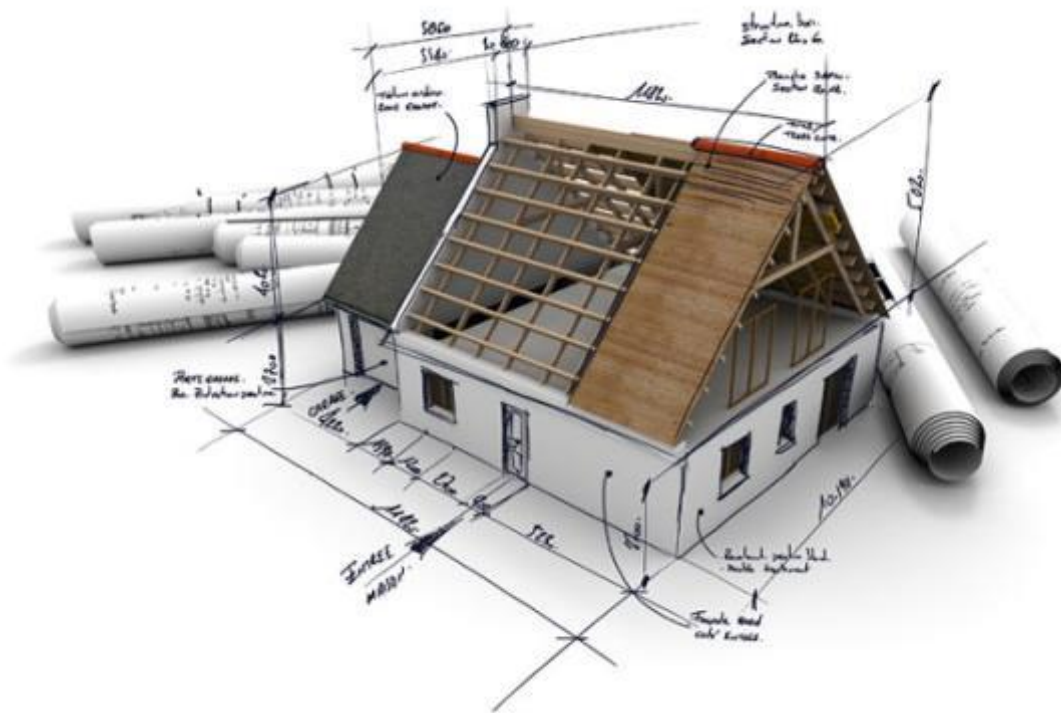


RENEW SCHOOL

*Sustainable school building renovation promoting
timber prefabrication, indoor environment quality
and active use of renewables*



Training design

INTRODUCTION

SCOPE

The development and definition of specific trainings to SME and professionals within the Renew School project, led the project partners to focus on specific objectives and contents to be widespread on very important issues such as wooden constructions, air quality, comfort and all the issues that are related to environmental sustainability.

Micro, small and medium-sized enterprises constitute the dominant form of business organizations in all countries of the European Union. With a total of some 23 million enterprises, more than 99 % of enterprises in the European Union are SMEs¹. SMEs greatly contribute to employment and wealth in Europe. A recent European study compiled by CEDEFOP² has shown that there are around 100 million workers who are at risk due to their level of qualifications and 80 million people are considered to be low-skilled. To contrast this trend, workers need to update their competences specially towards the 'green' technologies and the sustainability themes.

MAIN OBJECTIVES

- To create and to implement specific trainings on the themes related to timber construction, specially focused on prefabrication and ventilation requirements;
- To allow SMEs and professionals to attend specific workshops, trainings and webinars;
- To update the skills with new information related to sustainability and to technical themes;
- To set up specific trainings that can be repeated after the project;
- To involve experts in participating to specific workshops.

METHODOLOGY USED

The overall objective is to set up specific trainings within the Renew School project. Each partner has identified specific themes and relevant topics to be discussed and added in the developed courses in order to keep active the attention and the knowledge on the specific sustainability's themes.

Each partner involved in this activity has implemented specific business plans for each training in order to verify the self-sufficient way of the activities.

¹ http://ec.europa.eu/eurostat/statistics-explained/index.php/Statistics_on_small_and_medium-sized_enterprises

² European Commission, Directorate-General for Employment, Social Affairs and Equal Opportunities, Unit F.3 (2009), *Guide for Training in SMEs*

TRAINING DESIGN

Partner: HCS – Holzcluster Steiermark GmbH

The workshop has taken place on the 12th May 2015 in the city of Milano at the Austria Pavillon during the EXPO Milano 2015.

During this workshop the theme of the renovation of school buildings has been proposed thanks to the contribution of different experts.

The workshop has been organized by HCS with the cooperation of eERG PoliMI within the Renew School project: in this sense, many examples of renovation have been detailed shown and discussed, focusing in particular on the advantages of the use of wood as main material for renovating these kind of buildings.

The workshop was free of charge, and the number of participants was 45.

Ristrutturazione di edifici scolastici con tecnologie sostenibili

EDILIZIA DEL LEGNO - WORKSHOP & B2B

12 Maggio 2015 - dalle ore 13:30 alle 16:00
presso PADIGLIONE AUSTRIACO (S33) in Milano EXPO

Benvenuto e presentazione

Visnja JURNAK, Wood cluster Styria, Austria

Esempi di progetti di ristrutturazioni realizzate con successo per le pubbliche amministrazioni

Armin KNOTZER - AEE INTEC Austria

Progetti della città di Milano per ristrutturazioni di edifici scolastici con sistemi e componenti in legno

Maria ROZZA - Assessore ai Lavori Pubblici del Comune di Milano

Sergio ALDARESE - Responsabile Servizio Progettazione Scuole e Strutture Sociali, Comune di Milano

Esempio di progettazione integrata ad elevate prestazioni della ristrutturazione di un asilo a Milano

Lorenzo PAGLIANO - eERG end-use Efficiency Research Group - Politecnico di Milano

Esempi di elevata integrazione di componenti per la ventilazione ed energie rinnovabili in elementi in legno e progetti di ristrutturazione

Michael TRIBUS - Michael Tribus Architecture

Esperienze e opportunità di mercato per ristrutturazioni con componenti prefabbricati in legno

Gernot WEISS - Stora Enso WP Bad St. Leonhard Ltd, Austria

Dibattito e scambio di idee

Vi preghiamo di iscrivervi entro il 20 Aprile presso:

eERG - end-use Efficiency Research Group - Politecnico di Milano

Marco Pietrobon - Tel. +39 02 2399 3882 - marco.pietrobon@polimi.it

I partecipanti al workshop riceveranno un biglietto d'entrata gratuita a EXPO. Il workshop si terrà in **lingua inglese**.



www.renew-school.eu

In collaborazione con Holz Cluster Steiermark e Internazionalisierung Center Steiermark



eu-gugle.eu



POLITECNICO
DI MILANO

www.eerg.it
eERG – end-use Efficiency Research Group
Dipartimento di Energia - Politecnico di Milano

Partner: HCS – Holzcluster Steiermark GmbH

The trainings has taken place on the 12th November 2015 in the city of Graz.

