

TRAIN-TO-NZEB

Building Knowledge Hub in Ukraine

Training programs and approaches to trainings

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**MUNICIPAL
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Train-to-NZEB

The Building Knowledge Hubs

Kyiv National University of Construction and Architecture will host the NZEB Building Knowledge Hub

In Ukraine, Kyiv National University of Construction and Architecture (KNUCA) will host the Building Knowledge Hub.

Kyiv National University of Construction and Architecture is a leading national university the graduates of which are builders and highly qualified architects and engineers. Its staff and facilities will add the value to the project's success in Ukraine.

Establishment of the NZEB Knowledge Hub at KNUCA

MDI and KNUCA have signed a Memorandum of Understanding and joined efforts regarding establishment of the NZEB Knowledge Hub.



Establishment of the NZEB Knowledge Hub at KNUCA

According to the Memorandum of Understanding, KNUCA will:

- support training activities under the project by: mobilizing its specialists to deliver trainings; updating the existing training programs or developing the new ones; providing premises and special equipment, if necessary; facilitating issuance of certificates for the trained target audiences;
- participate in public events organized by MDI under Train-to-NZEB in Ukraine and in internal working meetings, if necessary;
- share with MDI news, information, and other materials on the subjects of energy efficiency in buildings.

Establishment of the NZEB Knowledge Hub

Establishment of the NZEB Knowledge Hub in Ukraine will comprise two Phases:

Phase 1. Trainings will be conducted in the premises provided by KNUCA during Year 2 (3-4 rooms in the main building).

Local energy efficient materials and equipment producers will participate in trainings and be responsible for practical tasks planned under each training module. They will also host some trainings in their training facilities, testing centers, and laboratories.

Phase 2. Expanding training facilities of the NZEB Knowledge Hub during Year 3 (3 additional rooms in the Institute of Postgraduate Studies of KNUCA).

Establishment of the NZEB Knowledge Hub: Phase 1

During Phase 1, trainings will be conducted in two lecture rooms (5th floor of the main building of KNUCA). The rooms are in the good condition and do not require refurbishment. Dividers will be installed to use the available space as efficiently as possible.

Room 1 will be reorganized into a computer class (6-8 desks with PCs) and a conference room.

Room 1



Establishment and operations of the NZEB Knowledge Hub: Phase 1

A lecture room for 20-30 students will be created in Room 2.

Part of Room 2 will be used as the exposition area for energy efficient materials and equipment.

Room 2



Establishment of NZEB Knowledge Hub: Phase 1

Design of Room 1 (computer class)



Establishment of NZEB Knowledge Hub: Phase 1

Design of Room 1 (conference room)



Establishment of NZEB Knowledge Hub: Phase 1

Room 2 (lecture room, exposition area)



Establishment of NZEB Knowledge Hub: Phase 2

During Phase 2, facilities available for the NZEB Knowledge Hub will be expanded. KNUCA will allocate 3 lecture rooms on the 2nd floor of the Institute of Postgraduate Studies of KNUCA. The rooms require refurbishment. The rooms will be used as:

- computer room (7-8 desks with PCs)
- exposition room (with samples of equipment and materials)
- lecture room (for 30 trainees).



Ukrainian NZEB Hub: Training programs

Training curriculum is based on the results of the survey conducted during the Scientific Practical Conference “Bud-Master-Class-2015” in autumn of 2015 and on the practical experience of MDI and KNUCA and of local energy efficient materials and equipment producers.

Training curriculum comprises of the following training subjects:

1. Architectural constructions.
2. Building physics.
3. Heat engineering.
3. Engineering networks.
5. Alternative energy sources.

Ukrainian NZEB Hub: Training programs

Practical tasks in the training curriculum were developed jointly with energy efficient materials and equipment producers who were interested in joining the Project as partners.

They are:

1. *REHAU* (translucent frame fillings; equipment for engineering networks)
2. *Danfoss* (engineering networks; energy efficient equipment)
3. *Henkel Bautechnik* (energy efficient construction materials and items; façade systems)
4. *TechnoNIKOL Corporation* (heat insulation systems and materials; insulation materials for building envelope)
5. *A-CLIMA* (ventilation; air conditioning; alternative energy sources)

Ukrainian NZEB Hub: Training programs

Training curriculum consists of 100 hours of trainings for 3 target audiences, including 43 hours of practical tasks.

