

# EuroPHit

## D5.3\_Outcomes of meetings with manufacturers



### INTELLIGENT ENERGY – EUROPE II

Energy efficiency and renewable energy in buildings

IEE/12/070

### EuroPHit

[Improving the energy performance of step-by-step refurbishment and integration of renewable energies]

Contract N°: SI2.645928



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## Technical References

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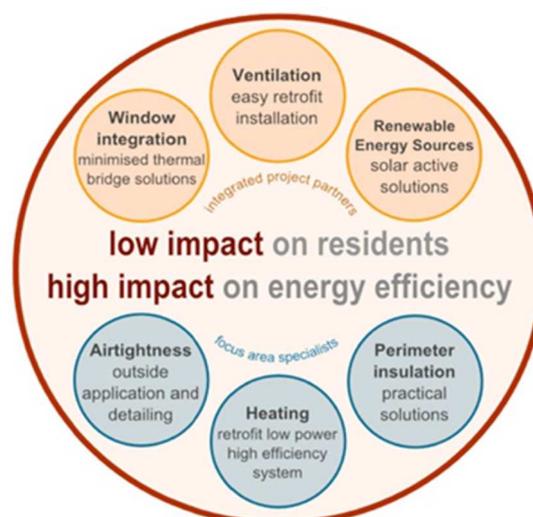
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## Abstract

The meetings with the producers has been instrumental in pushing the boundaries of innovation. Emerging new technologies, such as enthalpy through reversed airflow ventilation (Wafe, Airpohoda) or new methods of window installation in retrofit cases (see Component Award) are examples of solutions that will positively affect high efficiency retrofits in the future.

Another goal of the meetings was to establish a system of Design Briefs that would provide the producers with motivation and clear demands for new development. In the end more Design Briefs were produced than expected, and it seems the systematic use of Design Briefs is now becoming a integral part how the Passive House Community tackles innovation in cooperation with the industry.



## **Bratislava / SK - 12. February 2014 - Office iEPD**

### **Participants:**

Henrich Pifko – iEPD, Bjorn Kierulf – EuroPHit, Martin Bažant - Atrea

### **Goal of the meeting:**

Identifying areas of interest with Atrea

### **Outcomes:**

One of the most important concepts that are already partly under development would be active overflow ventilation. The development of necessary products for large rooms are already in the works. Solutions for smaller rooms should also be developed. Another area of interest would be larger units for schools, offices etc. <sup>1</sup>

## **Aachen / DE - 28. April 2014 - Novotel Hotel**

### **Participants:**

Helmut Moratelli - Artec, Bjorn Kierulf – iEPD, Martin Bažant - Atrea

### **Goal of the meeting:**

Identifying areas of cooperation between Atrea and Artec

### **Outcomes:**

Discussion about demands for façade integrated ventilation. Artec did present some solutions already designed for installation. The potential is to create a visually attractive and nearly invisible installation for schools and kindergardens. Atrea would be looking into the product in more detail.

## **Innsbruck / AT - 9. May 2014 - University**

### **Participants:**

Michael Tribus mt@michaeltribus.com

Prof. Rolf Strauß rolf-peter.strauss@hs-bremen.de

Franz Freundorfer phc@freundorfer.eu

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Pichler / Herr Obmascher c.obmascher@pichlerluft.at

iEPD / Bjorn Kierulf

PHI / Kristin Bräunlich, Oliver Kah, Benjamin Krick, Laszlo Lepp

UNIVERSITY of Innsbruck: Rainer Pfluger, Elisabeth Sibille, Wolfgang Feist

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<sup>1</sup> At the end of the EuroPHit project Atrea has unveiled a stand alone ventilation unit for classrooms and active overflow units

**Goal of the meeting:**

Identifying possible new solutions for Ventilation

**Identified areas that need improvement:**

- Wall integrated solutions
- Problems of frost protection
- Solutions without kondensation
- Quiet solutions (below 25db)
- Visually attractive solutions
- 30-300m<sup>3</sup>
- Volume regulation depending on humidity
- Simple Filter exchange
- Access from the exterior in apartments
- Simple service
- Control during building
- Better planning tools
- Costs: Should be around 15€/m<sup>3</sup> of volume
- In 2014 it should be economically viable
- In general too expensive now
- 37 years is the average useful time of a window
- At 90m<sup>3</sup>, Power today 36W, goal 27W
- 243€ per Year saved (339€+ 30€ for filter +66€ fo electricity)
- Results in 12cent pro kWh saved

