

Draft outline for IEE-2008 proposal on:

Passive House Retrofitting Implementation Tool-Box

Background and barriers to overcome

Energy efficient retrofitting of the existing building mass is the most important single activity, if the CO₂ reductions target for EU is going to be met. When retrofitting it is also important that the energy consumption is lowered to a low level, if CO₂ targets are to be met. Passive House Retrofitting (PHR) bringing energy consumption for heating and cooling down to 30-15 kWh/m₂ can potentially make a substantial contribution to overall CO₂ reductions.

The IEE-program has supported PHR project, e.g. as PEP, Passive-On, E-RETROFIT-KIT and latest CEP, meaning that through these projects several barriers for PHR have been addressed, such as: General information about PHR, information on building categories feasible for PHR and certified passive house energy planners will be educated.

Although some barriers for PHR have been addressed there is still remaining an important barrier: High investment costs. So in order to promote the implementation of PHR in larger scale, it is important to address this barrier and find ways of how to reduce the investment costs for PHR.

An increasing number (40-more) of PHR projects have been carried out, not least the latest year, so there are some experiences and best practice in the field of PHR. The experiences from best practice can be used as the basis for developing guidelines for PHR cost reductions, and also experiences from other sectors can be applied.

In the IEE-2008 call there is under the SAVE-program a category: Take targeted action related to retrofitting, in particular addressing specific categories of buildings and/or using specific technologies/strategies. The proposed action is targeting this category.

The aim of the project

The aim of the proposed project is to develop a tool-box of measures for PHR cost reduction to support the implementation of PHR.

The project is targeting the building stock of Social Housing Companies (SHC), but the tool-box can also be applied of other residential building owner groups.

The target groups for application of the PHR tool-box are: SHC, architects, consulting engineers, ESCO, entrepreneurs, suppliers of building components and local authorities.

Specific impact goals of the project will be defined.

The measures of the tool-box for PHR cost reductions

A preliminary proposal for the measures of the tool-box for PHR cost reductions:

Checklist for identification of most feasible PHR building categories

It is important to select the building categories technically/economically most feasible for PHR, typical being uniform building blocks without much architectural value, relatively easy to insulate from the outside etc. A checklist for identification of such building types will be developed.

Cost efficient pre-fabricated building components can be applied for PHR

Based on best practice experience from PHR, passive house new-building and other relevant sectors is identified and described cost efficient pre-fabricated building components for PHR, e.g. facade insulation systems. Manufacturers of such systems are involved.

Buyers pooling

With the larger scale of uniform solutions the costs can normally be reduced. This cost reduction can be achieved through PHR retrofitting of larger building stocks. Such bigger number of buildings can also be achieved through SHC pooling their orders. The effect of scale, e.g. based on pooling, is described as part of the tool-box.

Build on-top

If the building construction is feasible, e.g. with a flat roof, there can be established passive house new buildings on-top of the existing building being retrofitted, potentially improving the feasibility of PHR of the building. This effect will be described as part of the tool-box.

An inter-active tool

The tool is proposed to be inter-active in the sense that you as user will be able to calculate the costs of PHR, based on specific national cost data for PHR. The energy savings can be calculated with PHPP.

The implementation of the project

The implementation of the project is proposed to be made by carrying out the following work packages:

WP1 - Coordination

Is carried out by the Danish SHC FaellesBo, also being the Coordinator of E-RETROFIT-KIT.

WP2 - Best practice registration

Registration of PHR best practice including identifying building components suppliers, feasibility of building categories, other PHR barriers. The result will include key figures on building components and identification of most feasible PHR building categories.

WP3 - PHR tool-box development

Based on WP2 results is developed a preliminary version of PHR tool-box, including a calculation tool for PHR investment cost calculations.

WP4 - Regional case studies

In each region (8-10) are carried out 3 (?) regional case studies of residential buildings feasible for PHR, and where there are plans of retrofitting the buildings. The case studies include carrying a pre-qualification or similar tendering procedure to get entrepreneurs and suppliers to come up with offers for carrying out PHR. Where this is not possible there could be made calculation of PHR investment costs based on regional real cost data. The result of WP4 will be regional (national) cost data for PHR and case studies.

WP5 - Developing and testing workshop information package on the PHR tool-box

Information on the PHR tool-box will be disseminated through 1-day workshops, and there will be developed a workshop information package including all the tools of the tool-box, power point presentation and other relevant materials.

WP6 - Dissemination of the PHR tool box through regional workshop activities

In each region are carried out minimum 10 x 1-day workshops with minimum 20 participants in each workshop. CEODHAS is involved in organising the workshops, involving the national SHC organisations and others.

WP7 - Common dissemination activities

Partners proposed to take part in the project

The must be made a compromise between covering as many countries as possible and maximum budget restraints (total cost estimations have not been made, hopefully the many proposed countries can be kept within a reasonable budget frame). It is also important that the partners cover relevant stakeholders. The following partners are invited to take part in the project:

- FaellesBo, the Coordinator, working together with Danish SHC Fruehoejgaard, which will also be partner.
- Passivhaus Österreich, Vienna - having access to information about Austrian PHR experience
- proKlima-Hannover, Germany - having access to information about German PHR experience
- RADIANT - UK-SHC with good results in low energy projects
- Instituto da Habitacao e da Reabilitacao Urbana (IHRU), Porto, Portugal - providing state support to SHC for retrofitting and new building.

- Architect company Nagy, Marianka, Slovakia - working actively with PHR
- lamaisonpassive.fr, France - working actively with PHR
- HSB Riksförbund (Swedish SHC association), Stockholm - working actively to promote PHR
- Architect School Aarhus, Denmark - educating certified passive house planners
- Federcasa (Italian SHC association), Rome - actively promoting low energy solutions
- CEODHAS (European federation of SHC), Brussels, Belgium - will also be invited to join, maybe this can take place in connection to their ongoing IEE-project about disseminating results from IEE-projects to EU SHC.