The topics of fast manufacturing, maximum flexibility, optimum economy and ecological construction have been deeply discussed, focusing on the fact that these are the main advantages in modular timber constructions. The increasing possibilities of prefabrication and also digitization in the planning process are driving forward the development of the flexible construction system. The experts, DI Sebastian Knoflach and DI Simon Speigner, have talked about the practice from the point of view of both the constructor and the architect. They have reported on how the modular timber construction is implemented in practice, what are the needs to be taken into account and the technical possibilities.

The workshop was free of charge, and the number of participants was 90.



Modularer Holzbau

**12.11.2015
09.00 Uhr**

**TU Graz
Rechbauerstraße 12
HS 5**

Modularer Holzbau

Schnelle Fertigung, maximale Flexibilität, optimale Wirtschaftlichkeit und die ökologische Bauweise sind die wesentlichen Vorteile im modularen Holzbau. Die steigenden Möglichkeiten der Vorfertigung und auch Digitalisierung im Planungsprozess treiben die Entwicklung des flexiblen Bausystems weiter voran. Die beiden Experten DI Sebastian Knoflach und DI Simon Speigner werden aus der Praxis erzählen. Zum einen aus der Sicht des Konstrukteurs und zum anderen aus der Sicht des Architekten. Sie berichten darüber wie der modulare Holzbau in der Praxis umgesetzt wird, auf was man dabei achten muss und welche technischen Möglichkeiten es gibt.

Die Vortragenden



DI Sebastian Knoflach (Mayr Meinhof)

Internationales Produktmanagement für MM Holz mit dem Stammsitz in Leoben/Stmk. FH Studiengang Holztechnik- und Holzwirtschaft an der FH Salzburg 2000-2004; Masterstudiengang HTW an der FH Salzburg 2010 – 2012. Die Mayr-Meinhof Holz Holding AG ist Marktführer im Segment Brettschichtholz, treibende Kraft im Vormarsch von Brettspertholz und nimmt daher eine entscheidende Rolle als Motor der Holzindustrie ein.



DI Simon Speigner (sps-architekten zt gmbh)

Architekturstudium an der TU Graz und seit 2001 mit eigenem Büro in Thalgaun tätig. Öffentliche wie auch private Holzbauten im Passivhausstandard zählen zu den Kernkompetenzen und wurden bereits mehrfach ausgezeichnet. Dazu kommen Lehrtätigkeiten an verschiedenen Institutionen.

Das Programm

09:00 Uhr, Begrüßung
Univ. Ass. DI Armin Stocker, Institut für Architekturtechn., TU-Graz
Univ. Ass. Arch. DI Prof. Matej Blenkuš, Universität Ljubljana

09:05 Uhr
Die Vorteile der Massivholzbauweise mit Brettspertholz
DI Sebastian Knoflach, International Product Management
Mayr Meinhof

10:00 Uhr, Pause

10:10 Uhr
Bauen mit vorgefertigten Raumzellen
DI Simon Speigner, Architekt
sps-architekten zt gmbh

11:00 Uhr
Come together, Buffet

IAT | Institut für
Architekturtechnologie

IAT - Institut für Architekturtechnologie
Vorstand Univ.-Prof. Arch. DI Roger Riewe
Technische Universität Graz
Rechbauerstraße 12 | 8010 Graz - Austria



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**12.11.2015
09.00 Uhr**

**Ort: TU Graz
Rechbauerstraße 12
8010 Graz
HS 5**

**>> ANMELDUNG UNTER:
www.proholz-stmk.at**

**Für Fragen steht Ihnen
Gudrun Wölfl zur Verfügung.
Mail: office@proholz-stmk.at
Tel.: 0316/587860**

Partner: HCS – Holzcluster Steiermark GmbH

The training has taken place on the 1st December 2015 in the city of Graz.

Two experts, Arch. DI Dr. Ida Pirstinger and Arch. DI Johannes Wohofsky, have deeply discussed on the difficulties in the next future of having more spaces in the urban areas. Having a look on the possibilities of renovating through pre-fabrication elements, the earnings due to the time and costs savings have been proposed. There is a great potential in using wood elements as ecological building material.

The participation fee was 35 euro, reduced at 15 euro for Members of the ZT Chambers and the HCS, whereas was free of charge for students and for the press. The number of participants was 85.



An- und Zubauten aus Holz

Verdichten im urbanen Raum

01.12.2015
17.00 Uhr

FH Joanneum
Alte Poststraße 154
HS 12

An- und Zubauten aus Holz - Verdichten im urbanen Raum

Im Jahr 2050 wird die Hälfte aller SteirerInnen in Graz und Graz-Umgebung leben. Das bedeutet, dass mehr Platz im urbanen Raum benötigt wird und somit Zu- bzw. Anbauten, als Teilbereich der städtischen Nachverdichtung, notwendig sein werden. Durch die Zeitersparnis aufgrund des hohen Vorfertigungsgrades, der Integrationsmöglichkeit von haustechnischen Komponenten sowie der trockenen und sauberen Baustelle steckt im ökologischen Baustoff Holz ein großes Potenzial. Die Veranstaltung der proHolz Akademie beschäftigt sich mit An- und Zubauten aus Holz und zeigt die veränderten Anforderungen in den Bereichen Leben, Wohnen und Arbeiten im urbanen Raum auf.

Die Vortragenden



Arch. DI Dr. Ida Pirstinger (Architektur Stadt Raum)
Dr. Ida Pirstinger studierte Architektur an der TU Graz und war viele Jahre als Planerin tätig. Nebenberuflich unterrichtete sie Hochbau an der TU Graz. Von 2007 bis 2013 arbeitete sie als Universitätsassistentin am Institut für Gebäudelehre und promovierte in dieser Zeit in den Fachbereichen Städtebau und Gebäudelehre. Seit 2014 ist sie als freiberufliche Konsultantin und Stadtforscherin tätig und beschäftigt sich mit Fragen der Aufwertung und Nachverdichtung bestehender urbaner Quartiere.



Arch. DI Johannes Wohofsky (balloon_Rampula/Gratl/Wohofsky)
balloon wurde 2003 von den Architektinnen Andreas Gratl, Iris Rampula-Farrag und Johannes Wohofsky in Graz gegründet. Kernthemen in ihrer Architektur sind kontextsensitive Ein-/Um-/Aus-Bauten im Bestand im Bereich Bildungs- und Kulturbauten, Wohnbau, sowie öffentlicher Raum. Bei balloon stehen die Prozesse und nicht das Endergebnis im Zentrum der Arbeit. Alle am Projekt Beteiligten sind integrierte Prozess-Partner, auf dass die beste Lösung für eine architektonische Aufgabenstellung zustande kommt.