**Outcomes:**

- Integration in the exterior wall should be developed further
- Simplifying and shortening the installed ducts together with
- New ventilation concepts should be developed
- Pre-produced solutions that easier for installation
- Simple service should be
- Design for living rooms
- In general: lower costs

## Zlin / CZ - 25. July 2014 - Office Airpohoda

### Participants:

Roman Salamoun – Airpohoda, Juraj Mazik – Airpohoda, Bjorn Kierulf – iEPD, Chris Herring and Andrew Farr – Green Building Store UK

### Goal of the meeting:

Sharing product ideas with Airpohoda

### Outcomes:

The concept of a wall integrated unit was presented. The heat exchanger unit Airpohoda is using would be ideal for this application, as it is non freezing without preheating. The company has other products as well, such as a heat pump augmented ventilation unit for offices and classrooms that can efficiently cool the air.



## Bratislava / SK - 30. October 2014 - Hotel Tatra

### Participants:

Cristina Fernández - Onyx, Bjorn Kierulf – iEPD, Martin Bažant - Atrea

### Goal of the meeting:

Identifying areas of cooperation between Atrea and Onyx

### Outcomes:

The talk focused on the best way how to integrate Photovoltaics to achieve an autonomous ventilation. This seems to be more difficult task, and probably Photovoltaics and ventilation should be installed and run separately.

## Darmstadt / DE - 10. June 2015 - PHI

**Address:** Passive House Institute, Rheinstr.44, 64283 Darmstadt

### Participants:

Participants Vaventis:

Hans Arentsen [hansarentsen@vaventis.com](mailto:hansarentsen@vaventis.com)

eur van Andel [eur@fiwihex.nl](mailto:eur@fiwihex.nl)

Participants PHI: Kristin Bräunlich / Jan Vahala

### Goal of the meeting:

- facade integrated decentralized ventilation
- certification of this new concept as PH component
- active overflow

### Outcomes:



## München / DE - 08. July 2015 - Intercity Hotel

**Address:** Intercity Hotel, Bayerstraße 10, München

### **Participants:**

DI Franz Freundorfer (Geschäftsführer) Pro Passivhausfenster GmbH, Oberaudorf, DE  
Dr.-Ing. Benjamin Krick (Leiter Produktzertifizierung) Passivhaus Institut, Darmstadt, DE  
Karl-Theo Roes (Head of Market Development Europe) Swisspacer, Kreuzlingen, CH  
Wolfgang Bötcher (Leiter Anwendungstechnik), Saint-Gobain Glassolutions, Achen, DE  
Walter Schreiber (Leiter Entwicklung), Saint-Gobain Glassolutions, Achen, DE

### **Goal of the meeting:**

Discussing chances and potentials of integrated shadings, pressure less glazing, partly evacuated glazing

### **Outcomes:**

Chances of partly evacuated glazing are considered to be minor because of deep changes to the current production process of glazing.

Potentials of integrated shading is considered to have great chances in the coming years, especially in the refurbishment-sector. Shading should be integrated in a revisable gap.

If it comes to quadruple glazing ore integrated glazing, pressure less glazing will become important cause of high stress and strain to the glass edge and the pane due to climate loads. Pressure less glazing will have to deal with fogging problems as well as eventually dust. Fogging problems might be addressed by drying agents, dust by filters.



## **Aalen / DE - 24. July 2015 - Iso Chemie**

**Address:** Iso Chemie GmbH, Röntgenstr. 12, 73431 Aalen

### **Participants:**

Dr. Martin J. Deiß (Geschäftsführer) Fa. Iso Chemie

Andreas Lange (Leiter Technik & Training) Fa. Iso Chemie

B. Krick (Leiter Produktzertifizierung) PHI

S. Peper (Leiter Forschung und Messung) PHI

### **Goal of the meeting:**

It was about the product development "system for the insulation of the window reveal both remediation".

