

## The Building Knowledge Hubs of Europe: Local Actions with a Global Vision



This project is supported by the Horizon 2020 Framework Programme of the European Union



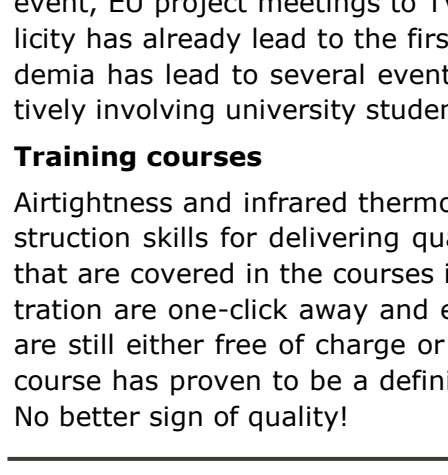
In the past months, the project team has enriched the political discussions at European, national and local level with valuable experience coming from intensive direct interactions with investors, industry representatives and training and education suppliers. The message is clear: we need to raise the quality and responsibility within the sector, to bring the understanding of the leading NZEB principle to the building sites, and to set the delivery of modern, comfortable and healthy energy efficient buildings that comply with the standards of the future decades as our primary goal.

The BKH network is set precisely around this target: the training centers in Bulgaria, Romania, Turkey, the Czech Republic, and Ukraine offer a wide variety of training courses in a holistic framework which is a guarantee that the users of our training concept will not only raise their knowledge and skills but will also change their mindset and understanding of the integrative concepts that will allow NZEB to move from the realm of desirables and become a reality. With experience building on, we already have a lot to demonstrate, but probably the most valuable feature to offer is partnerships – partnerships between researchers, investors, designers, construction managers and contractors, as well as central and local authorities' representatives and the local civil actors. Our partnership network is growing and with its support, we are confident of being able to make energy efficiency policies work. And mind you, this is not always an easy task, but if you are in – come and join us at [www.facebook.com/train2nzeb](http://www.facebook.com/train2nzeb) and [www.twitter.com/Train2nZEB!](http://www.twitter.com/Train2nZEB!)

### Contents:

- Bulgaria:** Train-to-NZEB brings together stakeholders from the industry and the educational sector
- Romania:** The Certified PH Tradesperson course is becoming a bestseller – and more
- The Czech Republic:** Joining forces with the academia, vocational high schools and professional chambers
- Turkey:** BKH-Izmir in Ege University becomes a center for NZEB-related info and training
- Ukraine:** The Ukrainian BKH gathers representatives of the local industry with a look to building renovation
- EU:** Train-to-NZEB at the EPBD Concerted actions forum in Bucharest, Romania
- On the web:** New e-learning tool for decision makers
- Training and networking** for 21st century construction
- Highlights from the ground
- News from us and our partners

## Train-to-NZEB brings together stakeholders from the industry and the educational sector



The Bulgarian BKH at the University of Architecture, Civil Engineering and Geodesy (UACEG) in Sofia has already hosted more than 20 short training courses and info sessions, welcoming more than 200 guests, including representatives of the construction industry, producers and distributors of NZEB-compatible products and building components, university and high school students, and local administrations. The attendance of representatives of numerous construction companies and building materials and components suppliers is promising, and with the positive feedback of the training courses and repeat visits, it is expected that these activities will be more and more viable. Furthermore, a number of vocational training centers also expressed the willingness to collaborate and organize joint training courses, as official agreements are reached with Sofia High School of Electronics "John Atanasov" for training on RES, and Sofia High School of Architecture, Construction and Geodesy "Hristo Botev" for practical training on NZEB specifics.

However, in the light of the still limited market demand and expectations for short (and free) training sessions, the most promising feature of the BKH is the vast outreach and the positive public image it has built within broad audiences. Without any doubt, the Open Doors Day organized in the framework of the International Passive House Days was a highlight, gathering more than 60 interested guests from all professions and ages—from university professors to organized high-school classes, eager to see the latest trends in sustainable construction. A number of different events were hosted, from product demonstration, local authorities event, EU project meetings to TV interviews and focus groups on energy efficiency topics. The intensive publicity has already lead to the first enquiries for NZEB project consultations, and the active work with the academia has lead to several events and articles analyzing the experience gathered, and to joint initiatives actively involving university students.