Das Programm

17:00 Uhr, Empfang

Arch. DI Wolfgang Schmied, FH Joanneum Architektur
Mag. Doris Stiksl, MSc, proHolz Steiermark

17:15 Uhr

Gründerzeitquartier 2.1 – Die Aufwertung von
Gründerzeitquartieren als Stadterweiterungsstrategie
Arch. DI Dr. Ida Pirstinger (Architektur Stadt Raum)

18:00 Uhr

Baumhaus und Leseturm - Erweiterungen im Bestand
Arch. DI Johannes Wohofsky
(balloon_Rampula/Gratl/Wohofsky)

19:00 Uhr

Come together, Buffet

01.12.2015

17.00 Uhr – 19.00 Uhr

Ort:

FH Joanneum
Alte Poststraße 154
8020 Graz
HS 12

Teilnahmegebühr: € 35.-

Mitglieder der ZT-Kammer
und des Holzclusters: € 15.-

Studierende, Presse
(Ausweis erforderlich): gratis

Für Fragen steht Ihnen
Gudrun Wölfl zur Verfügung.
Mail: office@proholz-stmk.at
Tel.: 0316/587860-0



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FH JOANNEUM
University of Applied Sciences

Partner: HCS – Holzcluster Steiermark GmbH

The training has taken place on the 10th May 2016 in the city of Zagreb with the cooperation of WIC and Informest.

The workshop was for architects, construction engineers, entrepreneurs and anyone interested in environmental and energy efficient rehabilitation of public buildings.

In particular, it has been introduced the use of wood as specific technology and equipment for the effective renovation of schools, showing examples of good practice.

The participation was free of charge and the number of participants was 70.

School renovations: Quick – affordable – green and healthy Energetski učinkovita, ekološka i brza sanacija škola



Vrijeme: utorak, 10. svibnja 2016. s početkom u 15:30 sati

Mjesto: Stara gradska vijećnica, Ćirilometodska 5, Zagreb - dvorana A

U organizaciji s: Hrvatskom komorom arhitekata, Slovenskim Lesarskim grozdom, Austrijskim AEE – Institutom za održive tehnologije, Hrvatskim drvnim klasterom, Uredom Atašea za poljoprivredu, šumarstvo i okoliš pri Veleposlanstvu Republike Austrije te Gradskim uredom za energetiku, zaštitu okoliša i održivi razvoj Grada Zagreba

Radionica je namijenjena arhitektima, građevinskim inženjerima, poduzetnicima i svima zainteresiranim za ekološku i energetski učinkovitu sanaciju javnih zgrada.

PROGRAM

- | | |
|--------|--|
| 15:30h | Uvod: tehnologije i instrumenti za učinkovitu sanaciju škola
DI Armin Knotzer, AEE intec (predavanje na engleskom jeziku) |
| 15:45h | Primjeri dobre prakse – pobjednički koncepti i tehnologije za sanaciju
Arch. Dipl.-Ing. Ingrid Domenig, Arch + More (predavanje na engleskom jeziku) |
| 16:15h | Realizacija drvenih vrtića i škola u Sloveniji
DI Bruno Dujic, CBD (predavanje na hrvatskom jeziku) |
| 16:45h | Building Intelligent Skins: proizvodnja, prijevoz i montaža
Ing. ZM Christof Müller, Weissenseer Holz-System-Bau GmbH (predavanje na engleskom jeziku) |
| 17:15h | ... Naslov još nije potvrđen .. Miroslav Premrov |
| 17:45h | Europski modeli financiranja sanacije škola
DI Armin Knotzer, AEE intec (predavanje na engleskom jeziku) |
| 18:00h | Diskusija, zaključci i kraj radionice |

Sudjelovanje na radionici je **besplatno uz obaveznu prijavu** na ana.pekic@bmeia.gv.at do 6.5.2016.

Program je podložan izmjenama.



EKO.ZAGREB.HR
GRADSKI URED ZA ENERGETIKU,
ZAŠTITU OKOLIŠA I ODRŽIVI RAZVOJ



Partner: HCS – Holzcluster Steiermark GmbH

The training has taken place on the 12th May 2016 in the city of Graz.

Most of the existing buildings in Austria are functionally overhauled, inefficient in energy and thus no longer meet the wishes of the society and the objectives of sustainability. The biggest building task of the future will be in the renovation of buildings. In order to offer an alternative to conventional, mostly environmentally-compatible solutions, the course has shown the advantages of modern prefabricated timber construction.

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Four experts have reported from their practice and have shared their experience in order to demonstrate the possibilities of using prefabricated wood elements in the area of the energetic renovation of the building envelope.

The event was primarily aimed to planners, architects, construction companies and decision-makers.

The participation was free of charge and the number of participants was 55.

Die Gebäudehülle

technische und gestalterische Lösungen in der Sanierung



Donnerstag, 12. Mai 2016
16.30 Uhr - 19.30 Uhr
Steiermarkhof Graz
Krottendorferstraße 81, 8052 Graz

**16:30 Uhr,
Begrüßung**
DI(FH) Erhard Pretterhofer,
Holzcluster Steiermark GmbH

Sanierung mit Holzfertigteilen
Baublauf anhand einiger Beispiele
DI Christian Liebinger
Kulmer Bau GesmbH & Co KG

Building intelligent Skins
Faktor Zeit – Sanierungen
Ing. ZM Christof Müller
Weissenseer Holz-System-Bau GmbH

Sanieren mit dem High-Design Bau
Holz und Lehm im Verbund für ein
Raumklima
Nikolaus Hulatsch
CLAYTEC Lehmbaumstoffe GmbH

Energetische Sanierung anhand des
Grundschule Wetter
DI Günther Meinhardt
Rubner Holzbau GmbH

**18:45 Uhr,
Networking und Buffet**

holzcluster
steiermark gmbh

Die Gebäudehülle

technische und gestalterische
Lösungen in der Sanierung

Ein Großteil der Bestandsbauten in Österreich ist funktional überholt, energetisch ineffizient und entspricht somit nicht mehr den Komfortwünschen unserer Gesellschaft. Eine wesentliche Bauaufgabe der Zukunft wird daher in der Sanierung liegen. Um den gängigen, zu- meist umweltunverträglichen Lösungen eine Alternative entgegenzusetzen, werden im Zuge dieses Trainings die Vorteile des modernen vorgefertigten Holzbaus darge- legt.

Vier Experten berichten aus der Praxis und teilen ihren reichen Erfahrungsschatz, um die Möglichkeiten des Ein- satzes von vorgefertigten Holzelementen im Bereich der energetischen Sanierung der Gebäudehülle aufzuzei- gen. Die Veranstaltung richtet sich vorrangig an Planer, Architekten, Bauunternehmen und Entscheidungsträger im Bauprozess.

Die Teilnahme ist kostenlos.

Termin: Donnerstag, 12. Mai 2016
16.30 Uhr - 19.30 Uhr

Ort: Steiermarkhof Graz
Krottendorferstraße 81
8052 Graz

Anmeldung bis 09.05.2016
unter www.holzcluster-steiermark.at
oder schmidt@holzcluster-steiermark.at
Tel.: 0316/587860-215

In Kooperation mit



pro:Holz
Steiermark



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

Die alleinige Verantwortung für den Inhalt dieser Einladung liegt bei den Auto- rinnen. Sie gilt nicht unbedingt die Meinung der Europäischen Union wieder. Weder die EASME noch die Europäische Kommission übernehmen Verantwor- tung für jegliche Verwendung der darin enthaltenen Informationen.

