Foreword to version 9 (2015)

Passive House buildings and energy efficient projects which are carefully planned using the PHPP have proven successful. Whether new builds or retrofits, building projects that achieve the Passive House or EnerPHit Standards meet the level of comfort and the extremely low energy demand being strived for. Moreover, in most cases they can also be realised cost-effectively and profitably. Significant deviations of energy consumptions from the planned energy efficiency targets, often described as the "performance gap", do not occur in Passive House buildings and EnerPHit retrofits which have been planned and quality assured, as has been confirmed by numerous measurement monitored projects. The effectiveness of the dimensioning procedure for systems of building services has also proved effective, and enables the use of simple well-coordinated components and thus the implementation of cost-effective efficiency products. In addition to the application of the Passive House concept and Passive House technologies, the use of the PHPP as a planning tool remains to be the most important basis for the implementation of sustainable building concepts.

An ideal instrument for realising NZEBs

The possibility of planning and assessing efficient projects in a reliable way makes the PHPP an ideal planning tool for the implementation of NZEBs (Nearly Zero-Energy Buildings) or other buildings which are also optimised for low energy consumption. Proven successful over many years, this calculation method for a Passive House buildings, the minimal low energy demand that meets the definition of a NZEB, is also useful for the calculation of very low energy buildings which are now being strived for in Europe and worldwide. This is the case in spite of the different national expressions this definition may take, with reference to the detailed characteristics of the projects. The PHPP does not only offer the possibility of precisely calculating the energy demand; renewable energy sources can also be incorporated into the

planning process and the overall efficiency of a building in the future can also be assessed. The PHPP therefore constitutes an ideal planning tool for the implementation of Passive Houses, NZEBs and other energy efficient buildings.

Calculation of planning variants or refurbishment steps

It is not just in the relatively straightforward field of new construction of residential buildings that projects exist which strive for a high level of efficiency through the use of Passive House technologies. The requirements become increasingly complex when these principles are translated to large-scale, mixed-use projects or refurbishments. The uses of energy efficiency concepts are becoming more and more diverse, resulting in the increased need for the ability to assess and compare diverse design or implementation variants of a project – not just with reference to efficiency outcomes but also with regard to cost-effectiveness. This need has been met by the PHPP 9. It allows the input of variants with completely different efficiency parameters within a single PHPP file, whereas several PHPP calculations were necessary before. The results of the different variants are calculated in parallel so that the effects of these parameters can be easily compared. Comparisons of the economic efficiency of different variants can be carried out in a separate worksheet. Different steps of a building refurbishment may thus also be input in a single PHPP file. In this way, it will be possible to depict improved efficiency due to each refurbishment step, and to enter and assess long-term modernisation projects in a simpler manner.

Input assistance for the application

Planning Passive House buildings or highly efficient EnerPHit retrofits with the new PHPP 9 puts a reasonable demand on experienced users with the relevant background knowledge. For those who are less familiar with the energy balancing tool, or are not at least familiar with all the calculation methods offered in the different calculation worksheets, a system of information has been developed which display the previous alerts/warning messages following a uniform logic, combining them in a new worksheet created for this purpose. In a comprehensible manner, users are informed about the places where incorrect or incomplete input needs to be reviewed or where input data does not seem plausible and has to be evaluated again.

Building assessment based on the concept of renewable primary energy

The energy sector is experiencing a rapid change worldwide, with the objective of a sustainable supply of energy. A planning tool like the PHPP must be able to perform assessment of a building on this basis, because most of the energy demand of the building will coincide with the time when renewable energies will predominate. It therefore makes sense to perform assessment of the energy demand of buildings that are planned today based on such a future scenario. This consideration has been used in the PHPP 9 using the system of renewable primary energy (PER / Primary Energy Renewable). As an alternative to the previously used evaluation method based on the non-renewable primary energy factors (PE), buildings can now be assessed according to the new system. The PHPP 9 also uses the Passive House classes resulting from this assessment, which allow the evaluation of the efficiency of the building taking the interaction between energy efficiency and renewable energy generation into account. The PHPP thus already makes it possible to design tomorrow's buildings today, in a future-proof way.

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- Calculation and depiction of planning variants and refurbishment steps
- Cost-effectiveness comparison of design variants
- Verification of specific values of EnerPHit refurbishments for all climates
- Validation of applicability of the PHPP for buildings with poor energy efficiency (e.g. unrefurbished existing buildings).
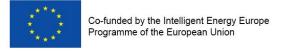
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