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Project Acronym: HAPPEN
Project Title: Holistic APproach and Platform for the deep renovation of the Med residential built Environment
Grant Agreement: 785072

HAPP€N
MedZEB certified

D2.3 - Material for general training in Living Labs and for on-line training modules

DOCUMENT CONTROL	
Deliverable No.	2.3
Related WP	2
Related Task	2.2
Deliverable Title	Material for general training in Living Labs and for on-line training modules
Deliverable Date	31th December 2018 (M9)
Deliverable Type	Websites, patents filling, etc.
Dissemination level	PU
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Reviewed by	Francesca Picenni (ITC-CNR)
Approved by	Marco Padula (ITC-CNR)
Status	Final

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TABLE OF CONTENTS

TABLE OF CHANGES

Date	Change	Author	Resulting Document Version
05.12.2018	First Draft	C. Jareño (IVE)	V1
18.12.2018	General Amendments and review	F. Picenni (ITC-CNR)	V1
21.12.2018	Second Draft	C. Jareño (IVE)	V2
21.12.2018	Final review and validation	M. Padula, F. Picenni (ITC-CNR)	V2

PUBLISHABLE EXECUTIVE SUMMARY

This document provides a summary with the index of the training contents to be adopted in the HAPPEN pilots for the general training of the living labs and online training on the expected implementation path of the pilot projects, in order to guarantee coherence and homogeneity to all the HAPPEN pilots.

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ACRONYMS AND ABBREVIATIONS

All acronyms and abbreviations (AAs) used in the report should be listed in alphabetical order in the table below (other than symbols for units of measurement) in the following way:

LL	Living Lab
WP	Work Package
CSA	Coordination and Support Action
GA	Grant Agreement
CA	Consortium Agreement
DoA	Description of Action
D2.1	Deliverable 2.1
D2.2	Deliverable 2.2

AAs must be defined the first time they are used in the text of the report, and AAs should not be introduced if they are not used again in the document.

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1 INTRODUCTION

This document is produced in the framework of WP2, Engagement & Training Strategy.

The final objective of this work package is to prepare engagement & training materials by targeting all three HAPPEN categories (clients, makers, and influencers), according to the Grant Agreement. To be more precise, this document is a result of Task 2.2 - Engagement actions and training courses contents development. This task, among others, will produce the contents related to the material for the segmented general training in Living Labs. This table, previously showed in D2.2, has been updated according to the final contents already prepared for other tasks and the ones ready and/or produced for the vertical training:

				Living Lab Target Groups										
				CLIENTS		MAKERS					INFLUENCERS			
				2	8	3				4	1	5	6	7
						Solutions providers								
			Pilot Leaders / LL Facilitators / LL Trainers	Buildings owners	End-users	Technological	Designers	Financial	Service	Manufacturers/Building	Policy	Sectoral Agencies	Civil Based Organization	Media
PHASES														
PILOT ACTIONS (WP6)	LIVING LAB (LL) (T2.1)	**Set-up and training** (LL-step A):												
		Inner training (internal training)	D2.1+SM	-	-	-	-	-	-	-	-	-	-	-
		Horizontal training (general training)	-	GI										
		Vertical training (segmented training)	-	SR	SR	SZ+SD	SZ+SD	-	SZ+SD	SZ+SD	-	ST	ST	ST
		HAPPEN incubators (LL-step C):												
		MedZEBinars (vertical training)	- - -	-	-	OS+FR+HP+PA					-	-	-	-
	AWARENESS CAMPAIGN (T2.2)		- - -	-	-	-	-	-	-	-	e-pills			
COMM., DISS.& EXPLO. (WP7)	**Comm. building** (T7.3)		- - -	Disseminate training modules produced in WP2&6										
	Political level (T7.4)		- - -	-	-	-	-	-	-	-	Coordinated with T2.2			

Table 1 Summary of contents for training according to Target Groups and phases of the Project

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To conclude, this deliverable will provide the contents related to the vertical (segmented) training to be carried out in the first part of the Living Labs, in order to guarantee coherence and homogeneity to all the HAPPEN pilots. They are marked in orange in the previous table. The materials will regard all the training sessions carried out, which will be segmented for the different target groups involved (e.g.: behavioural enhancement for end users, technical solutions for professionals, process and financial solutions for real estate owners and developers), so to address the specific needs of each groups.