Training course for construction workers: masters, job foremasters, foremen, engineering supervision specialists (40 hours, including 24 hours for practical work)

Subjects:

1. Physical processes in the building envelope during heat, humidity and air transfer
2. Normative requirements to heat insulating jacket
3. Modern heat insulating materials
4. Constructive energy efficient solutions in the building sector
5. Licensing in the building sector
6. Selecting a source of heat energy
7. Energy saving heat supply and hot water supply systems
8. Design and installation of the energy efficient ventilation systems in a building
9. Energy audit
10. Nearly-zero energy buildings

Ukrainian NZEB Hub: Training programs

Training course for construction workers: masters, job foremasters, foremen, engineering supervision specialists (40 hours)

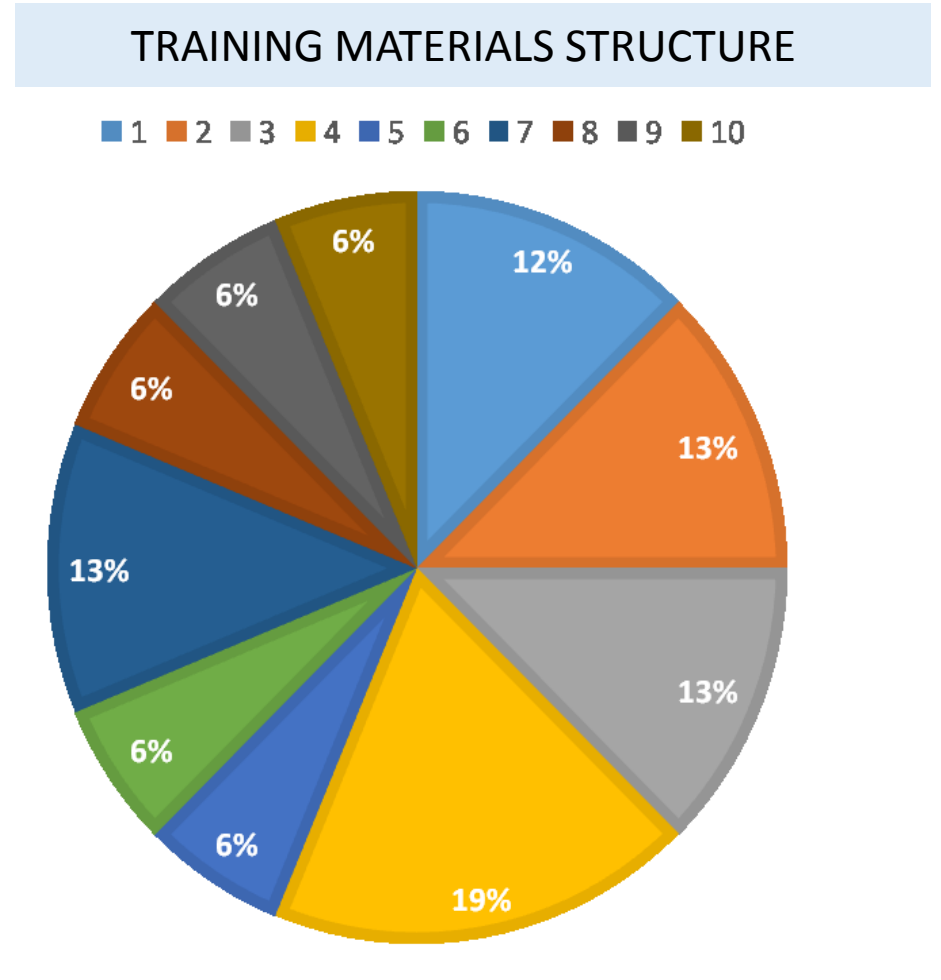
12% - Physical processes in the building envelope during heat, humidity and air transfer

13% - Normative requirements to heat insulating jacket

13% - Modern heat insulating materials

13% - Licensing in the building sector

19% - Constructive energy efficient solutions in the building sector



Ukrainian NZEB Hub: Training programs

Training course for building industry professionals: designers, architects, engineers, construction works coordinators, design and construction consultants (40 hours, including 15 hours for practical work)