Partner: HCS – Holzcluster Steiermark GmbH

The training has taken place on the 14th November 2016 in the city of Graz.

With a focus on façade and future development of it, Woodcluster Styria has organized training for 30 participants in Graz. Target groups were SMEs (wood and building) and planners.

Firstly the Renew School retrofitting methodology has been presented; after that Dr. Mario Müller talked and discussed with participants about the “Intelligent solutions with material combination” and challenges of climate changes that will have an impact on the development of our building coats. The company Haas has reported about its experience with prefabricated wooden elements. The company Winterface is a pioneer in the field of innovation on the market and digitalization in façade production, so they shared their know-how on digital measurement (drone) and programmed robot assisted production line. Last lecturer was held by Dr. Nocke who gave an overview of new developments of integration of building technology in prefabricated wooden façades. The participation was free of charge

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pro:Holz AKADEMIE
Steiermark
Aus der Praxis für die Praxis

holzcluster
steiermark gmbh

RENEW SCHOOL



Modularer Holzbau

Schnelle Fertigung, maximale Flexibilität, optimale Wirtschaftlichkeit und die ökologische Bauweise sind die wesentlichen Vorteile im modularen Holzbau. Die steigenden Möglichkeiten der Vorfertigung und auch Digitalisierung im Planungsprozess treiben die Entwicklung des flexiblen Bausystems weiter voran. Die beiden Experten DI Sebastian Knoflach und DI Simon Speigner werden aus der Praxis erzählen. Zum einen aus der Sicht des Konstrukteurs und zum anderen aus der Sicht des Architekten. Sie berichten darüber wie der modulare Holzbau in der Praxis umgesetzt wird, auf was man dabei achten muss und welche technischen Möglichkeiten es gibt.

Die Vortragenden



DI Sebastian Knoflach (Mayr Melnhof)

Internationales Produktmanagement für MM Holz mit dem Stammsitz in Leoben/Stmk. FH Studiengang Holztechnik- und Holzwirtschaft an der FH Salzburg 2000-2004; Masterstudiengang HTW an der FH Salzburg 2010 – 2012. Die Mayr-Melnhof Holz Holding AG ist Marktführer im Segment Brettschichtholz, treibende Kraft im Vormarsch von Brettspertholz und nimmt daher eine entscheidende Rolle als Motor der Holzindustrie ein.



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Das Programm

09:00 Uhr, Begrüßung

Univ. Ass. DI Armin Stocker, Institut für Architekturtechn., TU-Graz
Univ. Ass. Arch. DI Prof. Matej Blenkuš, Universität Ljubljana

09:05 Uhr

Die Vorteile der Massivholzbauweise mit Brettspertholz
DI Sebastian Knoflach, International Product Management
Mayr Melnhof

10:00 Uhr, Pause

10:10 Uhr

Bauen mit vorgefertigten Raumzellen
DI Simon Speigner, Architekt
sps+architekten zt gmbh

11:00 Uhr

Come together, Buffet

12.11.2015
09.00 Uhr

Ort: TU Graz
Reichbauerstraße 12
8010 Graz
HS 5

>> ANMELDUNG UNTER:

www.proholz-stmk.at

Für Fragen steht Ihnen
Gudrun Wölfl zur Verfügung.
Mail: office@proholz-stmk.at
Tel.: 0316/587860

IAT | Institut für
Architekturtechnologie

IAT - Institut für Architekturtechnologie
Vorstand: Univ.-Prof. Arch. DI Roger Renne
Technische Universität Graz
Reichbauerstraße 12 | 8010 Graz - Austria

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

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therein."

Partner: WIC – Wood Industrial Cluster

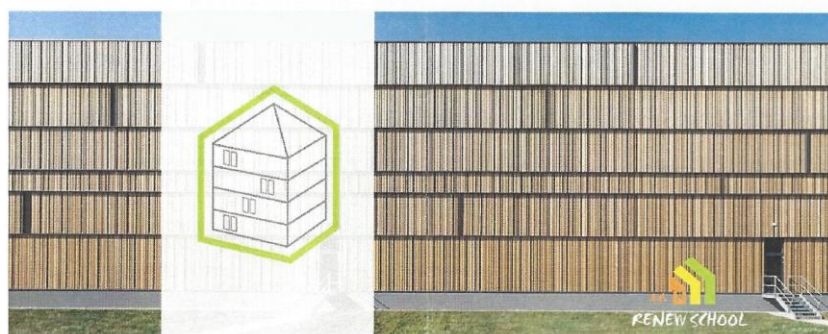
The training has taken place in the Old City Hall in Zagreb, Croatia on the 10th May, 2016 in cooperation with HCS and Informest.

The number of attendants was 70 persons.

The training was implemented in a frame of accompanying activities during the Zagreb Energy Week. The training was prepared for building professionals companies and planners in Croatia and participants from South-East Europe countries. There was free admittance for participants and the costs of the lecturers have been covered by the Renew School partners.

WIC has covered Slovenian lecturers done by Bruno Dujic (453,30 euro).

School renovations: Quick – affordable – green and healthy



Workshop – Training for building professionals companies and planers in Croatia

10th of May 2016 in Zagreb from 3:30 to 6:00 pm

Location: Old City Hall - Zagreb, Ćirilometodska 5 - Hall A

Program:

3:30	Intro: technologies and tools for school renovations DI Armin Knotzer, AEE intec (in English)
3:45	Best practices of renovation - winning concepts and technologies Arch. Dipl.-Ing. Ingrid Domenig-Meisinger, Arch + More (in English)
4:15	Building Intelligent Skins: production, logistics and assembly Ing. ZM Christof Müller, Weissenseer Holz-System-Bau GmbH (in english)
4:45	Realisation of wooden kindergardens and schools in Slovenia DI Bruno Dujic, CBD (in Croatian)
5:15	Retrofits with wood components using different kind of insulation systems – examples from Italy Ing. Alessandro d'Agostino (in English)
5:45	Financing models for school renovations DI Armin Knotzer, AEE intec (in English)
6.00	Discussion and closure

Partner: NAPE – National Energy Conservation Agency

The training was performed in Warsaw at NAPE location (Warsaw, 20 Świątokrzyska Str.) on the 26th September 2016.

The total number of participants is 37 representing 30 different SME.

The training was organized together with the Energy Conservation Foundation and the participants were mostly energy auditors, and the training was performed from 10 am to 3.15 pm.

The main subject of the course was to explain the modernization of the ventilation for improving indoor air quality and energy performance of a building. One of the main topics was also about the decentralized ventilation with heat recovery with an air handling units located in facades.

The participants paid a fee of 20PLN (about 5 euro), just as a registration fee.