### **Outcomes:**

The already marked-introduced system win-framer of Isochemie will be improved with PHIs help to fit better to the needs of step-by-step refurbishment.

PHI will develop a certification scheme to rate such products as "Insulation-Layer-integrated window fitting systems"

Existing tightening-systems will be evaluated by PHI, a certification scheme shall be developed.



## Pergine-Valsugana / IT - 05.November 2015 - Eurofinestra

**Address:** Loc. Fratte 18/3, 38057, Pergine-Valsugana (TN), Italy

### Participants:

Francesco Nesi, ZEPHIR s.r.l.

Marco Larcher, ZEPHIR s.r.l.

Emanuele Toniato, Eurofinestra S.A.S.

Giovanni Toniato, Eurofinestra S.A.S.

### Goal of the meeting:

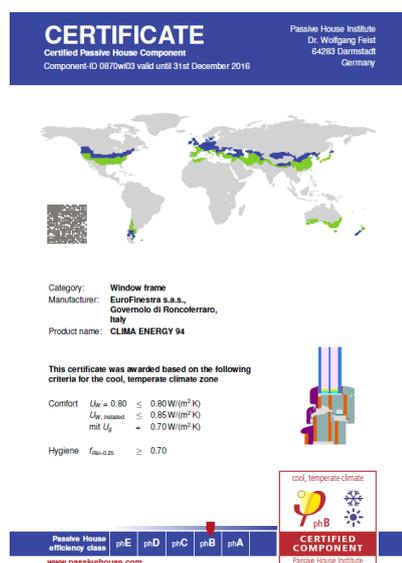
Set up a long term collaboration between ZEPHIR and Eurofinestra for the development of Passivhaus suitable components and for the identification of special solution for energy retrofits.

The following ideas have been discussed:

- Certification of a Passivhaus Window frame for cool temperate climate
- Certification of a Passivhaus Window frame for warm temperate climate
- Development of a special installation details for retrofits through the development of a special insulated blind frame with nanotechnologies
- Blind frame with integrated ventilation
- Glazing with integrated blinds
- Development of special installation detail for step-by-step retrofits when windows are replaced before the addition of the external thermal insulation

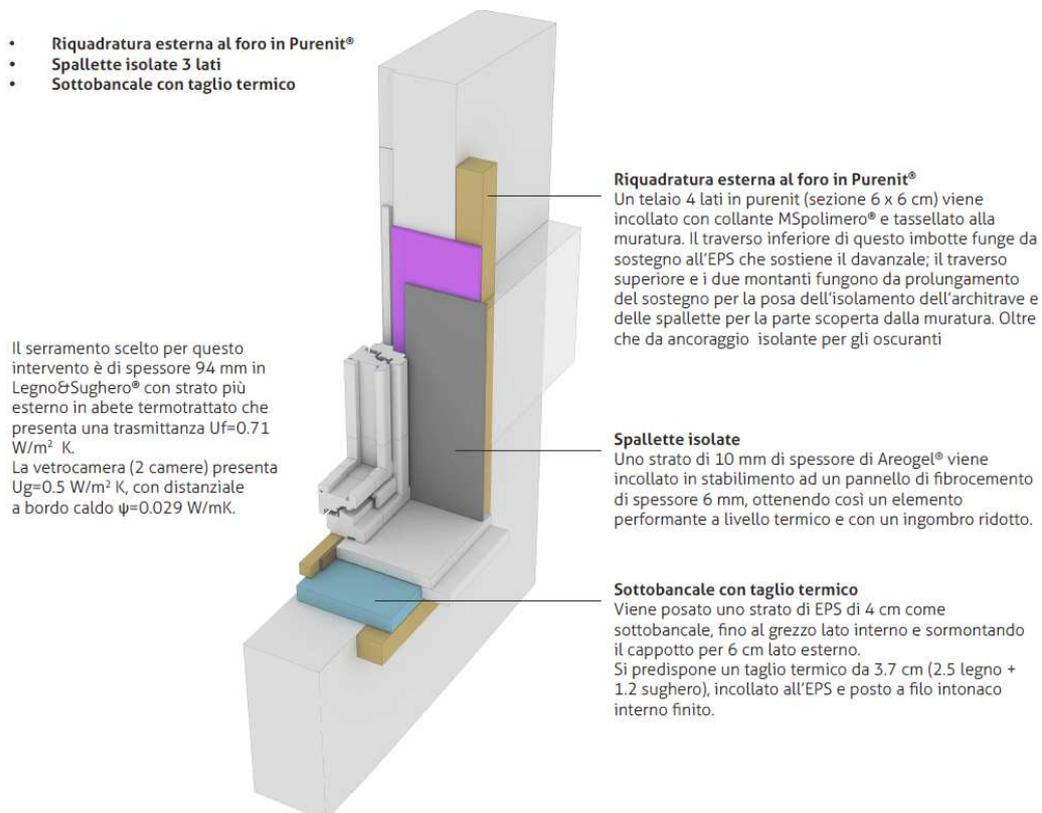
### Outcomes:

- Long term collaboration between ZEPHIR s.r.l. and Eurofinestra s.a.s. for the development of Passivhaus suitable components and of special products for retrofits.
- Certification of a window frame for cool temperate climate



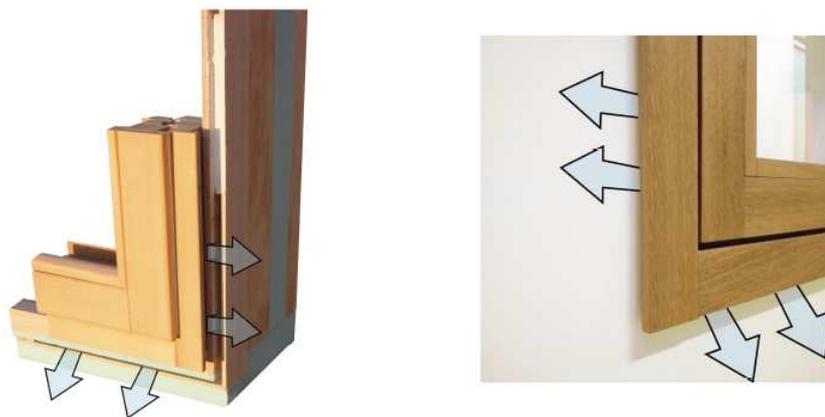
- The certified window frame for warm temperate climate is being developed

- Ongoing activity for the development of a special installation detail for retrofits through the creation of a special insulated blind frame with nanotechnologies



Source: Eurofinestra s.a.s.

Ongoing activity for the development of a blind frame with integrated ventilation for retrofits



Source: Eurofinestra s.a.s.

## **Darmstadt / DE – 26. November 2015 – DAW/Caparol**

**Address:** Passive House Institute, Rheinstr.44, 64283 Darmstadt

### **Participants:**

Dr. Jürgen Jäger, DAW SE, Int'l. Business Development

Martin Rosocha, CAPAROL Paints LLC, Area Manager

Dr. Jürgen Schnieders, PHI

Dipl.-Ing. Wolfgang Hasper, PHI

### **Goal of the meeting:**

Among others the EuroPHit design brief on External Airtighting Insulation and Finishing System EAIFS was introduced and an outline given as of the idea to combine air tighting and insulation in one go.

### **Outcomes:**

The representatives of DAW/Caparol showed interest and took one paper copy each of the document. Dr. Jäger further promised to also forward the document to the Competence Centre for Facade and Finishing (Kompetenzzentrum Ausbau und Fassade, Rutesheim, Germany) at which, he said, related development activities were in progress.

Being introduced to this new contact will be an asset in itself as far as the further development is concerned.

## **Gennevilliers/FR. – 06. January 2016 - Recticel Insulation France**

**Address:** 7 rue du Fossé Blanc, 92230, Gennevilliers, France

### **Participants:**

Etienne Vekemans, La Maison Passive, President

Alain Charpentier, Recticel Insulation France, Marketing Director (Directeur des Marchés)

### **Goal of the meeting:**

How to demonstrate the potential of existing insulation products as a one-stop-shop solution for highly efficient retrofits, which may be done step by step.