1.1 Aims and objectives

This document summarizes the contents of the presentations (pdf documents) that have been prepared as D2.3. All the presentations are produced in English, so that all LLs have a common repository of materials to be taught. Then, each LL trainer can use it as they are or translate and adapt them according to the needs of their target groups.

As this project is a CSA, most of these materials have been produced in the framework of other projects. What has been done in HAPPEN is use them per se, update and translate them into English, or adapt it to HAPPEN objectives. This is the list of projects:

- PROF/TRAC – 'PROFessional multi-disciplinary TRAining and Continuing development in skills for NZEB principles' project (Horizon 2020 programme): http://proftrac.eu
- ELIH-MED – 'Energy Efficiency in Low Income Housing in the Mediterranean' project (MED program): www.elih-med.eu
- REPUBLIC-MED – 'Retrofitting public spaces in intelligent Mediterranean Cities' project (MED program): http://www.five.es/project/republic-med/
- AEA Energy Academies

1.2 Relations to other documents

1.2.1 Legal Framework

The Consortium and Project activities are regulated under the following legal framework:

- The Grant Agreement (GA) - contract between the Commission and the Consortium, especially relevant Annex 1 (also known as Description of Action - DoA);
- The Consortium Agreement (CA) - agreement among the Consortium members.

1.2.2 Other Project Documents

This deliverable is related to the following documents:

WP2 Engagement & Training Strategy:

- D2.1 Manual on engagement and training strategy
- D2.2 Internal training for Pilot leaders, Living Lab facilitators and Living Lab trainers

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2 TRAINING CONTENTS

As previously explained, in the internal training attendees got acquainted with the training materials. For this phase, the training materials with segmented information are the ones to take part of the state-of-the-art knowledge in the following topics. The final topics have been updated to HAPPEN needs:

- **Tips to refurbish dwellings (SR)**

  Sheets with tips for energy saving are provided. These sheets are classified into different colours according to the type of investment:

  Orange sheets: tips for changing your consumption habits (zero cost interventions).

  Blue sheets: tips for incorporating savings elements (small investment).

  Green sheets: general tips (large investment).

  These materials can be used during the LL sessions/workshops with clients as they were produced to be understood by citizens in general.

- **nZEB design, construction and operation (SZ)**
  - Introduction to the IDES-EDU project and lectures
  - Mapping the situation
  - Energy systems for nZEB, computational tools for the evaluation energy performance of buildings and BIM
  - Overview of existing teaching materials (PROF/TRAC platform)
  - Specifics of nZEB at the design, realization, commissioning, operation and financing
  - How to approach Nzeb? What are the key factors?
  - Toward a market for E=0 retrofit in social housing

  The videos of the beforementioned presentations are also available on PROF/TRAC repository.

  Apart from this, different materials are available on http://proftrac.eu/training-material/search-training-material.html according to the following topics:

  - Awareness of energy efficiency;
  - Energy management;
  - Energy production;
  - Energy reduction;
  - Interdisciplinary skills;
  - IDES-EDU educational package:
    - Introduction;
    - Architectural quality;
    - Energy production;
    - EPBD;

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- Heating and cooling;
- Indoor environment;
- Integrated design approach;
- Market and exploitation;
- Outdoor environment;
- Ventilation;
- WBREC;
- Cross-disciplinary teamwork;
- Lighting;
- Sustainable building;

These materials can be used during the LL sessions with makers as PROF/TRAC project trainings were addressed to architects, engineers and building managers.

- **Design of urban spaces with environmental criteria (SD)**

Different design criteria are explained according to the following contents in order to reduce urban heat island effect:

- Areas:
  - Staying areas
  - Pedestrian mobility
- Elements:
  - Urbanisation
  - Street furniture
  - Public transport
  - Building

This material is addressed to makers as it aims to be an aid tool for the planning and design of urban public spaces in Mediterranean climates.

- **Transition Thinking (ST)**
  - What are transitions?
  - Core principles
  - Key conceptual frameworks
  - Localizing transition thinking at cities
  - System innovation for sustainability transitions
  - Conclusions;

The target group of this training is influencers as the role of transition thinking is fundamental in understanding radical urban transformations.

- **AEA Energy Academies**

The contents available are grouped according to the different target groups.