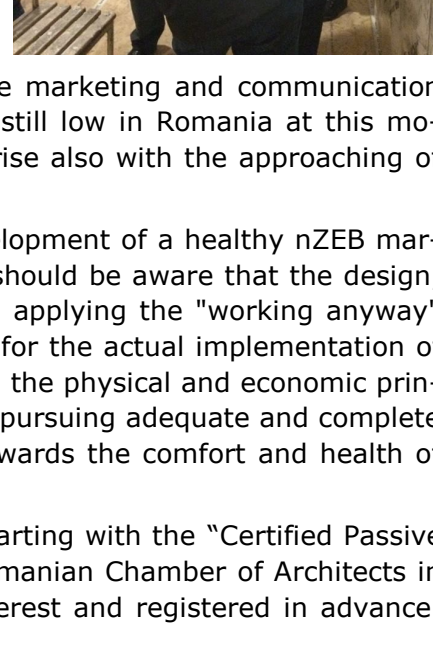
### Training courses

Airtightness and infrared thermography; mechanical ventilation with heat recovery (MVHR); design and construction skills for delivering quality NZEBs, RES installations in buildings – these are just few of the topics that are covered in the courses in the newly established BKH in Bulgaria. The courses already open for registration are one-click away and easily accessible at [www.buenergypro.com/trainings](http://www.buenergypro.com/trainings), as many of the trainings are still either free of charge or with a very low participation fee. The Certified Passive House Tradesperson course has proven to be a definite success, but most importantly – people coming once are asking for more. No better sign of quality!

## The Certified PH Tradesperson course in Bucharest and the PV Installer course in Brasov are quickly becoming bestsellers.

### The Designers' course is under way

The first nZEB centre in the country providing training and consultancy services at the highest standards and using the latest technology in the field, BKH RO welcomed by December 2017, more than 200 participants to the trainings delivered, including on-site professionals, high level specialists and decision makers. The "Certified Passive House Tradespersons" and "Installers of PV Systems" were the first courses organised within BKH RO, in Bucharest and Brasov. The first program was implemented by NIRD URBAN-INCERC as PH official training provider, while the second one was organised by FPIP based on the programme developed within the Intelligent Energy Europe PVTRIN project. Due to the high demand, these two courses are quickly becoming attractive in the qualification market and training sessions are constantly organized.



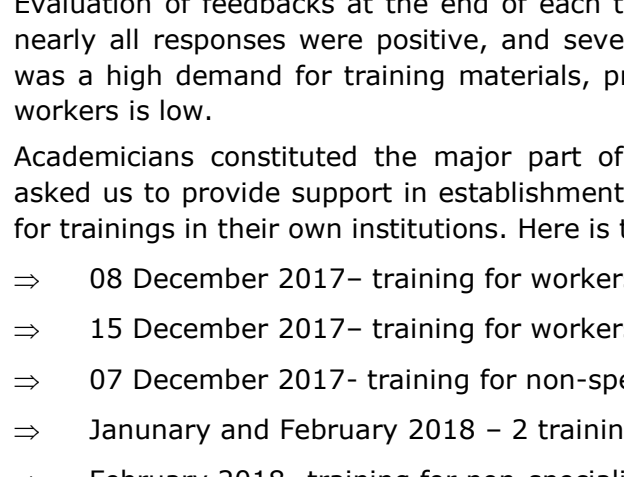
Another success is the "Legal Framework and Concepts for nZEB" training workshop for decision makers, as a result of the intensive efforts made by the Romanian Train-to-NZEB team for promoting the concept and its importance to this target group.

Although the efforts to promote the training courses are very high and the marketing and communication campaigns are extremely active, the demand for nZEB training courses is still low in Romania at this moment. Positive results will be seen in the near future and the demand will rise also with the approaching of the obligatory dates for legal introduction of the nZEB standard.

BKH RO is conducting an intensive marketing campaign to support the development of a healthy nZEB market and for changing the attitude at both system and individual level. One should be aware that the design, execution and operation of a building at nZEB level cannot be achieved by applying the "working anyway" principle. Stakeholders should understand that, in order to be able to hope for the actual implementation of the nZEB in Romania, they must firstly change themselves by understanding the physical and economic principles underlying the nZEB concept, by raising the level of competencies, by pursuing adequate and complete approach of the details and by assuming a responsible attitude oriented towards the comfort and health of building occupants.

