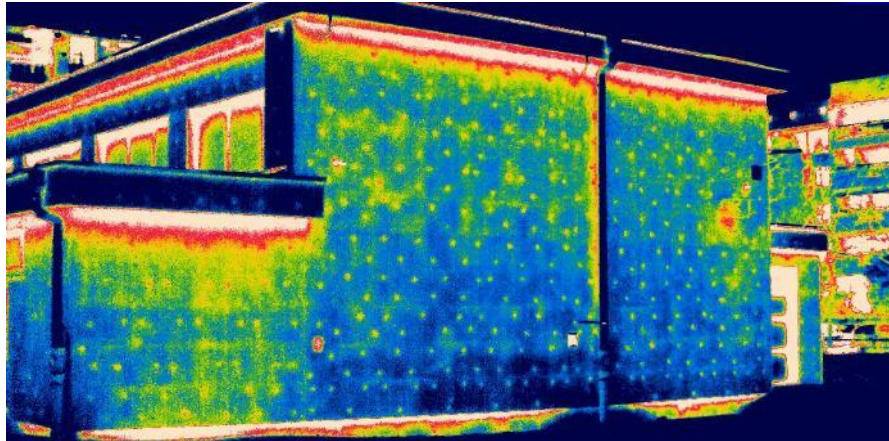
Any calculation is only as good as the actual planning and construction.

The influence of quality is often neglected!!!

Recorded construction failures in Croatia



Construction mistakes discovered using infrared



The lack of quality is often caused by the lack of competences!

- new knowledge & skills related to nZEBs.
- These include
 - new materials and products,
 - the integration of RES,
 - new systems or processes,
 - the use of Building Information Modelling (BIM) tools
 - Cross craft
 - ...



EU aims to **equip** the next generation of construction sector workers **with the skills and knowledge** needed to ensure building and renovation projects **meet stringent energy efficiency requirements.**

Ammendment of the EPBD II

- (10) According to the Commission's impact assessment, renovation would be needed at an average rate of 3 % annually to accomplish the Union's energy efficiency ambitions in a cost-effective manner. Considering that every 1 % increase in energy savings reduces gas imports by 2,6 %, clear ambitions for renovation of the existing building stock are of great importance. Thus, efforts to increase the energy performance of buildings would contribute actively to the Union's energy independence and, furthermore, have great potential to create jobs in the Union, in particular in small and medium-sized enterprises. In that context, Member States should take into account the need for a clear link between their long-term renovation strategies and pertinent initiatives to promote skills development and education in the construction and energy efficiency sectors.

Amendment of the EPBD II

(6) In Article 10, paragraph 6 is replaced by the following:

"6. Member States shall link their financial measures for energy efficiency improvements in the renovation of buildings to the *targeted or achieved* energy savings, *as determined by one or more of the following criteria:*

(a) *the energy performance of the equipment or material used for the renovation; in which case, the equipment or material used for the renovation is to be installed by an installer with the relevant level of certification or qualification;*

Upskilling towards energy efficiency and sustainable energy should be done throughout the entire value chain of the buildings sector

- (including designers, architects, engineers, building managers, technicians, installers and workers including apprentices).



BUILD UP Skills: The Challenges



- Deficiencies in the training programmes
- Need for professional **training of trainers**
- **Outdated training materials and facilities**
- Monitoring of training demand
- **Engagement of stakeholders**
- Communication: improving the image of the construction sector
- Broad endorsement campaign for the Roadmaps

- *Upgrading or setting up large-scale qualification and training schemes in these areas **goes hand-in-hand with** initiatives that:*
 - *increase the demand for skilled building professional,*
 - *create new job opportunities and*
 - *boosting Europe's economic competitiveness.*
- Central European Initiative Member States
 - several initiatives exist to upgrade professional competences in NZEB design and construction.