Discuss ideas for new solutions:

- Prefabricated / adapted systems for link between wall and slab, wall and roof, wall and window
- Prefabricated façade systems integrating holes in insulation as airflow distribution system

### **Outcomes:**

Planned cooperation with Recticel Insulation to develop construction details based on real projects, new build and retrofit (case studies from WP3 will serve as support).

Concepts of thermal-bridge mitigation to be developed on wall/roof and wall/window connections.

## **Prague / CZ - 19. February 2016 - Wafe s.r.o.**

**Address:** Wafe s.r.o., Borovská 2616, 190 16 Praha, Czech Republic

### **Participants:**

Juraj Mazik, Technical Director, Wafe

Bjorn Kierulf, EuroPHit (iEPD)

### **Goal of the meeting:**

Discuss prototype of ventilation unit with enthalpy function and cooling/dehumidification potential. Discuss possible placements of ventilation unit and heat pump.

### **Outcome of the meeting:**

Basic information exchange needed to include the new development in the Final Guidelines.

## **Prievidza / SK - 25. February 2016 - Eltis s.r.o.**

**Address:** Eltis Electronic s.r.o., Podjazdová I. 2875/10A, 97101 Prievidza, Slovakia

### **Participants:**

Peter Strečanský, Director, Eltis Electronic

Peter Hlavač, Head of Development, Eltis Electronic

Anton Bendis, Industrial Designer, Bendis Design

Bjorn Kierulf, EuroPHit (iEPD)

### **Goal of the meeting:**

Discuss prototype of wall installed ventilation unit SmartVent version 3. Assessment of potential problematic areas and potential for improvement.



Peter Strečanský and Anton Bendis with Peter Hlavač in the middle discussing the prototype.

**Outcomes:**

Add a 3<sup>rd</sup> PTC element and possibility to add condense drain

Adopt higher connection ring for tubing

Next steps:

Testing pressure of Ventilators and regulation of ventilators

Placement of electronics and cabeling

Test conus effect on seals

**Ladenburg / DE - 08. April 2016 - SAINT-GOBAIN ISOVER G+H AG**

**Address:** SAINT-GOBAIN ISOVER G+H AG, Ladenburg Development Center - LDC-I,  
Dr. Albert Reimann Str. 20, 8526 Ladenburg, Germany

**Participants:**

St. Gobain: Robert Schild / Phillip Boddez / Jens Koch / Andreas Bittis

Rigips: Thomas Schilling / Sven Bohnsack

Isover: Werner Kopp / Anatol Worch / Michael Schumm

Haus 4.0: Rudolf Freundorfer

PHI: Tanja Schulz / Benjamin Krick / Jan Steiger

**Goal of the meeting:**

General presentation of achievements of EuroPHit to the Habitat delegation, introduce to range of products and ideas developed for step-by-step retrofits in the project and discuss some of the product ideas fitting into the portfolio of the SAINT-GOBAIN ISOVER G+H AG, to identify potential for further improvement and development. The main focus discussed areas where:

- Connection details for EIFS facades and high-performance anchors for PV systems
- Step-by-step window connections
- Glazing integrated shading concepts
- Certification concept for interior insulation systems