For the first part of 2018, BKH RO is planning to deliver monthly courses starting with the "Certified Passive House for Designers" jointly organized by NIRD URBAN-INCERC and the Romanian Chamber of Architects in Bucharest. A group of architects and designers already expressed their interest and registered in advance. More info at [train-to-nzeb@incd.ro](http://train-to-nzeb@incd.ro).

## The Czech BKH: Joining forces with academia, vocational high schools and professional chambers



In total 14 courses with 204 registered participants were delivered at CZ BKH, average attendance is 15 participants per 1 course. Average attendance per course according to target group: 9 for construction specialists, 9 for tradespeople, and 23 for non-specialists and decision makers.

The feedback of participants is positive. Their expectations from the training are mostly fulfilled. Results for most important questions in feedback survey are shown on the picture below.

The main barrier is the still insufficient market demand and interest in courses, i.e. the limited number of participants.

### Future courses:

- ⇒ 30 November and 4 December 2017: Designing of building and building's equipment for nZEB
- ⇒ 15 December 2017: Sustainable development of construction, maintenance and use of nZEB.

More information about trainings in Czech and registration at <http://www.stavebnikademie.cz>.

Training terms for 2018 will be defined in nearest future and published, among others, at [www.train-to-nzeb.com](http://www.train-to-nzeb.com).

Feedback - questionnaire	Number of answers	
	TOTAL	%
1) Did the course meet your expectations?		
a) Absolutely yes.	12	14.1
b) Yes.	59	69.4
c) Not really.	12	14.1
d) No.	2	2.4
2) Will you apply the newly acquired knowledge in practice?		
a) Yes I will.	42	48.8
b) I will try to apply some new knowledge.	34	39.5
c) The knowledge is difficult to apply.	5	5.8
d) I don't now.	5	5.8

## BKH-Izmir in Ege University becomes a center for NZEB-related info and training

Training courses for all specialists involved in construction sector were provided by BKH-TR. Individual training modules for three particular groups, namely, designers, workers, non-specialists were prepared. It was aimed to equip all three groups with both theoretical and practical knowledge, by changing levels of training for individual groups.



By November 2017, a training session for non-specialists (May 10-17-23 2017 for 55 trainees), two training sessions for designers (September 29-30 and November 16-17 2017; 30 + 33 = 63 trainees for architects and engineers) and four sessions for workers were organized (October 6; 45 trainees, October 13; 59 trainees, October 20; 50 trainees and October 27; 57 trainees, making a total of 211 trainees). As a result, 210 workers, 63 designers and 55 non-specialists (a total of 328 people) were trained in BKH-TR. During trainings, academicians and experts from different branches of construction sector which also supported us in establishment of BKH-TR shared their theoretical and practical experiences.

Evaluation of feedbacks at the end of each training sessions were carefully made. The results revealed that nearly all responses were positive, and several universities requested for trainings in their premises. There was a high demand for training materials, provided by BKH-TR. It should be underlined that, demand from workers is low.

Academicians constituted the major part of the designers trainees. Many representatives from academia asked us to provide support in establishment of new BKHs in their universities. Also, there is a high demand for trainings in their own institutions. Here is the agenda of the next training courses at the Turkish BKH:

- ⇒ 08 December 2017– training for workers (50 attendees expected)
- ⇒ 15 December 2017– training for workers (50 attendees expected)
- ⇒ 07 December 2017- training for non-specialist (60 attendees expected)
- ⇒ January and February 2018 – 2 training for workers (100 attendees expected)
- ⇒ February 2018- training for non-specialist (40 attendees expected)
- ⇒ March 2018 training for workers (120 attendees expected)
- ⇒ April 2018 training for Designers (30 attendees expected)
- ⇒ May2018- training for Designers (30 attendees expected)

Last but not least, many representatives from construction sector provided support in establishment of BKH-TR, including REHAU, FRAENKISCHE, DAIKIN, IZOCAM, KNAUF, ENEKO, WEBER, BRAHNS, SOLIMPEKS, ALAR-KO-CARRIER, BLOKSAN, ISIKLAR YAPI, KUDDRET TUĞLA, MERAM TUĞLA, GULER MUHENDISLIK, etc.

More info about BKH-Izmir can be found at [www.facebook.com/bkhturkiye](http://www.facebook.com/bkhturkiye).