ZRZESZENIE
AUDYTORÓW
ENERGETYCZNYCH

Modernizacja systemu wentylacji w ramach termomodernizacji budynków

26 września 2016r., Warszawa, ul. Świątokrzyska 20

PROGRAM

Godz.	Temat zajęć	Prowadzący
10.00 – 11.30	Wskazania do modernizacji systemu wentylacji Energetyczne aspekty modernizacji systemu wentylacji cz.1	Dr inż. Maciej Mijakowski
11.30 - 11.45	PRZERWA	
11.45- 12.30	Energetyczne aspekty modernizacji systemu wentylacji cz.2	Dr inż. Maciej Mijakowski
12.30- 13.15	Prezentacja firmy Aereco sp. z o.o.	Krzysztof Antecki
13.15- 13.45	PRZERWA KAWOWA	
13.45- 15.15	Modernizacja systemu wentylacji Przykłady i uwagi praktyczne Efekty ekonomiczne	Dr inż. Maciej Mijakowski

Program szkolenia został przygotowany dzięki doświadczeniom związanym z realizacją projektu RENEW SCHOOL finansowanego przez Komisję Europejską.



**Fundacja
Poszanowania Energii**

ORGANIZACJA POŻYTKU PUBLICZNEGO

ul. Świątokrzyska 20 · 00-002 Warszawa
NIP 526-20-95-317 · KRS 0000117141 · REGON 0010602702
tel. +48 22 50 54 772 · +48 22 50 54 771 · fax +48 22 825 86 70
e-mail: biuro@fpe.org.pl · www.fpe.org.pl



The training was performed in the city of Forlì on the 17th February 2016 and was organized in the framework of ARCA – the certification system for wooden buildings.

The course focused on the topic of timber buildings, how to ensure quality, sustainability and comfort following the rules of the certification system ARCA.

The Renew School project has been introduced when talking about the use of timber as material to renovate buildings, for example with prefabricated façades. Despite the fact that this technique is well known in Northern EU Countries, this particular way of renovation is not well known in Italy and this introduction was fundamental to explain and explore the details of this technique.

The total number of participants was 19 (mainly planners and designers) and they paid a fee of 30 euro to cover the costs of the transfer and lecture of the speakers.




EDILIZIA IN LEGNO DI QUALITÀ

Nuovi strumenti di mercato

Un incontro dedicato alla materia legno, alle buone pratiche e alle soluzioni per evitare i più frequenti errori progettuali e costruttivi, fino alla realizzazione degli edifici in legno secondo i parametri stabiliti da ARCA, il sistema di certificazione degli edifici in legno, che garantisce al mercato **qualità, sicurezza, sostenibilità, salubrità e sviluppo.**

CONTENUTI

Ore 13.45 – 14.00
Registrazione partecipanti

Ore 14.00 – 19.00
Crescita dell'edilizia in legno: tendenze in atto e condizione per il successo nel mercato

I vantaggi del costruire in legno, materiale sostenibile per eccellenza: leggero, isolante, salubre

Comportamenti del legno e principi per la sua durabilità

Soluzioni per progettare e realizzare costruzioni in legno

Il progetto europeo Renew School: l'uso del legno come materiale per rinnovare gli edifici scolastici

Il mercato e le esigenze di garanzia su qualità e sicurezza: nuovi strumenti per misurare e comunicare risultati e prestazioni

ARCA, il sistema nazionale di certificazione delle costruzioni in legno:

- Come ARCA definisce, misura, accompagna e garantisce il livello di qualità delle costruzioni certificate
- Processo e strumenti di certificazione, figure coinvolte, esperienze dal campo
- ARCA Academy: il centro di formazione continua per i professionisti del legno

Dibattito e discussione finale

Per maggiori informazioni:
dott.ssa Micol Mattedi formazione@arcacert.com 0464.446455

Relatori
Ing. Stefano Menapace, Ideatore di ARCA e docente ARCA Academy
Ing. Matteo Mores, Referente Area Marketing e Sviluppo Network ARCA
Geom. Filippo Spazzoli, Progettista ARCA – Area ES

DATA E SEDE
17 febbraio 2016 – orario 14.00 / 19.00
presso **Sala della Banca di Forlì** – Via Bruni, Forlì

ISCRIZIONE
Costo seminario: 30,00 euro + IVA

Al fini di una migliore organizzazione, si prega di inviare la scheda allegata tramite mail all'indirizzo formazione@arcacert.com oppure tramite fax al nr. 0464 443460.

CREDITI FORMATIVI
5 CFP riconosciuti dal Collegio dei Geometri di Forlì.
CFP riconosciuti dal Collegio dei Periti Industriali di Forlì.






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

Partner: DTTN – Trentino Technological Cluster


The training was performed in the city of Ospedaletto (Pisa) on the 13th April, 2016.

The total number of participants is 19.

The course focused on the topic of timber buildings, how to ensure quality, sustainability and comfort following the rules of the certification system ARCA.

The Renew School project has been introduced when talking about the use of timber as material to renovate buildings, for example with prefabricated façades. Despite the fact that this technique is well known in Northern EU Countries, this particular way of renovation is not well known in Italy and this introduction was fundamental to explain and explore the details of this technique.

The total number of participants was 19 (mainly planners and designers) and they paid a fee of 30 euro to cover the costs of the transfer and lecture of the speakers.




EDILIZIA IN LEGNO DI QUALITÀ

Nuovi strumenti di mercato

Un incontro dedicato alla materia legno, alle buone pratiche e alle soluzioni per evitare i più frequenti errori progettuali e costruttivi, fino alla realizzazione degli edifici in legno secondo i parametri stabiliti da ARCA, il sistema di certificazione degli edifici in legno, che garantisce al mercato **qualità, sicurezza, sostenibilità, salubrità e sviluppo.**

CONTENUTI

Ore 13.45 – 14.00
Registrazione partecipanti

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Crescita dell'edilizia in legno: tendenze in atto e condizione per il successo nel mercato

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Comportamenti del legno e principi per la sua durabilità

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- Processo e strumenti di certificazione, figure coinvolte, esperienze dal campo
- ARCA Academy: il centro di formazione continua per i professionisti del legno

Dibattito e discussione finale

Per maggiori informazioni:
dott.ssa Nicol Mattedi formazione@arcacert.com 0464.446455

Relatori

Ing. Stefano Menapace, Ideatore di ARCA e docente ARCA Academy
Ing. Matteo Mores, Referente Area Marketing e Sviluppo Network ARCA
Geom. Matteo Rossi, Progettista ARCA – Area ES

DATA E SEDE

13 aprile 2016 – orario 14.00 / 19.00
presso **Cassa Edile di Pisa** – Via G.Ferraris, 21
Ospedaletto (Pisa)

ISCRIZIONE



Costo seminario: 30,00 euro + IVA

Ai fini di una migliore organizzazione, si prega di inviare la scheda allegata tramite mail all'indirizzo formazione@arcacert.com oppure tramite fax al nr. 0464 443460.

CREDITI FORMATIVI

CFP riconosciuti dal Collegio dei Geometri di Pisa.
SCFP riconosciuti dal Collegio dei Periti Industriali di Pisa.




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

Partner: DTU

Two of the three scheduled trainings have taken place in the house of the Association of Building Service Installers (TEKNIQ), Paul Bergsøesvej 6, DK-2600 Glostrup.