BuildUP Skills



- Against this background, the EU launched in 2011 the **BUILD UP Skills** initiative
 - <http://www.buildup.eu/en/skills>
 - developing **national qualification platforms and roadmaps**, and
 - providing training in the field of energy efficiency and RES in buildings.
- The scope of the initiative has been expanded to other building professionals under **Horizon 2020**
 - projects mainly developing **multi-country qualification and training schemes**.

CROSKILLS

www.croskills.hr

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ENERGETSKA UČINKOVITOST



Grad Zagreb
Gradski ured



Hrvatska komora
inženjera građevinarstva



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Continuous Control & assessment

Group discussions

Engaging learners

Theory

Video demonstrations

Practical work

- In the training facilities and/or
- Construction site

Short final exam

Training materials



www.croskills.hr

Manual for workers

- 6 different manuals

Training materials are freely available to help architects, engineers and other professionals better design and build nZEBs.

Manual for trainers

- 7 different manuals
- 6 manuals with specific topics for workers
- 1 manual with common topics



Croskills

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Sveučilište u Zagrebu
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ZAGREB

Hrvatska komora
inženjera građevinarstva

REGIONALNI CENTAR ZA VEŠTAČENJE
POSREDOVANJE

HUPFAS
Hrvatski udruženje
posrednika za posredovanje

Hrvatski zavod za zapošljavanje

Co-funded by the Intelligent Energy Europe
Programme of the European Union

- *Ordinance on the system of training and certification of construction workers which install building elements that affect building's energy efficiency*
 - (OG 67/2017)



NAZIV NOSITELJA PROGRAMA IZOBRAZBE _____

OIB _____

Adresa sjedišta _____

CERTIFIKAT

ZA RADOVE NA UGRADNJI DIJELOVA ZGRADE KOJI UTJEČU
NA ENERGETSKU UČINKOVITOST U ZGRADARSTVU

kojim se potvrđuje da je _____

OIB _____ ZANIMANJE _____

Ispunio sve uvjete propisane Pravilnikom o sustavu izobrazbe i certificiranja
građevinskih radnika koji ugrađuju dijelove zgrade koji utječu na
energetsku učinkovitost u zgradarstvu NN _____

Reg. br. _____

Vrijedi do _____

Naziv izobrazbe _____

Trajanje izobrazbe i datum _____

Mjesto i datum izdavanja _____

Odgovorna osoba
ime i prezime _____

Logo of the European Union, CROSKILLS, and other partners.

Propisi - informacija

NACRT PRAVILNIKA O SUSTAVU IZOBRAZBE I CERTIFICIRANJA GRAĐEVINSKIH RADNIKA KOJI UGRAĐUJU DIJELOVE ZGRADE KOJI UTJEČU NA ENERGETSKU UČINKOVITOST U ZGRADARSTVU NA JAVNOM SAVJETOVANJU



20. veljače 2017. - Ministarstvo graditeljstva i prostornoga uređenja izradilo je 'Nacrt Pravilnika' o sustavu izobrazbe i certificiranja građevinskih radnika koji ugrađuju dijelove zgrade koji utječu na energetsku učinkovitost u zgradarstvu' koji se nalazi na javnom savjetovanju. Pravilnikom se propisuje sustav izobrazbe i certificiranja građevinskih radnika koji ugrađuju dijelove zgrade koji utječu na energetsku učinkovitost u zgradarstvu.

Zainteresirana i stručna javnost svoje prijedloge, primjedbe i mišljenja na 'Nacrt Pravilnika' može uz prethodnu registraciju dostaviti putem portala **e-savjetovanje** najkasnije **do 22. ožujka 2017. godine**. Ovim putem skrećemo pozornost da je 'Prilog 2 - Izgled i sadržaj Certifikata' moguće vidjeti u rubrici Ostali dokumenti.