## The Ukrainian BKH gathers representatives of the local industry to unlock the huge potential for building renovation



As of 01.11.2017, four training courses were organized and 88 trainees participated in the training courses: 45 persons participated in two training courses "Designing engineer for design of nearly zero-energy buildings" in 2016; 43 persons participated in two training courses "Specialist in erection of nearly zero-energy buildings" in 2017.

Analysis of training participants conducted by MDI showed that three groups of specialists demonstrate interest and motivation in participating in the training at the BKH. These groups are: 1) specialists dealing with designing - engineers, designers, architects, heating engineers; 2) specialists involved in organization of building process (operations) (project managers, project group leaders, heads of design companies); 3) individual entrepreneurs involved in designing and erection of buildings and structures. On the contrary, workers, foremen, masters, brigade-leaders show small if no interest in the training courses. Building industry professionals, specialists dealing with building technologies/building processes, and individual entrepreneurs actively disseminate information on outreach and educational activities of the Ukrainian BKH. MDI will continue to promote ideas and concepts of nearly zero-energy buildings through the representatives of these target audiences.

### Future plans:

- ⇒ introducing additional, extra-mural part of training courses, while keeping the same or even reducing duration of trainings in the class-room;
- ⇒ developing additional training courses on "Energy Audit" and "Energy Management" that are popular in Ukraine and are interested for potential attendees in the light of recently adopted Law "On Energy Efficiency in Buildings", according to which energy auditors should undergo certification and energy classes of residential and public buildings and facilities should be determined.

### Future trainings

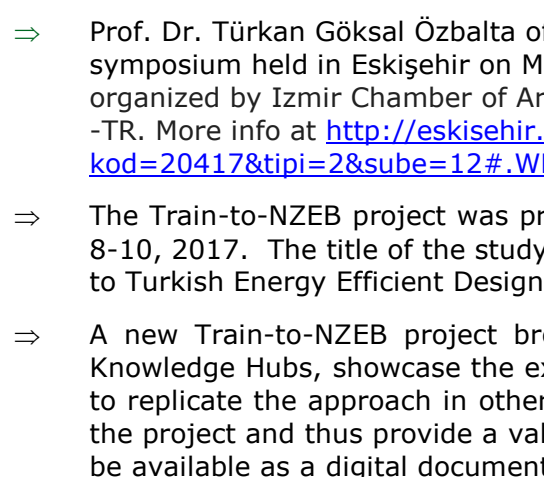
- ⇒ 27.11.2017-02.12.2017: training for specialists "Designing engineer of nearly zero-energy buildings".
- ⇒ By the end of 2017: additional trainings for highly qualified designing engineers or specialists in erection of nearly zero-energy buildings.

### Barriers

Receiving certificates or special training for specialists, who plan to design highly energy efficient buildings and facilities is not mandatory in Ukraine. Besides, awareness of population of the prime cost of erection of energy efficient buildings is not sufficient. Information campaigns by state bodies and mass media are not regular, population in most cases have no idea of the actual economic effect from thermal modernization of old buildings or energy efficiency improvements in newly erected buildings. Most of citizens are of the opinion that such measures have a long payback period and require considerable investment.

## Financing Education towards Deep Renovations

### Train-to-NZEB at the EPBD Concerted Actions Forum in Bucharest



Presentation of educational programmes analysis in deep renovations, introduced within the 4th CA EPBD plenary meeting held on 25 and 26 October 2017 in Bucharest, included the main conclusions in six target countries, the Czech Republic, Bulgaria, Croatia, Romania, Greece and Italy.

Focusing on new buildings instead of deep renovations seem to be the main issue in vocational training. Moreover, the process is influenced by the lack of sources for financing of courses and low interest in optional training.

On the other hand there is a great possibility to use selected parts of programmes developed e.g. within the ingREES and Train-to-NZEB projects also for the renovation of buildings because a significant part of the topics is common and there a usable overlap. In the EU countries there will be a chance to use programmes developed in terms of Build up Skills initiative.

Mr. Horia Petran (INCED URBAN-INCERC Institute - Romania) presented mainly the project goals of the successor of Train-to-NZEB—the new Fit-to-NZEB project, targeted on deep energy building retrofit. Later the first results of deep energy renovations programmes were introduced by Mr. Jiří Karásek of SEVEN, the Energy Efficiency Center (Czech Republic).

More info for the event can be found at [www.epbd-ca.eu](http://www.epbd-ca.eu).