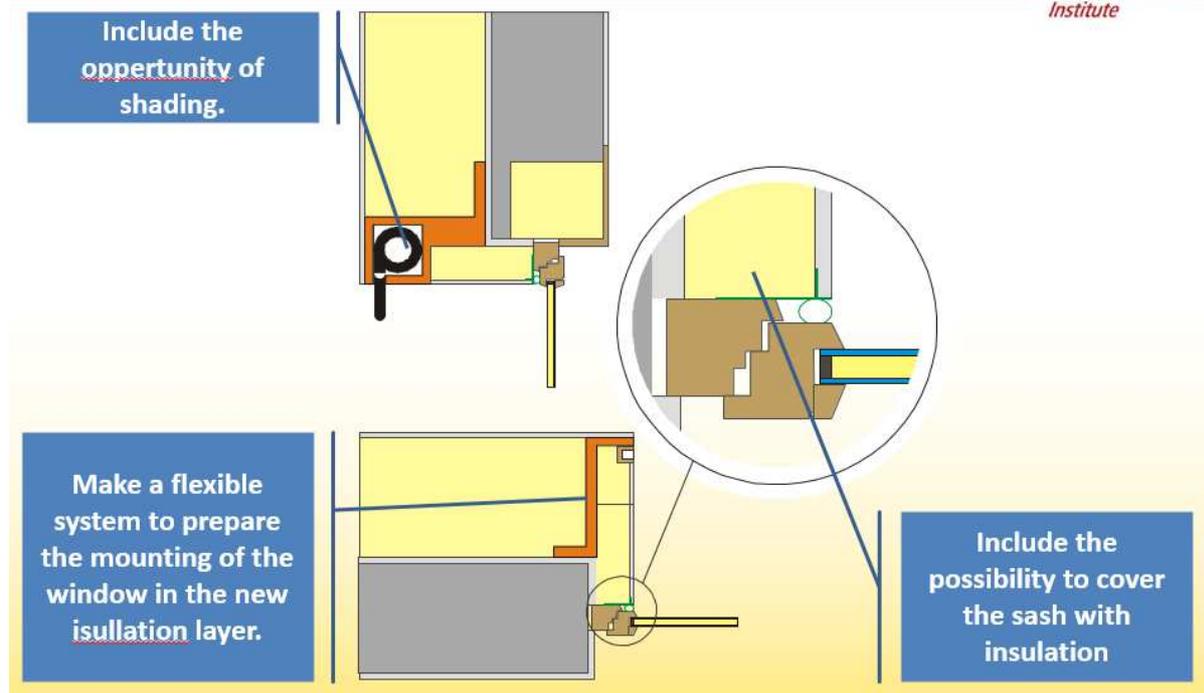
**Outcome of the meeting:**

- EIFS components to enable temporary connections for step-by-step renovations or facilitate later extensions of the insulation layer for other building parts was considered interesting. The process required to carry out these connections requires high skills in craftsmanship, thereby prefabricated connection products might be welcome. However the right companies to address would not be the big producers of insulation or EIFS solutions, but more the smaller manufacturers which produce the profiles for the connections to be used within the EIFS systems.
- The development of easy-to-use EIFS-suitable anchors for a later installation of PV panels on an insulated façade would be just as well better be located with smaller manufacturers who specialized on these products.
- Glazing integrated shading concepts were seen as important contribution to solve the critical thermal weakness and high costs of shutter boxes. Several solutions are starting

to be available on the market, however, a problem with condensation on the external glazing's inner side needs to be carefully solved. A suggestion was presented to solve this with a slightly ventilated air gap between the glazings.

- Window connections for step-by-step retrofits were considered as very important to allow optimized window installation for step-by-step retrofit projects. PHI thereby presented possible concepts of step-by-step window connection details and respective product solutions, like blind frames. A certification path for window installation concepts was announced to allow for independently quality assured calculation parameters of such installation concepts.

## Windows in step-by-step retrofits



EuroPHit

Product idea

Insulation of walls with connections to existing windows as a first retrofit step (Source: PHI)

- The certification concept for interior insulation systems was much appreciated. The concept suggest a certification procedure for internal insulations of up to 12cm thickness, to be certified for existing exterior render facades. One question discussed then was, why it wouldn't be possible to increase the insulation thickness up to 20cm, but the hygrothermal simulations had been carried out for several materials up to 12cm only and showed good results within that range.
- The certification concept indeed depends on a good, at least known quality for the external render layer. However, if the remaining quality of this layer would be too bad to guarantee the desired hygrothermal properties of the insulated wall construction, an improvement of the external render layer would be required. In this case, the required quality could be satisfyingly be created by either a hygrophobic painting or a render improvement measure. Both of the measures are well tested and available on the market.



Tanja Schulz and Benjamin Krick (PHI) discussing with St. Gobain Habitat delegation