
Press Release

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New study shows cost saving potential for indoor swimming pools

Measurements in Bamberg prove energy efficiency of Passive House Standard



New Passive House leisure pool in the German city of Bamberg. Photo: Passive House Institute

Darmstadt, Germany. Passive House efficiency is a model for the future also for indoor swimming pools. This is demonstrated in a newly released report on the energy consumption in the "Bambados" project in the German city of Bamberg. The running costs for this leisure pool are far below average. The concept is thus successfully providing an opportunity for financial savings, especially relevant for municipalities with limited budgets. The full [report](#) is now available online

(in German). Further details about this project will be presented at the International Passive House Conference in 2016 in Darmstadt.

The energy consumption for heating in the "Bambados" was reduced by more than 50 percent in comparison with similar pools. High savings were also achieved with regard to electricity use. For ventilation alone, 60 percent of electricity was saved in the swimming pool halls and 50 percent in the remaining parts of the building. The measurements over a period of more than two years also demonstrated the importance of careful calibration and optimisation of swimming pool operation – which holds true, regardless of whether a project is a Passive House or not.

Indoor swimming pools are complex buildings in which different thermal and technical interactions influence the energy demand. A high quality building envelope forms the basis for efficiency, but is not sufficient on its own. "The operating costs in an indoor swimming pool are high not only because of space heating, but also because of the energy demand for ventilation, water treatment and pool water heating," says Esther Gollwitzer of the Passive House Institute, one of the authors of the new study. "Accordingly, there is a large potential for improvements also in these sectors".

The Passive House Institute provided scientific support for Bamberg's municipal utilities from the very beginning of this pilot project – in the form of consultancy and subsequent

performance monitoring. The monitoring was funded by the German Federal Ministry of Economic Affairs and Energy (BMWi). In preparation of this, the Institute also conducted a [baseline study](#) on Passive House swimming pools.

The energy demand calculations for the "Bambados", which was opened in 2011, were carried out with an adapted version of the design tool PHPP (Passive House Planning Package). Several calculations were linked for this purpose, since the building has various zones with different temperatures; in addition to the pool halls and changing rooms, the "Bambados" also includes catering, sauna, spa and office areas. Different design variations were evaluated early during the design phase. This enabled a reliable implementation of energy efficiency.

High energy savings similar to those in Bamberg have also been achieved in another pilot project, located in the German City of Lünen. A third Passive House swimming pool is currently being planned in the City of Exeter in the UK. The experiences that have been made up till now constitute an excellent basis for subsequent projects. Many pools in European countries were constructed in the 1970s, so there is a great need for refurbishments and renewals. The key points that need to be kept in mind in this regard will also be presented by Esther Gollwitzer in a lecture at the 20th [International Passive House Conference](#) (22 – 23 April 2016).



The main entrance of the Passive House swimming pool "Bambados" in Bamberg (Germany).



Large window areas in the leisure section provide natural light.



A particularly pleasant quality of indoor air is ensured in the sports area due to the Passive House Standard.



A high quality building envelope is the basis for a high level of energy efficiency. *Photos: Passive House Institute*

Press contact: Benjamin Wunsch | Passive House Institute | +49 (0)6151-82699-25 | presse@passiv.de