## Check out the new Train-to-NZEB e-learning course for decision makers

Are you wondering how Passive House buildings can improve your standard of living and reduce your energy use by up to 90%? How such buildings perform as planned and deliver on their promises? Then try out this [free online course](http://www.train-to-nzeb.com) for home owners, investors and politicians! This e-learning module was developed as part of the EU funded Train-to-NZEB project.



Passive House buildings have been designed and constructed for more than 25 years. Their energy demand is so low that they can easily be supplied with renewable energy, thus providing an ideal basis for nZEB. Through four short videos, you will learn how such buildings can have a positive impact on your life, your bank account and even your city. Understand the five Passive House principles and their vast array of benefits, ranging from improved comfort and air quality, to reduced energy bills. Then check out some of the many shapes Passive House buildings can take and be inspired by a huge variety of international projects! Finally, discover why third-party quality assessment matters to prevent performance gaps and how to make sure you will get the desired building performance in the end. Politicians may also be interested in real-life examples and examples of best practice on how to foster Passive House buildings.

In addition, if you want to dig deeper into a specific topic, you will find some helpful links and additional resources such as brochures in the further material section.

### 2 - Further material

#### Go for pilot projects!



The best working market instrument is direct experience. Exemplary pilot projects delivered by local authorities provide valuable information about the applicability and effectiveness of the Passive House standard. Moreover, they play a great role as information and know-how exchange hubs, as they are transferring effective solutions and approaches onto the actual building site.

These projects should be best certified and monitored, to provide users with the feedback they need, for instance about the enhanced air quality, identified temperatures and humidity levels, amount of energy saved etc. In addition, monitoring helps to quickly identify failed components or errors in the building services operation (too high ventilation air flows, heater on during summer).

Such pilot building and monitoring projects already lead many cities and administrative districts to stipulate the Passive House standard in their building regulations. Some went even further, like the city of Vancouver, where regulations on density, height and setbacks were adopted to make Passive House more attractive. As Lloyd Alter from Treehugger explains "Going Passivhaus makes builders eligible for extra density, meaning extra units, meaning extra profit. Passivhaus pretty much pays for itself!"

Do you want even more information? Then you are also welcome to try the e-learning course "Passive House Fundamentals" to learn more about the technical details behind the Passive House concept. You may also register for one of the courses offered by the T2NZEB partners and practice on the brand new building models!

## Training and networking for 21st century construction

[Train-to-NZEB will host a prominent](http://www.train-to-nzeb.com) event in the course of the 22nd International Passive House Conference in Munich/Germany held in early March 2018. Dissemination of the Project's concepts and achievements will happen in conjunction with an effort to attract new partners to the BKH network and intensified networking activities around the newly established Hubs. The International Passive House Association will join us and share their ideas and offerings on networking from global scale to the region. PHI-accredited Course Providers will also attend, as will representatives from universities and training providers. More information will be provided in time at the [Conference](http://www.train-to-nzeb.com) web site. Stay tuned!



**Training & Networks for 21st century construction**  
Passivhaus-Forum, Friday, 11:15am – 1:15pm  
Experience exchange for universities, colleges, further-education centres and networks, dedicated to the teaching and dissemination of energy efficient construction knowledge.



## Highlights from the ground

**Train-to-NZEB and Fit-to-NZEB** were presented by Art McCormack of MosArt/Passive House Academy at the World nZEB Forum in Wexford, Ireland - where the nZEB standard has become the norm for the public authorities. A great event showing firm dedication at all level of governance and the business sector. Find out more at [www.nzebra.ie](http://www.nzebra.ie).

**Passive House Institute** is organizing a special Train-to-NZEB preconference event at the next [International Passive House Conference](http://www.train-to-nzeb.com) in Munich, Germany, on 7 - 11 March 2018. We will talk with the largest network of NZEB vocational training providers, meet with world-class product manufacturers and learn the latest trends from the scientific community. A lot to learn and achieve!

An Open Doors Day in the framework of the International Passive House Days was probably not expected to be the highlight of the season but it turned out great. We had booked room for the whole day and people waiting at the door for their chance to get in, a fully booked tour to a real Passive House outside Sofia, and 4 school classes coming in. NZEB games, presents for the winners and a few drinks at the end - it all gathered up to make the perfect day!

In September 2017, BKH RO was involved through NIRD URBAN-INCERC representatives in checking the ambitious airtightness performance in a desired Passive House Premium building - **Casa Buhnić**. The main activity was to perform a preliminary blower door test and the results were 3 times better than expected.