Register

- Online register
 - Register of training centres
 - Register of trainers
 - Register of certified workers
- Official register of the *Ministry of construction and physical planning*



admin
admin@admin.hr

Početna

Trening centri

Treneri

Trening centri

Početna / Trening centri

+ Novo Uredi Obriši Novi trener Print

Prilazi 25 podataka

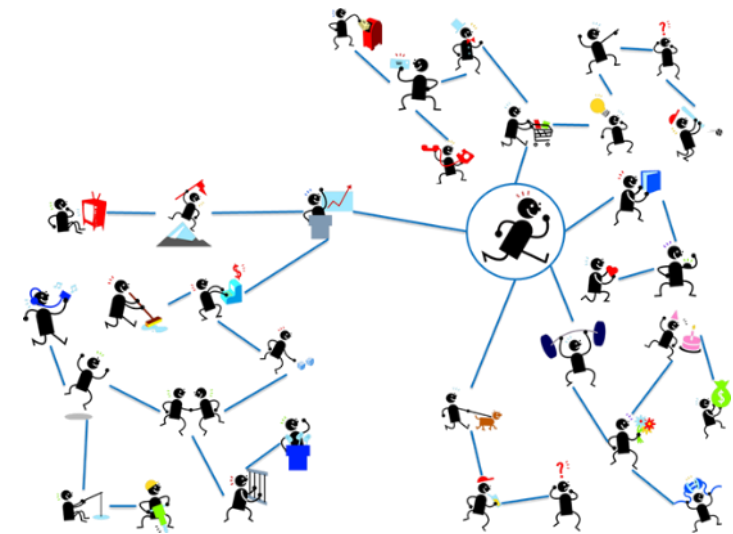
	Naziv	Mjesto	OIB centra	Klasifikacijski broj	Uredbeni broj	Datum suglasnosti
<input type="radio"/>	Zagrebačka učilište	Zagreb	87219776080	1	1	01.12.2016.
<input type="radio"/>	Mješovita industrijsko-obrtnička škola Karlovac	Karlovac	68371339805	2	2	01.12.2016.
<input type="radio"/>	Strukovna škola Sisak	Sisak	11624056245	3	3	01.12.2016.
<input type="radio"/>	Graditeljsko-projektorska škola Osijek	Osijek	41034009234	4	4	01.12.2016.
<input type="radio"/>	Graditeljska škola Čakovec	Čakovec	55285545901	5	5	01.12.2016.
<input type="radio"/>	Učilište Cibela	Vinkovci	58874773395	6	6	01.12.2016.
<input type="radio"/>	Pučko otvoreno učilište Libar	Slavonski Brod	81401358527	7	7	01.12.2016.
<input type="radio"/>	Pučko otvoreno učilište Omega	Virovitica	04071501201	8	8	01.12.2016.
<input type="radio"/>	Pučko otvoreno učilište Marniković	Garešnica	36812030573	9	9	01.12.2016.
<input type="radio"/>	Industrijska obrtnička škola Pula	Pula	21765234516	10	10	01.12.2016.
<input type="radio"/>	Srednja škola Bedekovića	Bedekovčina	05274910037	11	11	01.12.2016.
<input type="radio"/>	Obrtnička škola Požega	Požega	/	12	12	01.12.2016.

<http://seminar.croskills.hr>

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ENERGETSKA UČINKOVITOST



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Project end...

- As the project comes to a close, we **faced the challenge of getting employers and employees to use the training**
 - it's one thing to raise awareness, but another to translate this awareness into concrete action
 - **Consumers are the real change agents in this process** - if there is no demand from the market, there will be no demand for training
- Issues
 - missing culture of **continuing education** and training among craftsmen
 - Lack of **appropriate LLL on nZEBs** among civil engineers, better situation (but not great) among architects.