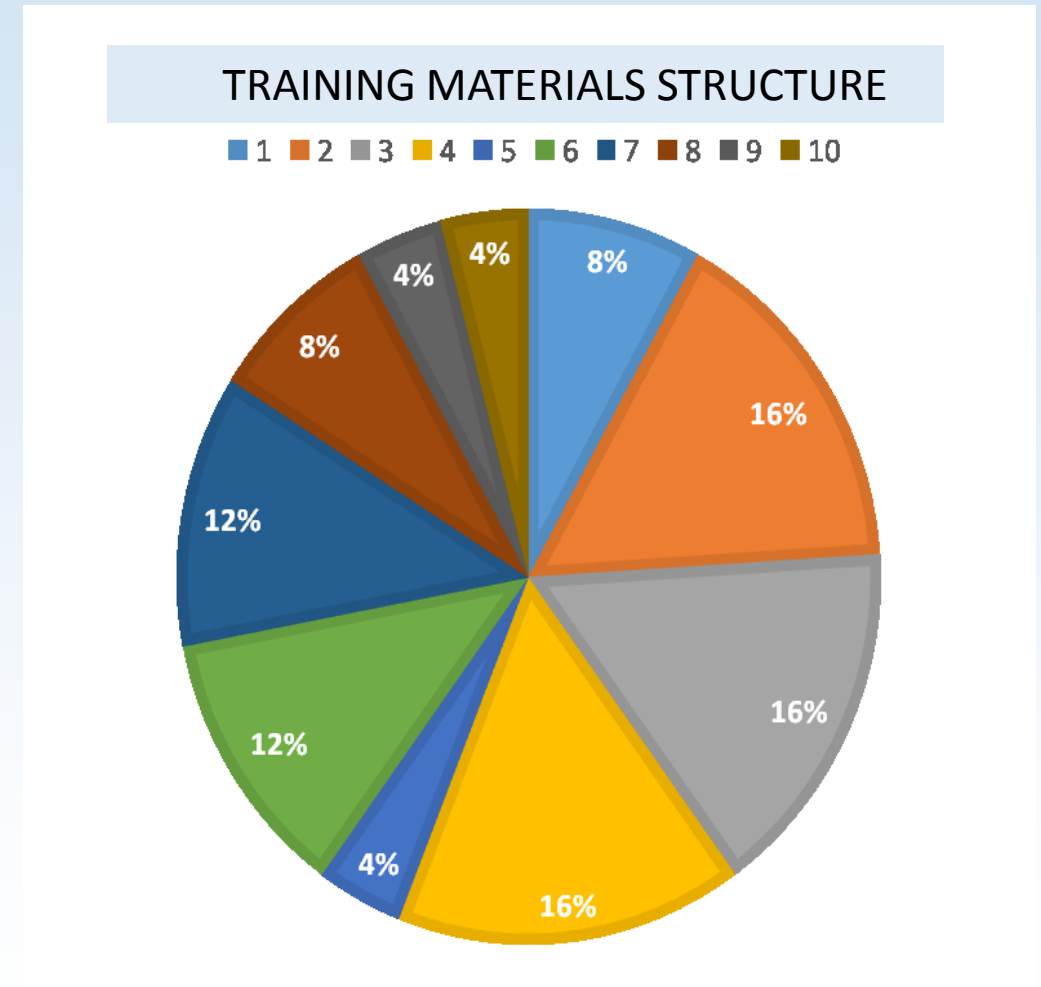
Subjects:

1. Design of energy efficient buildings: methodology
2. Design of energy efficient buildings
3. Engineering calculations of energy efficient structures
4. Automated design of energy efficient buildings: software and computer systems
5. Licensing in construction sector
6. Selection of a source of heat energy
7. Alternative energy sources and design of modern buildings and facilities
8. Selection, design and assembly of energy efficient heat and hot water supply systems
9. Design and installation of energy efficient ventilation system in the building
10. Nearly-zero energy buildings

Ukrainian NZEB Hub: Training programs

Training course for building industry professionals: designers, architects, engineers, construction works coordinators, design and construction consultants (40 hours)

- 12% - Licensing in the building sector
- 12% - Selection of a source of heat energy
- 16% - Design of energy efficient buildings
- 16% - Engineering calculations of energy efficient structures
- 16% - Automated design of energy efficient buildings: software and computer systems