Training nr. 1 was held on the 13th November 2014 and there were 6 participants.

Training nr. 2 was held on the 1st December 2015 and the participants were 9.

Scheduled training nr. 3 on the 13th December 2016 (enlisted participants: 6).

The training has the form of a low-energy ventilation course with focus on classroom ventilation in both new school and in schools about to be renovated. The target group is ventilation professionals from the entire value chain but with common interest and knowledge about the challenges of creating low-budget, low-energy and draught-free ventilation solutions in class rooms.

The training was designed as an intense full day course with lectures on low-energy ventilation separated by practical assignments in small groups revolving around ventilation of school class rooms. I.e. the learnings from the lectures had to be applied in a class room scenario with increasing difficulty; each assignment increases the range of design tools and solutions from the previous one.

During these exercises new technologies for both new schools and renovated schools were presented and experiences were discussed.

The course was announced, advertised and arranged by DANVAK, the Danish Association for Professionals in Building Services. DANVAK is a professional course organization focusing on offering relevant courses to the members. Consequently there is an admittance fee to cover organizational matters, advertisement, location, free lunch, printouts and a fee to the lecturer.

This organizational arrangement ensures that the training will also be offered in the years to come which it indeed has proven – the training is offered for the third time in December 2016.

Deltagerliste

Lavenergiventilation

K 15032

01.12.2015

Danvak Glostrup - Paul Bergsøes Vej 6, 2600 Glostrup

20

Deltagere:

Anne Jeppesen
Bjarne Jacobsen
Henrik Beyer
Jørgen Dueholm
Michael Anker
Pawel Krawczyk
Peter Hartmann
Peter Steeskov
Thomas Hindsberg

Solar A/S
Installationspartner ApS.
Rambøll
Torkil Laursen A/S
MOE A/S
Rambøll
Oluf Jørgensen A
Torkil Laursen A/S
-

Undervisere:

Christian Anker Hviid

Claus Wessel



Danvak
Paul Bergsøes Vej 6
DK-2600 Glostrup
Telefon 36 36 90 60
E-mail: info@danvak.dk
Internet: www.danvak.dk
CVR: 8838 2013

Program

Lavenergiventilation

1. december 2015, Danvak Glostrup

kl. 8.30	Ankomst - kaffe/te
kl. 8.45	01 Velkomst , Christian Anker Hviid <i>Præsentation af deltagere. Læringsmål.</i>
kl. 9.00	02 Fremtidige krav til ventilation , Christian Anker Hviid <i>Indeklima, BR2020 krav</i>
kl. 9.15	03 Energi og ventilation , Christian Anker Hviid <i>Teori, tryktab, effekt, SEL-værdi, energiforbrug</i>
kl. 9.45	Gruppeopgave #1. Projektering af lav-energi skoleventilation <i>Introduktion, luftbehov, kølebehov</i>
kl. 10.00	Pause – Kaffe/te
kl. 10.15	Gruppeopgave #2. Projektering af lav-energi skoleventilation <i>Central løsning, kanalføring, tryktab, energieffektivitet</i>
kl. 10.45	04 Nye teknologier Christian Anker Hviid <i>Decentrale ventilatorer, dråbespjæld, dynamisk setpoint reset, adiabatisk køling, udskilt bypass, elektrostatisk filtre</i>
kl. 12.00	05 Diffuse ventilationslofter , Christian Anker Hviid
kl. 12.30	Frokost
kl. 13.30	06 Decentral ventilation , Christian Anker Hviid <i>Skoler og boliger</i>
kl. 14.00	Gruppeopgave #3. Projektering af lav-energi skoleventilation <i>Besparende teknologier</i>
kl. 14.40	Opsamling på gruppeopgave
kl. 14.50	Pause – kaffe/te
kl. 15.00	07 Eksempel på lav-energi skoleventilation , Christian Anker Hviid
kl. 15.30	08 Eksempel på lav-energi ventilation i kontorbyggeri , Claus Wessel <i>Andersen</i>
kl. 16.15	09 Afrunding
kl. 16.30	Kursus slut

Danvak forbeholder sig ret til at ændre i programmet.

Danvak er et fagligt netværk for professionelle, der arbejder med indeklima, komfort og energi.
Danvak arbejder for at højne medlemmernes kompetenceniveau gennem
erfaringsudveksling, møder, kurser, konferencer og faglitteratur.



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

1st training session in the Master RIDEF

The training has taken place on the 3rd November 2015 at the Politecnico di Milano University.

This was the first training session hold in the framework of the post degree master course RIDEF (www.ridef.it), which is an high level master course at national level in Italy about energy efficiency and RES in buildings and other relevant sectors.

The Master RIDEF had 12 editions, and the next one is under preparation. It is a well-known and appreciated experience in the Italian scenario for this field.

The participation at the master course is under fee and several scholarships are distributed according an admission exam.

The training material about the Renew School project and the related session has been developed in order to be useful and interesting for the audience. General information about the project were presented and a special focus was given on the technological solutions and real case studies of school buildings renovations.

The developed training materials will be updated and used also during the next edition of the Master RIDEF.

The number of attendants was 11 persons.



La riqualificazione degli edifici scolastici con sistemi prefabbricati in legno multifunzione e standard energetici di qualità

9:30 - 10:50

- La riqualificazione degli edifici scolastici con sistemi prefabbricati in legno multifunzione e standard energetici di qualità - Renew School
Ing. Marco PIETROBON - eERG - end-use Efficiency Research Group - Politecnico Di Milano [80']

11:00 - 12:00

- La ristrutturazione della Scuola Media Alessandro Volta del Comune di Cologno Monzese: l'adeguamento antisismico e la riqualificazione energetica in un unico intervento coordinato
Ing. Salvatore DELLA PORTA - Comune di Cologno Monzese [60']

12:00 - 12:30

- Esperienza di misure di indoor air quality in aule scolastiche e training degli studenti per una corretta ventilazione naturale
Ing. Massimiliano BUSNELLI - Associazione Culturale Energia di Classe [30']

12:30 - 13:30

- Progettazione e costruzione di un complesso scolastico, l'integrazione fra forma architettonica, qualità degli ambienti e prestazioni energetiche
Arch. Filippo RESTEGHINI - ITI Studio [60']

La sala in cui si svolge il Master è la 0.13 situata al piano terra del Dipartimento di Energia nel Campus Bovisa Lambruschini del Politecnico di Milano (Via Lambruschini 4/A Milano)
<http://www.energia.polimi.it/images/bovisa.pdf>



2nd training session in the Master RIDEF

This second training session has taken place on the 10th December 2015 at the School building “Alessandro Volta” in the city of Cologno Monzese (Milan).

The training session was held again in the framework of the post degree master course RIDEF and it was coordinated during a visit in a real school building under renovation, according to the Renew School principles. Technicians from the SME, which performed the intervention, gave a lecture on the renovation project.

The number of attendants was 9 persons (experts, technicians and designers from construction sectors, engineering and architectural firms, SMEs).