Continuation of the efforts

- developing new competences are continued through the Horizon 2020 projects
- developing multi-country qualification and training schemes



Fit-to-nZEB

Innovative training schemes
for retrofitting to nZEB-levels

- Web: www.fit-to-nzeb.com
- Facebook: <https://www.facebook.com/fit2nzeb>
- Twitter: <https://twitter.com/fit2nzeb>

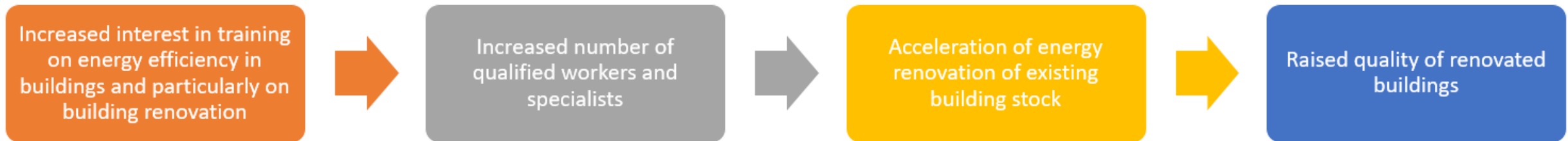


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FIT-TO-NZEB project aims to increasing competence and skills of the building professionals in the field of retrofitting to NZEB-levels in the target countries through the unique educational programmes developed by the consortium, which will contribute to both the quality and the scale of the deep energy building renovations.

EXPECTED IMPACTS



The logic behind it

- Covering the full scale of the **academic & VET system (EQF levels 2-7)**
- Complementing and providing **sustainability of BUILD UP Skills projects**
- Local capacity for trainings on **deep energy retrofit (DER)**
- Broadening of the geographical scope and large-scale networking



Achieved so far

- Elaborate a set of required technological competences related to DER;
- **Develop new training programmes** employing the newly elaborated technical competences;
- **Review the national educational plans** for the relevant professions and introduce changes;
- Develop **demonstration and practical training models**
- Train and certify a sufficient number of trainers.





Network for Using BIM
to Increase Energy Performance

www.net-ubiep.eu

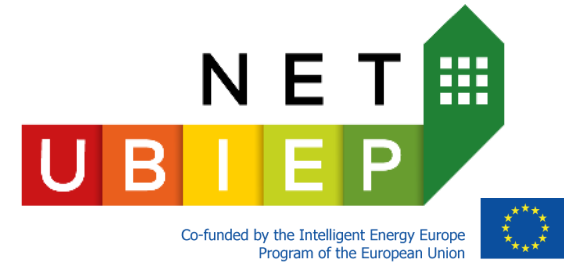


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Project goals

- **Defining competences** required and **develop** appropriate training materials
 - to properly introduce BIM for energy performance evaluations to ALL professionals and technicians which participate in the building process