Ukrainian NZEB Hub: Training programs

Training for non-professional decision-makers: key executive and representatives of government institutions (20 hours, including 4 hours for practical work)

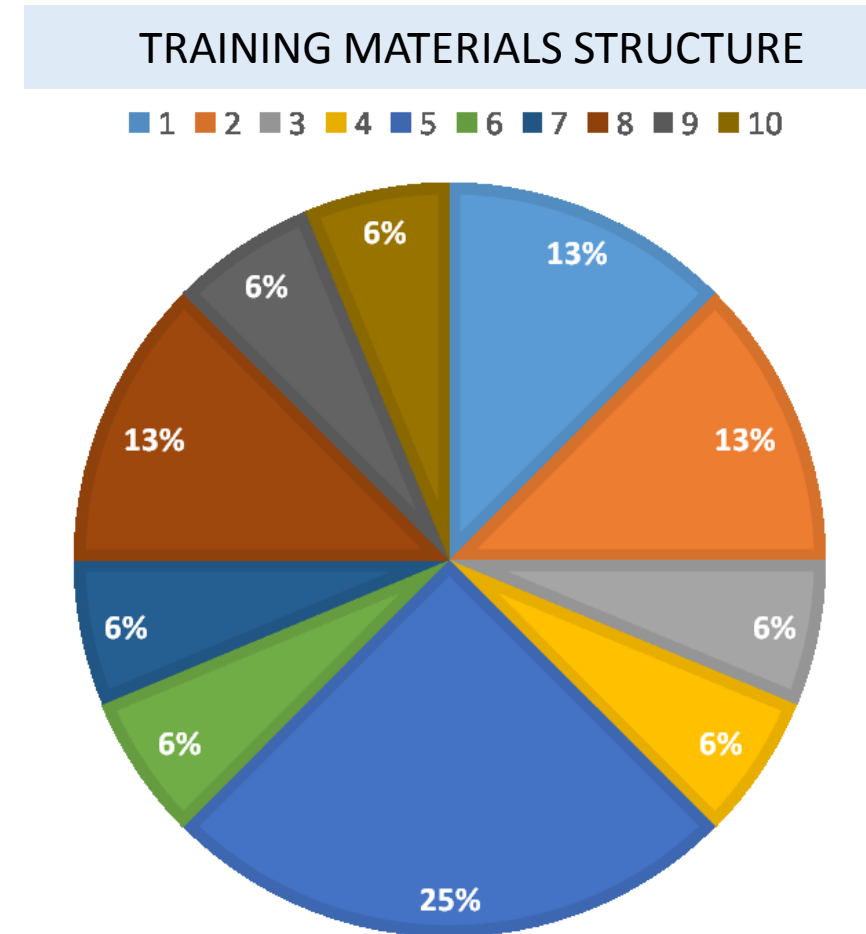
Subjects:

1. Legislation governing energy efficiency in construction industry
2. Design and installation of energy efficient heating and heat supply systems
3. Energy efficiency aspects in design of electricity supply systems
4. Energy efficiency measures in gas supply and water supply systems
5. Increasing effectiveness of maintenance of buildings and facilities
6. Automated systems: energy consumption and micro-climate control
7. Certification of buildings
8. Energy audit of buildings
9. Licensing in the construction sector
10. Heat supply sources. Alternative energy sources
11. Nearly-zero energy buildings

Ukrainian NZEB Hub: Training programs

Training for non-professional decision-makers: key executive and representatives of government institutions (20 hours)

- 13% - Energy audit of buildings
- 13% - Legislation governing energy efficiency in the construction industry
- 13% - Design and installation of energy efficient heating and heat supply systems
- 25% - Improving effectiveness of maintenance of buildings and facilities



Training of target audiences: input from energy efficient equipment and materials producers

It is anticipated that during Year 1 some trainings could be delivered in the training facilities of the local producers of energy efficient materials and equipment.

REHAU is ready to offer its Training Center for delivery of trainings for construction specialists (focus: modern technologies used in translucent glass systems, energy efficient windows, engineering networks of buildings).

REHAU Training Center, Kyiv



Thank you for your attention



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