Visita tecnica all'edificio scolastico in via di ristrutturazione Scuola Media “Alessandro Volta” in Cologno Monzese

La visita organizzata dal Gruppo eERG del POLITECNICO DI MILANO e dal Comune di Cologno Monzese
si terrà

Giovedì 10 Dicembre 2015
dalle ore 14:00

Alla scuola media “Alessandro Volta” in via Volta a Cologno Monzese (MI)

I lavori di ristrutturazione sulla scuola di via Volta rappresentano un interessante e concreto esempio di **riqualificazione energetica di un edificio scolastico adottando sistemi costruttivi prefabbricati in legno** multifunzione e standard energetici di qualità.

Oltre a esperti del Gruppo eERG (www.eerg.it), presenteranno i lavori tecnici del Comune e dell'impresa esecutrice. La visita viene svolta nell'ambito del progetto di ricerca europeo Renew-School (www.renew-school.eu).

Per ulteriori informazioni rivolgersi a marco.pietrobon@polimi.it



3rd training session in the Master RIDEF

It is planned to be concluded in February 2017 at the Politecnico di Milano University.

1st workshop session in AIVC-2015 conference

This workshop was organized during the international AIVC conference in Madrid on the 24th September 2015 with the contributions of some Renew School project partners.

25 participants: researchers, key-experts, consultants, experts, technicians and designers from construction sectors, engineering and architectural firms, SMEs in the field of ventilation, indoor air quality, air-tightness.

General information on the Renew School strategies were presented together with interesting presentation on Indoor Air Quality monitoring of real school building, analysis and simulation of technical solutions adopted in real project, relevance of IAQ in school buildings.

The presented papers were published in the official conference proceedings.

2nd workshop session in CLIMA-2016 conference

This workshop was organized during the international CLIMA conference in Aalborg on the 25th May 2016 with the contributions of some Renew School project partners.

25 participants: researchers, consultants, experts, key-experts, technicians and designers from construction sectors, engineering and architectural firms, SMEs and bigger companies in the fields of HVAC and buildings.

General information on the Renew School strategies were presented together with interesting presentations on Indoor Air Quality monitoring of real school building, analysis and simulation of technical solutions adopted in real project, relevance of IAQ in school buildings.

The presented papers were published in the official conference proceedings.

1st on-line webinar

An on-line webinar in cooperation with the BUILD-UP EU portal – www.buildup.eu – was organized on the 15th November 2016 (<http://www.buildup.eu/en/events/build-webinar-renew-school-0>).

The participation was free of charge and 83 participants have been registered and attended this webinar.

The webinar focused on solutions and strategies for Indoor Air Quality, thermal comfort and efficient ventilation systems with an high level of integration in renovation projects for schools, particularly in completion to intervention for high performances building envelope and integration of renewable energy systems.

The webinar was well participated, with a good number of questions asked to the audience. The webinar has been also the chance to have a contact between the project consortium and the “C40 CITIES”, the global network on the cities’ climate change efforts (www.c40.org), for possible future joint actions, information exchanges and dissemination events.

2nd on-line webinar

It is planned to be organized in February 2017 at the Politecnico di Milano University.

Partner: PHP

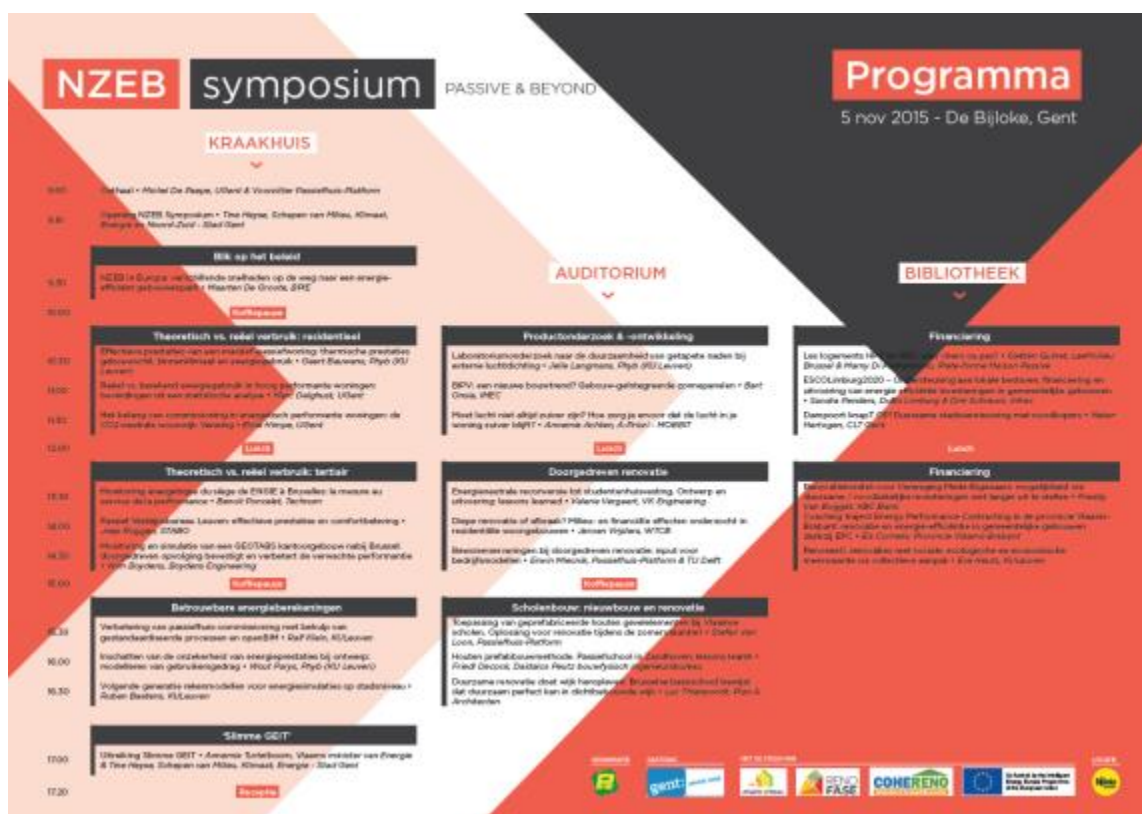
The following trainings have been performed during 2015 and 2016 under the supervision and management of PHP.

All these trainings were addressed to professionals and SME who were interested in being updated on specific themes like air tightness, energetic renovations, HVAC systems, RES and ventilation/IAQ topics: each of this themes was corresponding perfectly within the Renew School project.

The participation was subjected to the payment of a fee (the amount was different per training) due to cover the expenses of the speakers and the costs of the renting of the room and the catering services.