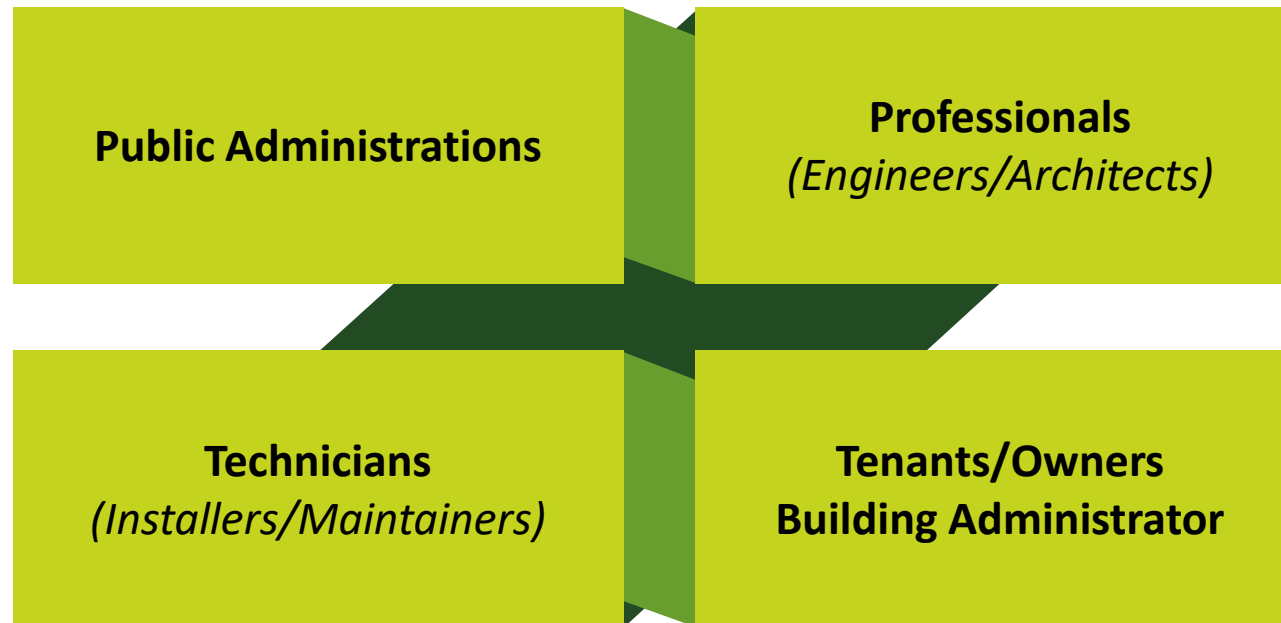


BIM – building information management

Better management of the information during the whole life cycle of the building is absolutely necessary in order to avoid mistakes and have trustful information at any time / when an intervention is necessary.

Net-UBIEP: Target groups

- Four target groups have been selected according to their role in current building processes:



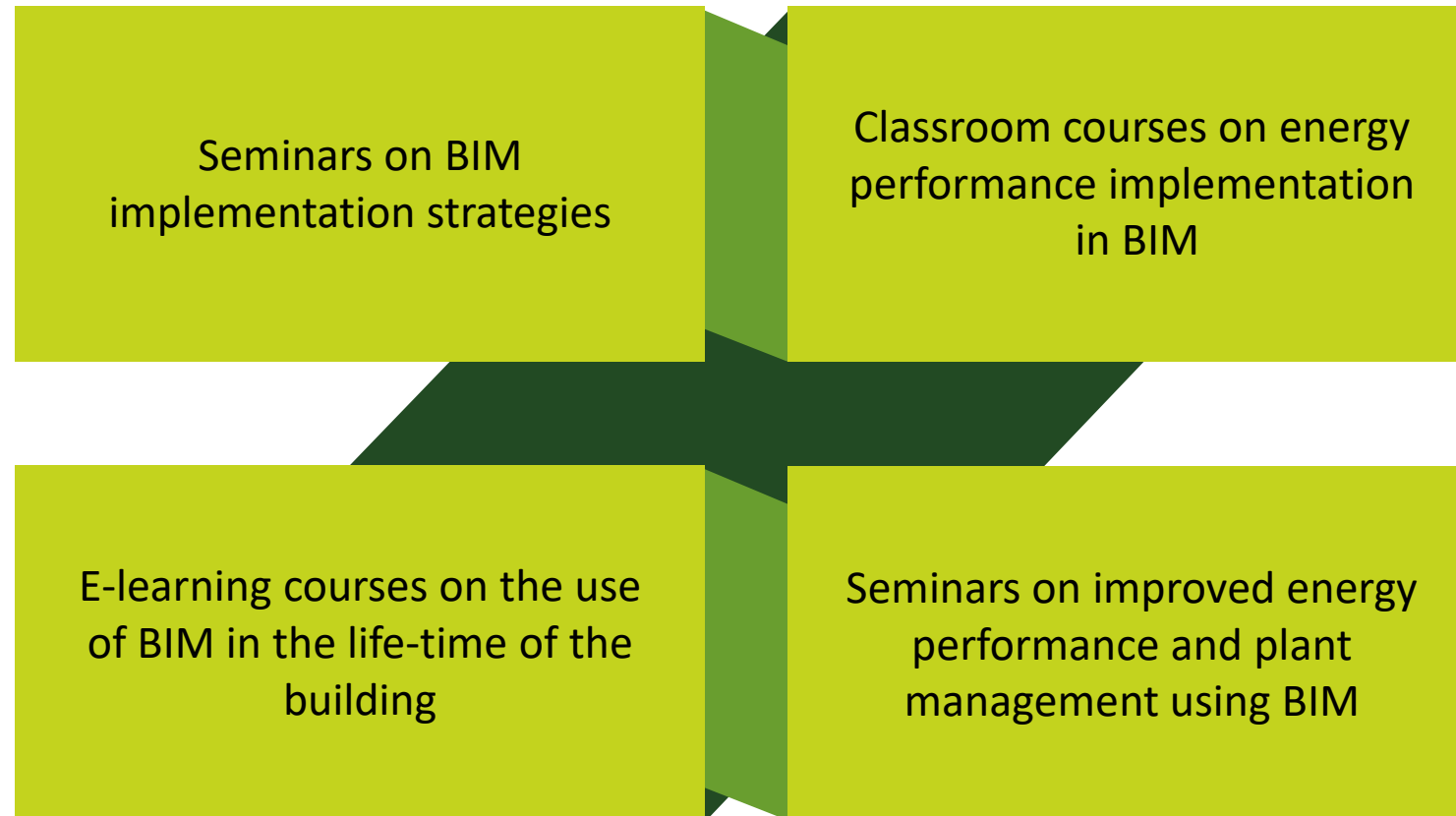
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Net-UBIEP qualification models