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Influencers

- Latest EU policy and regulatory framework on RES and EE
- Local sustainable energy planning
- Stakeholder mapping, analysis and engagement

Makers

- Access to financing instruments
- Analysis of innovative technologies and their integration in buildings to reach nZEB status

Clients

- Community-based energy models
- End-user awareness-raising and engagement

3 APPENDIX A: CONTENTS DEVELOPED

The following section includes screenshots and an index of the contents for each of the materials provided in Google Drive and that will be available on HAPPEN platform:

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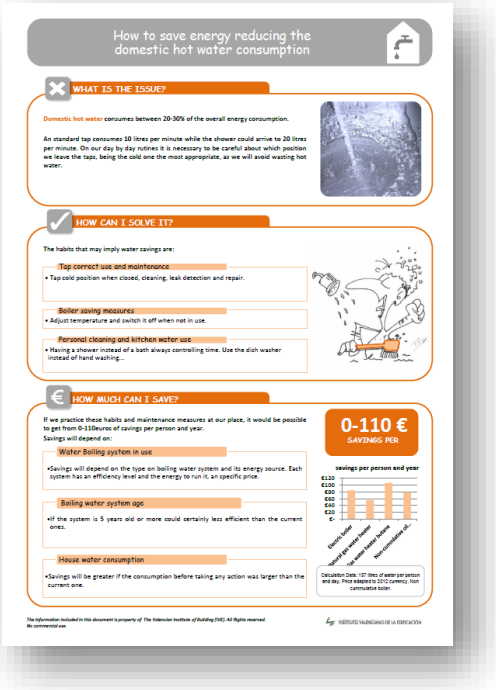
Tips to refurbish dwellings (SR):



How to save energy by:

·Reducing the domestic hot water consumption
· Reducing the consumption on cooling through natural ventilation
·Leading a proper maintenance of the heating system
· Using and leading a proper maintenance of the cooling system
· Being informed of the appliances consumtpion and the energy efficiency tags
· Reducing the appliances consumption
· Reducing the small household appliances's consumption
·Changing the electricity supply contract conditions
·Reducing the lighting system energy consumption
·Being aware of Building Energy Efficiency Certification
·Using properly mobile solar protection systems

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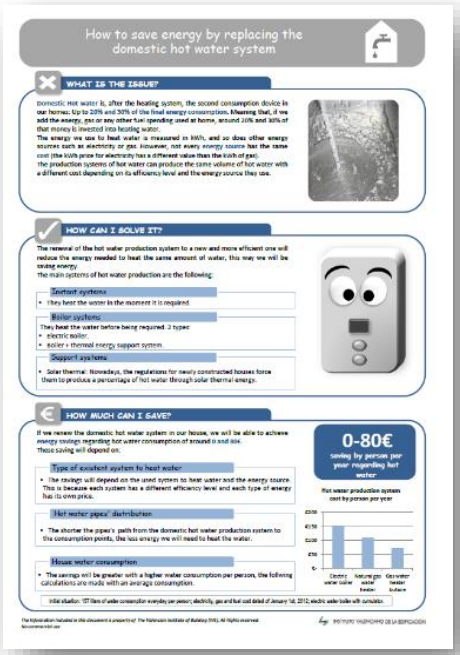
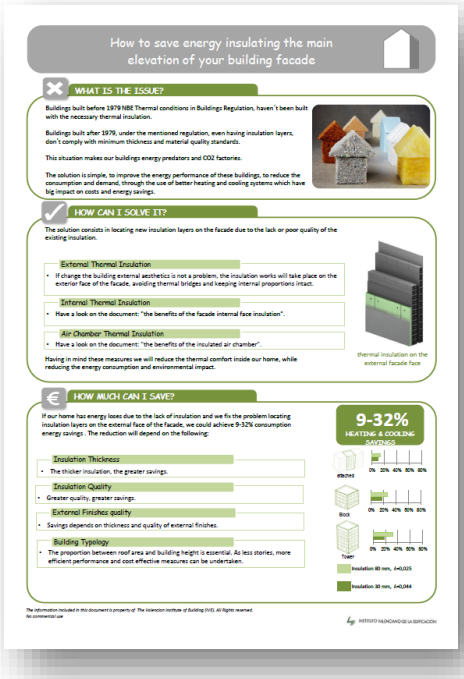


How to save energy by:

· Replacing the domestic hot water system
·Installing domestic hot water saving systems
·Different procedures (in the cooling system)
·Using properly the heating equipment control devices
·Installing home automation devices for smart energy managing
·Installing saving systems on household appliances and eletronic devices
·Installing energy-efficient light bulbs
·Installing energy consumption data devices
·Installing efficient lighting control devices
·Installing lifts efficiency control devices
·Installing solar radiation reflective layers on windows
·Installing façade openings solar protection systems
·Planting vegetation outside as a solar protection system
·Reducing the level of air infiltrations in doors ans windows