SEVEN has opened cooperation with high schools and the Czech Technical University. Shorter one-day trainings have been offered to all Czech high schools in civil engineering. First training was organized for the High school of civil engineering in Letohrad, the High school in Pilsen will attend the training course in December.

The most powerful side of Turkish BKH is that all NZEB training is available free of charge for all target groups; however, there is a cost for running the courses so the support by the industry and EGE University is very important. Some of the academicians attending the courses asked us to organize new courses in their own institutions. Hope this will continue!

MDI will produce a scientific technical specialized magazine on energy efficiency and energy saving in the housing and communal services sector. Target audience: researchers, scientists, employees of scientific and research institutes, designing engineers, leading specialists of utility companies and organizations dealing with energy generation and supply of electricity, water, and heating.

## News from us and our partners

⇒ The Train-to-NZEB and Fit-to-NZEB projects were presented at the Passivhaus National Conference in Bologna, Italy on 25 November 2017. The conference, conducted in the heart of a sustainable and innovative architecture Opificio Golinielli, gathered 300 participants, 25 exhibitors, 20 Italian and international speakers. A key moment for anyone interested in energy efficiency issues in buildings, the event was the perfect occasion for deploying the Train-to-NZEB concept for the Mediterranean region and expanding the network of already well-functioning partnerships.

⇒ Train-to-NZEB project was presented to an audience of more than 50 persons at the H2020 Fit-to-NZEB project Launching Conference in Romania, in September 2017. The program included consultations with various stakeholders and a visit to the practical facilities of BKH RO.

⇒ In November 2017, BKH RO welcomed 18 students from a technological high school in Bucharest training facilities. What a great opportunity for those young people to learn from a market oriented approach and to consider working in the construction sector as a viable and attractive career option!

⇒ Prof. Dr. Tarkan Göksal Özbaltalı of Ege University introduced the Train-to-NZEB the project in city symposium held in Eskişehir on May 4, 2017 and in a panel titled "Towards Zero Energy Architecture" organized by Izmir Chamber of Architects on October 25, 2017 providing details on the activities of BKH -TR. More info at [http://eskisehir.imo.org.tr/genel/bizden\\_detay.php?kod=20417&tpi=2&sube=12#.WRFofLpuKHs](http://eskisehir.imo.org.tr/genel/bizden_detay.php?kod=20417&tpi=2&sube=12#.WRFofLpuKHs) and [www.izmirmod.org.tr/v2/etkinlikler](http://www.izmirmod.org.tr/v2/etkinlikler)

⇒ The Train-to-NZEB project was presented in an international conference in Atapodocia, Turkey on May 8-10, 2017. The title of the study is: "Train-to-NZEB Project: Contribution of a Building Knowledge Hub to Turkish Energy Efficient Design Experience"

⇒ A new Train-to-NZEB project brochure will summarize the intentions and concepts of the Building Knowledge Hubs, showcase the exemplary implementations and – most importantly – provide guidance to replicate the approach in other locations, including the important networking aspects. It will outline the project and thus provide a valuable means of spreading the ideas alongside with the website. It will be available as a digital document, and, in case funding can be secured, also in print. The brochure will be released in early spring 2018 and come in handy with the succession of project closure events, starting with the [NODES event](http://www.train-to-nzeb.com) at the International [Passive House Conference](http://www.train-to-nzeb.com) in Munich, March 9 2018.

⇒ The Train- to-NZEB results were presented at the Housing conference in Hradec Kralove, attended around 150 participants, mainly civil engineers and policy makers, including Ministry of Industry and Trade, Ministry of Regional Development and by the State Environmental Fund of the Czech Republic. The project will be presented on the international final conference of the H2020 project ingREES in January 2018 in Prague.



This project has received financing under Grant Agreement No 649810 of the Horizon 2020 Programme of the European Union.

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 EASME nor the European Commission is responsible for any use that may be made of the information contained therein.

### Contact information:

Center for Energy Efficiency EnEffect

Tel.: +359 2 963 17 14; Fax: +359 2 963 17 14; E-mail: [eneffect@eneffect.bg](mailto:eneffect@eneffect.bg)

Dragomir Tzaney

Mob.: +359 882 493 110; E-mail: [dzanayev@eneffect.bg](mailto:dzanayev@eneffect.bg)

If you do not want to receive the Train-to-NZEB project newsletter, click [here](http://www.train-to-nzeb.com).