Co-funded by the Intelligent Energy Europe
Program of the European Union



Join us...

- University of Zagreb Faculty of Civil Engineering
 - doc.dr.sc. Bojan Milovanović bmilovanovic@grad.hr
 - doc.dr.sc. Ivana Burcar Dunović iburcar@grad.hr
- Anna Moreno Net-UBIEP coordinator netubiep-project@enea.it
- Facebook: [@netubiephr](https://www.facebook.com/netubiephr)
- Register as a stakeholder at www.net-ubiep.eu



Co-funded by the Intelligent Energy Europe
Program of the European Union



Conclusions

- In the field of energy efficiency **increased control and quality assurance is needed** to improve the quality of works.
- **Hands-on experience** is a really important part of the learning process.
 - combining standard classroom training with practical courses
- By engaging with **as many stakeholders as possible** and broadening our training offer, we can ensure that our model is sustainable.
- Need to **create stronger demand** for qualified (skilled and knowledgeable) workers.



Photo: Davor Javorovic/PIXSELL



Divjak: Za uspostavu regionalnih centara kompetentnosti oko milijardu kuna iz fondova EU-a



17. 05. 2018. prije 1 dan

Ministrica znanosti i obrazovanja Blaženka Divjak pozvala je srednje strukovne škole i županije, kao njihove osnivače, da se jave na raspisani javni poziv za uspostavu regionalnih centara kompetentnosti u strukovnom obrazovanju, za što je iz fondova EU-a osigurano oko milijardu kuna.

Od ideje do realizacije

2014

• U Strategiji ideja Regionalnih centara kompetentnosti

2015

• U Operativnim programima osiguran temelj za financiranje iz EU fondova

2018.

• Donesene Izmjene i dopune Zakona o strukovnom obrazovanju – temelj za povlačenje sredstava (ožujak 2018.)

2018.

• Donesena Mreža smjernica i parametara za imenovanje centara kompetentnosti (svibanj 2018.)

2018

• Javni poziv za osnivače za predlaganje centara (17. svibanj – 15. lipnja 2018.)

2018

• Imenovanje centara kompetentnosti (srpanj 2018.-)

2018

• Poziv za financiranje centara kompetentnosti iz EU fondova u pet područja: turizam i ugostiteljstvo, strojarstvo, elektrotehnika, informacijske i komunikacijske tehnologije, poljoprivreda i zdravstvo (druga polovica 2018.)

2018.

• Planiranje za sljedeće programsko razdoblje 2020.- (sljedećih 5 područja)

What about construction industry?

CEI conference, 26-27 September 2018



Energy Efficiency in Buildings - for a Better Tomorrow

Hvala na pažnji!

Bojan Milovanović

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