How to save energy:

·Replacing the heat system
·Replacing the cooling system
·Insulating the roof external face
·Insulating the roof internal face
·Insulating the external face of your building's façade
·Insulating the internal face of your building's façade
·Insulating the main elevation of your building's façade
·Insulating the main elevation of your building's internal façade face
·Insulating the air chamber of your building main façade
·With Green Roofs
·Installing renewable energy systems
·Replacing elevators
·Installing double windows
·Replacing the glazing
·Replacing your windows glazing and framing systems
How to renovate our building to achieve nearly zero energy consumtpion (nZEB)

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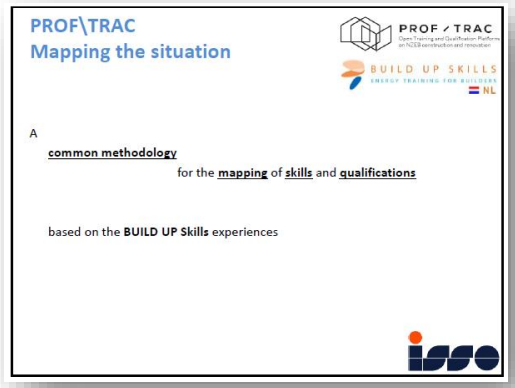
nZEB design, construction and operation (SZ):

Introduction to the IDES-EDU project and lectures:

·PROF/TRAC: building on previous IEE projects
·IEE IDES-EDU: Master and Post Graduate education and training in multi-disciplinary teams
·IDES-EDU: Structur of the Education
·IDES-EDU outcomes
·Fundamental Educational Packages



Mapping the situation:

·Why?
·What
·How?

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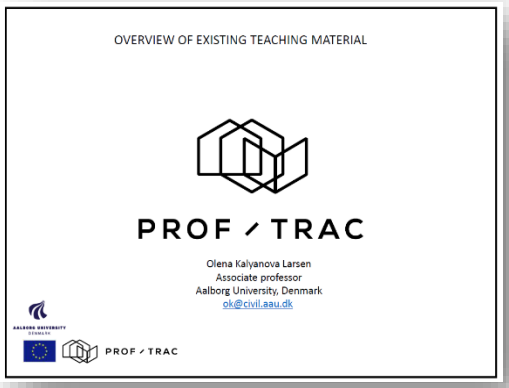
Energy systems for nZEB, computational tools for the evaluation energy performance of buildings and BIM:

Energy systems for NZEB:
·Low energy approach- urban scale
·Alternative sources – electricity
·Building envelope
·Heating of buildings
·Cooling
·Ventilation
·Light
·Domestic Hot Water
·Energy efficient building and Indoor Environmental Quality

Computational tools for the evaluation energy performance of buildings:
·Energy performance of building
·Modelling and simulation tools clasification
·Steady-state methods
·Dynamic methods
·Considerations for program selection
·Tools overview
·BIM



Overview of existing teaching materials:

·Introduction
·Projects
·Categorization according ot building phase
·Type of material
·Key-words structure
·PROF/TRAC database
·Limitations

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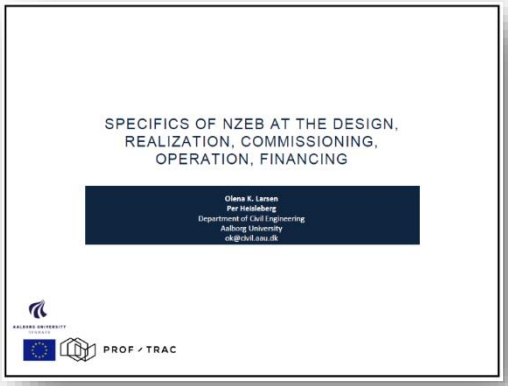

Specifics of nZEB at the design, realization, commissioning, operation and financing:

·What do we need?
·What do we get?
·New challenges. Energy efficiency contra renewable energy production
·New challenges. Buildings and their interaction with the energy systems
·New challenges. Flexibe heating demand through building thermal mass utilization
·New challenges. Expected versus real performance
·Reflections

How to approach NZEB? What are the key factors?:

·Content
·Keys

Toward a market for E=0 retrofit in social housing:

·A low digitalized sector, late in matter of productivity
·Possibility that new comers would jump into the market & disrupt it
·National & regional ecosystems
·The challenge
·BIM & lean construction as key drivers for cost reduction
·Illustration

