

## Step-by-step to EnerPHit standard

When the plaster is crumbling and draughts arise due to leaky windows, there comes the time when building owners cannot put off the renovation of their building any longer. Most building owners do not wish to carry out an overall modernisation; instead, only the building component currently needing modernisation is renewed. In this case, a comprehensive plan should be prepared for the retrofitting with Passive House components – with the current modernisation step as well as all future steps. Only in this way, we can ensure that everything goes well together and the building owner can look forward to a comfortable building with low energy costs in the end.



Fig.1: Façade insulation according to the EnerPHit Retrofit Plan: subsequent installation of Passive House windows with an optimal position in the insulation layer has already been prepared (divided window ledge, wooden frame for later installation of the Passive House window). © PHI

The EnerPHit Retrofit Plan (ERP) included in the energy balance tool PHPP offers a clear methodology for such an overall plan. The ERP can be prepared by a Passive House designer or energy consultant and it clarifies the following questions:

- In which order should the individual components be modernised?
- What level of thermal protection is reasonable?
- How can connections between components that are not modernised at the same time be ultimately made airtight and as free of thermal bridges as possible?
- Which interdependencies exist between individual measures, e.g. insulation and the heating system?
- Will the efficiency measures also offer financial benefits?

The ERP is an Excel-based workbook. The individual modernisation steps are first entered

into the PHPP with the aid of the variant function. The relevant data is then automatically transferred into the ERP and displayed clearly. The designer/consultant supplements all the steps with drawings and information relating to the measures and cost estimates. The owner then receives the complete ERP as a printout or as a PDF document (approx. 25 pages).



Fig. 2: EnerPHit Retrofit Plan: the diagram shows the energy demand falling with each step. © PHI

As an additional quality assurance option, the Passive House Institute offers pre-certification of the building. In addition to a carefully prepared EnerPHit Retrofit Plan, a prerequisite for pre-certification is that the first modernisation step has already been implemented, and energy savings of at least 20 percent have been achieved. The **Building Criteria** document provided by the Passive House Institute lists the specifics in the section "Pre-certification for step-by-step modernisations".

The pre-certificate provides assurance for building owners and designers that the standard being strived for has actually been achieved after all modernisation steps have been implemented according to plan. The goal is usually the EnerPHit standard, after which the ERP is named. EnerPHit is the Passive House standard for retrofits with Passive House components.