Date	Title	Content	Day(s)	Participants
07/10/2015	<i>Collective and tertiary buildings</i>	Definition of different building standards, comfort parameters, winter and summer strategies, electrical consumers, financial aspects	0,5	14
08/10/2015	<i>High energetic renovations</i>	analyzing the current situation, fundamental choices, financial aspects, example projects	1	17
15/10/2015	<i>Windows, doors and glazing</i>	heat losses, heat gains, profile and glazing types, completion, sun protections	0,5	10
15/10/2015	<i>Air tightness</i>	importance, wind / airtight, attention points, realization, blower door test, sustainability, products	0,5	11
22/10/2015	<i>Ventilation and IAQ</i>	basics, system and components, indoor air quality, thermal comfort, acoustic and visual comfort, energy efficiency, implementation process	1	10
29/10/2015	<i>(Renewable) energy systems in efficient buildings</i>	Energy balance, sanitary hot water, comfort, heating, cooling, electricity	1	37
14/12/2015	<i>(Renewable) energy systems in efficient</i>	Energy balance, sanitary hot water, comfort, heating, cooling, electricity	1	41

	<i>buildings</i>			
05/11/2015	<i>NZEB symposium</i>	Passive and beyond	1	121
05/10/2016	<i>Energy efficiency renovations</i>	Develop a master plan for the transformation of an existing building into an energy efficiency building	1	
13/10/2016	<i>Insulation & Building: renovation'</i>	Renovation projects on the topics of building a good envelope, quality in thermal design, establish proper construction details	1	
08/11/2016	<i>HVAC collectif and tertiary buildings</i>	Ventilation solutions: central vs. decentral, attention points and pitfalls, sanitary hot water in collectif buildings, fireplace setup	0,5	15
08/11/2016	<i>HVAC in renovation</i>	Renovation definitions in the Flemish law, attention points about ventilation, heating and cooling	0,5	7



Opleiding 'HVAC-installaties bij renovatie'

Opleiding gericht op het creëren van oplossingen voor HVAC-energiezuinige renovatieprojecten.

Doelpubliek

Architecten, ingenieurs, energiedeskundigen en EPB-verslaggevers

Korte inhoud

- oplossingen voor ventilatie
- oplossingen voor sanitair warm water
- hergebruik van afgifte-systemen
- hergebruik van warmtedistributiesysteem
- vervangen van stookketels



Deze cursus kwam mee tot stand met de steun van het [RENEWSCS](http://www.renewschool.eu/en/home/) [school.eu/en/home/](http://www.renewschool.eu/en/home/)-project

Lesgever

Stefan Van Loon, ingenieur

Technisch adviseur en lesgever bij PHP sinds 2007.

Medewerking aan diverse onderzoeksprojecten, o.a. naar ventilatie e
Specialisatie: technieken en kwaliteitsbewaking.

Opleiding 'Isolatie & bouwknopen: renovatie'

Een cursus over renovatieprojecten waarin je leert een gebouwschil van goede thermische kwaliteit te ontwerpen, correcte bouwdetails op te stellen. overzicht te hebben van mogelijke oplossingen en inzicht te verwerven in hun toepasbaarheid.

Doelpubliek

Architecten, ingenieurs, energiedeskundigen en EPB-verslaggevers

Voorkennis

Basiskennis van zeer energiezuinig bouwen

Korte inhoud

- Inleiding: basisbegrippen en wettelijk kader
- overzicht van technieken, materialen, aandachtspunten, geïllustreerd met voorbeelden, voor:
 - buitenmuren (buitenisolatie, spouwnavulling of binnenisolatie)
 - dakisolatie (plat en hellend dak)
 - vloerisolatie (op volle grond, kelder, kruipruimte, garage, ...)
 - oplossen van bouwknopen
- Welke technieken zijn vandaag cutting edge?



Deze cursus kwam mee tot stand met de steun van het [RENEWSCS](http://www.renewschool.eu/en/home/) [school.eu/en/home/](http://www.renewschool.eu/en/home/)-project

OVERVIEW OF THE TRAININGS DONE

Responsible partner	Trainings done	Dates of done	Place	Duration day(s)	Participant number	SME involved
PHP	1	07/10/2015	Gent	0,5	14	
	1	08/10/2015		1	17	
	1	15/10/2015	Gent	0,5	10	
	1	15/10/2015	Gent	0,5	11	
	1	22/10/2015		1	10	
	1	29/10/2015		1	37	
	1	14/12/2015	Antwerp	1	41	
	1	05/11/2015	Gent	1	121	
	1	05/10/2016		1		
	1	13/10/2016		1		
	1	08/11/2016		0,5	15	
	1	08/11/2016		0,5	7	
HCS	1	12/05/2015	Milan	0,5	45	21
	1	12/11/2015	Graz	0,5	90	42
	1	01/12/2015	Graz	0,5	85	16
	1	10/05/2016	Zagreb	0,5	64	59
	1	12/05/2016	Graz	0,5	55	40
	1	14/11/2016	Graz	0,5	30	21
WIC	1	10/05/2016	Zagreb	0,5	64	59
NAPE	1	26/09/2016	Warsaw	1	37	-
DTTN	1	17/02/2016	Forlì	0,5	19	8
	1	13/04/2016	Pisa	0,5	19	11
DTU	1	13/11/2014		1	6	12
	1	01/12/2015	Glostrup	1	9	
	1	13/12/2016		1	6	
eERG-PoliMi	1	03/11/2015	Milan	0,5	11	-
	1	10/12/2015	Cologno Monzese	0,5	9	
	1	February 2017	Milan	0,5	-	
	1	24/09/2015	Madrid	0,5	25	-
	1	25/05/2016	Aalborg	0,5	25	-
	1	15/11/2016	online webinar	1	83	-
	1	February 2017	online webinar	0,5	-	-
Total	32				965	289

LESSONS LEARNED

The partners of the consortium involved in this activity and that had to fulfill the training objectives' have all worked in great synergy in developing common contents and topics to be presented in the different trainings.

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It has been very challenging the development of a unique training course and common contents to be used by the different partners. For that reason a common sharing of contents has been made available to the partners and each one has decided to organize the courses upon the demands, the target of professionals/SME and the availability of the teachers and speakers.

The dissemination of the use of prefabricated timber modules as well as the integration of wooden frame windows, ventilation, solar shading and RES in schools and in general as a new way of building, has been very successful. Until now, the end of 2016, a high number of professionals coming from different SME has participated and attended the proposed trainings (965 persons), which has contributed in disseminating the results and the aim of the project itself.

Some of these trainings and workshops will go beyond the project and will continue in training new professionals on these specific topics.

ELABORATED AND WRITTEN BY

Micol Mattedi – Trentino Technological Cluster (IT)

With contributions and internal reviews from project partners:

AEE – Institute for Sustainable Technologies (AT)

Holzcluster Steiermark GmbH (AT)

Wood Industry Cluster (SI)

Technical University of Denmark (DK)

Asplan Viak AS (NO)

National Energy Conservation Agency (PL)

Chalmers tekniska högskola (SE)

Fraunhofer–Gesellschaft zur Förderung der angewandten Forschung e.V. (DE)

Informest – Centro Di Servizi E Documentazione Per La Cooperazione EC (IT)

Autonoom Gemeentebedrijf Stedelijk Onderwijs Antwerpen (BE)

Politecnico di Milano, Dipartimento di Energia (IT)

Passivehouse Platform, PHP Belgium (BE)



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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 are responsible for any use that may be made of the information contained therein.

RENEW SCHOOL

www.renew-school.eu