In January 2019, the Passive House Planning Package (PHPP) version 9.6 was evaluated in accordance with ANSI/ASHRAE Standard 140, a comparative testing method for building energy programs.

The validation tests consist of a series of carefully described sample case building plans. Results from modelling different test cases with the software being tested are compared to those of reference software results. The class II test cases, geared towards annual building energy use, comprise a total of 38 test cases, 21 for heating and 17 for cooling.


The standard emphasizes that deviations from the results of the reference software do not necessarily imply that the program tested is wrong. Accordingly, the procedure does not specify explicit pass or fail criteria. However, informative Annex B22 of the standard provides guidance on developing an acceptance range in which the results of the tested software should fall within.
Results of PHPP version 9.6 compared to the reference tools and the confidence range in green, arranged according to magnitude of the results

As can be seen in the diagram above, the results of PHPP agreed very well with those of the reference software. For heating, PHPP results fell within the acceptance range in all cases. For sensible cooling, PHPP was within the acceptance range for all but one case, where PHPP predicted a cooling demand that was 9% below the lower limit.

The PHPP has already proven its ability to predict the energy use of buildings in many post-occupancy studies. Good agreement with other building simulation programs was also found earlier. The new results support this general experience following the formal test procedure of ANSI/ASHRAE 140.