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Design of urban spaces with environmental criteria (SD):

Design of urban spaces with environmental criteria:

·Areas:
- Staying areas
- Pedestrian mobility

·Elements:
- Urbanisation
- Street furniture
- Public transport
- Building

Transition Thinking (ST):

Transition thinking:

·What are transitions?
·Core principles
·Key conceptual frameworks
·Localizing transition thinking at cities
·System innovation for sustainability transitions
·Conclusions

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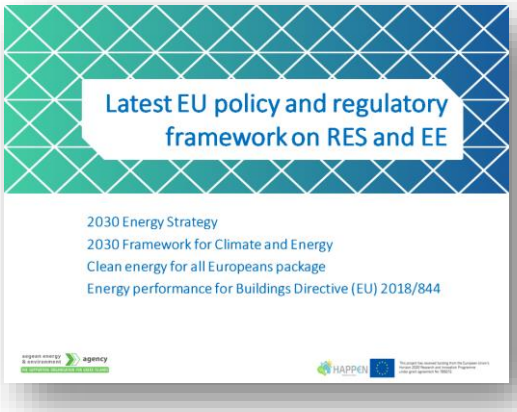
AEA Energy Academies:



Latest EU policy and regulatory framework on RES and EE:

·2030 energy strategy
·2030 Framework for climate and energy
·Clean energy for all European
·Energy Performance in Buildings Directive
·Renewable Energy Directive
·Energy Efficiency Directive
·EE buildings: NZEB national plans
·EE buildings: Certificates and inspections
·Putting energy efficiency first: consuming better, getting cleaner
·The revised Energy Performance of Buildings Directive (EU) 2018/844

Local sustainable energy planning:

·Tools and concepts on local sustainable energy planning
·Defining a Political Strategy for Sustainable Energy
·The importance of building Sustainable Energy Communities
·Strategic axes, Specific and priority actions

Stakeholder mapping, analysis and engagement:

·Targeting, screening and identifying stakeholders
·Major attributes to consider
·Stakeholder analysis basic framework - Conducting a stakeholder analysis
·Stakeholder interaction based on fundamental principles
·Involving external stakeholders
·Case study

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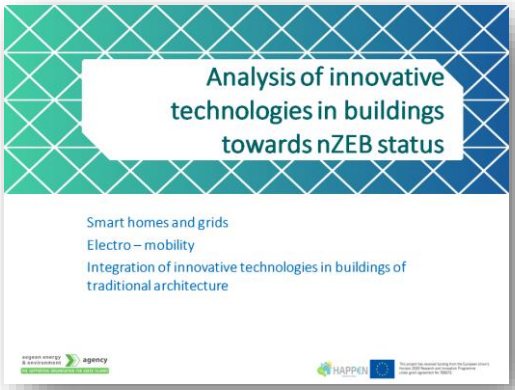
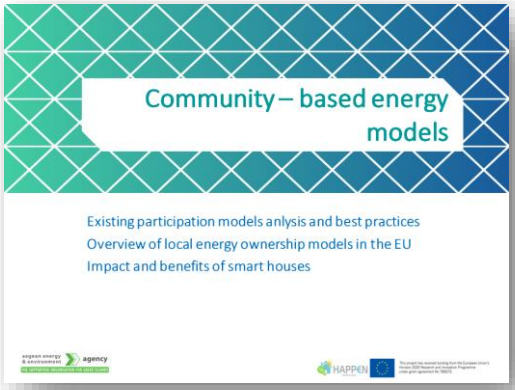
Access to financing instruments:

·EE buildings: Financing renovations
·EE investment: Buildings
·soft loans, third-party investment schemes
·Existing Building Energy Efficiency Renovation International Review of Regulatory Policies
·National financing framework
·Local energy communities



Analysis of innovative technologies and their integration in buildings to reach nZEB status:

·Smart homes and grids: innovative technologies for buildings EE and NZEB targets
·Electro-mobility: MEPS can get buildings speed electro-mobility strengthening
·Integration of innovative technologies in buildings of traditional architecture



Community-based energy models:

·Community-based renewable energy models – an analysis of existing participation models and best practices
·Overview of local energy ownership models in the EU
·Impact and benefits of smart house

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End-user awareness-raising and engagement:

·*Enablers and barriers for engaging in smart energy behavior*
·*Recommendations for successful end-user engagement*
·*Key challenges for (research on) end-user engagement in smart grid*