

The Passive House Planning Package (PHPP)
is a clearly structured design tool that can be used directly by architects and designers.

Passive House Verification



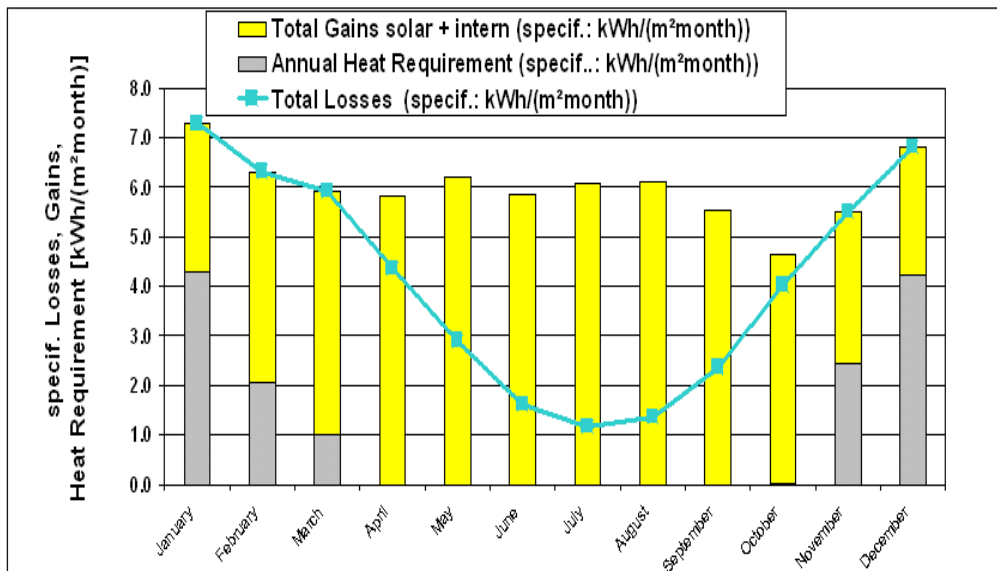
Building:	End-of-Terrace Passive House Kranichstein			
Location and Climate:	Darmstadt-Kranichstein	Standard Germany		
Year of Construction:	1991			
Number of Dwelling Units:	1	Indoor Temperature:	20.0	°C
Enclosed Volume V_e :	665.0	m ³	Internal Heat Sources:	2.1
Number of Occupants:	4.0	W/m ²		

Specific requirements with reference to the treated floor area:				
Treated Floor Area:	156.00	m ²		
Applied:	Annual Method	PH Certificate:	net?	
Specific Space Heat Requirement:	14	kWh/(m ² a)	15 kWh/(m ² a)	✓
Pre certification Test Result:	0.22	h ⁻¹	0.6 h ⁻¹	✓
Specific Primary Energy Requirement (DHW, heating, aux. & household electricity):	61	kWh/(m ² a)	120 kWh/(m ² a)	✓
Specific Primary Energy Requirement (DHW, heating and auxiliary electricity):	36	kWh/(m ² a)		
Specific Primary Energy Requirement Saving by solar-generated electricity:	33	kWh/(m ² a)		
Heat Load :	10.1	W/m ²		

Several thousand users have already experienced the reliability of the calculation results and the manageability of the tool.

The PHPP includes tools for

- calculating the U-values of components with high thermal insulation
- calculating energy balances
- designing comfort ventilation
- calculating the heat load (no heat load climate data contained yet for locations outside Germany)
- summer comfort calculations
- and many other useful tools for reliable design of passive houses



PHPP was presented for the first time in 1998 and has since been continuously developed further. At the core of the package are worksheets for heating energy balances (annual demand or monthly method), heat distribution and supply, electricity demand and primary energy demand.

New design modules have been added successively, e.g. calculation of window parameters, shading, heating load and summer performance.

The PHPP is continuously validated and refined based on measurements and new research results. As part of accompanying scientific research studies, measurements from more than 300 projects have so far been compared with calculation results. Of crucial significance was the **CEPHEUS** project undertaken as part of the European "Thermie" programme, during which housing developments were constructed according to passive house standards and scientifically accompanied at 14 different European locations (more).

The PHPP energy balance module was shown to be able to describe the thermal building characteristics of passive houses surprisingly accurately. This applies particularly to the new technique for calculating the heating load, which was developed specifically for passive houses.

The following diagram shows the results of a comparison between measurements and PHPP calculations for different passive houses at different locations. It is interesting to note that in all cases, irrespective of the thermal insulation standard of the buildings, there is high (relative) scatter due to user behaviour, but the calculations were in excellent agreement with the average measurement results.

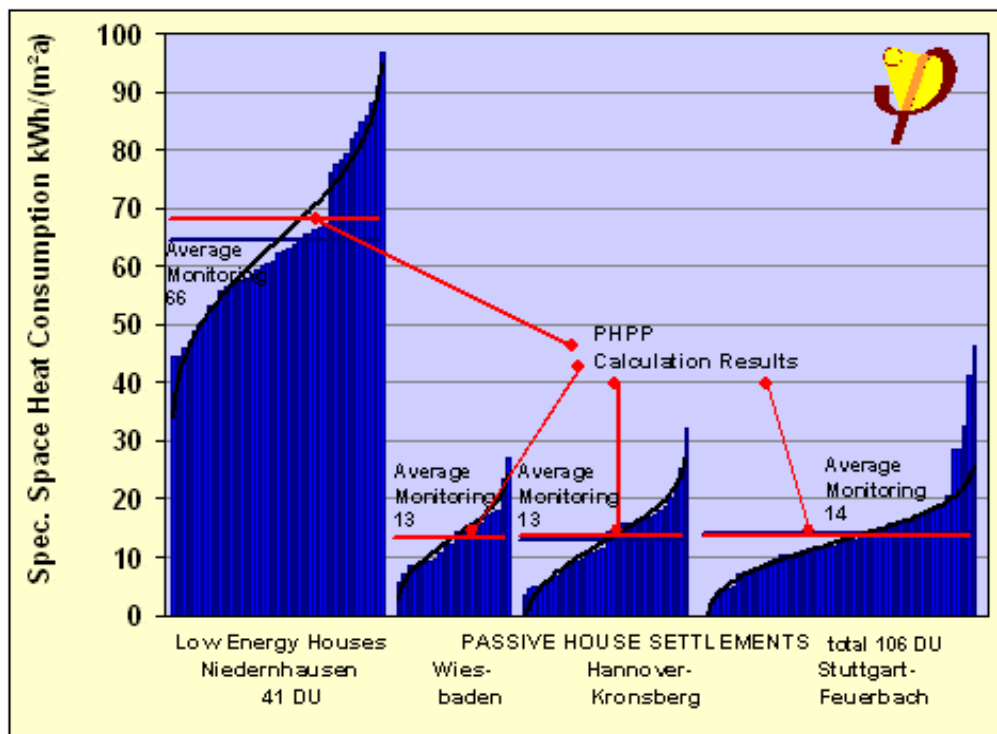


Diagram: Comparison of PHPP calculation with consumption measurements in housing developments with low energy and passive houses

New in the PHPP 2007:

For the new edition of the PHPP 2007 especially the following worksheets have been significantly and revised supplemented:

Summer Case

Summer The summertime calculation methods, which have already proven to be accurate, were revised and now explicitly consider ground-coupling solar irradiation absorbed by the outer surfaces and various nighttime ventilation strategies.

Ground For the summer case, an additional series of ground temperatures is now calculated.

Areas The radiation balance of outer structural building components is now considered.

SummVent Various window ventilation flows can now be displayed side-by-side.

New: The cooling load is calculated for the cases in which active cooling is required
Cooling

New: The energy demand for latent loads (i.e. air dehumidification) is estimated.
Cooling Units

New: This worksheet determines the maximum cooling performance demand as a daily average.
Cooling Load

PE-Value The cooling demand, if present, is included in the primary energy balance.

Internationalisation

Climate Data The structure and handling of this worksheet was redesigned to increase user-friendliness. Numerous additional climate data, in particular complete climate data sets for Eastern Europe, Austria, Switzerland and important European cities, are included.

**Window
Shading
Ventilation**

The algorithms for calculating the solar gains are now valid outside of Central Europe.

A climate-independent efficiency instead of the heat supply efficiency is given for the subsoil heat exchanger.

Non-residential Buildings**New:
Electricity
NonDom**

With the help of this new worksheet, the electricity demand for lighting, electronic devices, and kitchens in non-residential building can be calculated.

**New:
IHG Non-
Dom**

This new calculation worksheet serves to project and verify the internal heat gains of non-residential buildings.

**New:
Use Non-
Dom**

Utilization profiles for projecting the electricity demand and the internal heat gains of non-residential buildings are imbedded in this new worksheet; several profiles can be defined.

Compact Heat Pump Units**Compact**

The worksheet was completely revised to account for the certification of compact heat pump units that began in 2007.

**New:
IHG Non-
Dom**

This new calculation worksheet serves to project and verify the internal heat gains of non-residential buildings.

**New:
Use Non-
Dom**

Utilization profiles for projecting the electricity demand and the internal heat gains of non-residential buildings are imbedded in this new worksheet; several profiles can be defined.

Other sources of supply for the English version

The English version of the PHPP is also available from the following organizations:

USA:

e-co lab
110 South Race Street Suite 202
Urbana, Illinois 61801
Telephone: 001-217-344-1294
www.e-colab.org
katrin.klingenberg@e-colab.org

UK:

PassivHausUK Managed by the Building Research Establishment
www.passivhaus.org.uk
Order form

Ireland:

Renewable Energy Information Office
Sustainable Energy Ireland
Shinagh House, Bandon, Co. CORK
IRELAND
Telephone: +353 / 23 / 29145 or -6
Fax: +353 / 23 / 29154
www.sei.ie/reio.htm
xavier@reio.ie

Other languages

The PHPP is also available in other languages, partly containing national extensions. Please refer to the following pages for details:

Dutch (Version 2007, Excel workbook with manual in Dutch):

Passiefhuis-Platform vzw
Gitschotellei 138
2600 BERCHEM
BELGIUM
Telephone: +32 / (0) 3 235 02 81
Fax: +32 / (0) 3 271 03 59
<http://shop.passiefhuisplatform.be>
info@passiefhuisplatform.be
Order form

Italian (Version: PHPP 2007it):

TBZ GmbH Technisches Bauphysik
Pfarrhofstrasse 60/a, I-39100 Bozen (BZ)
Tel. 0039 - 0471 251701
Fax. 0039- 0471 252621
info@tbz.bz
www.tbz.bz

Polish (Version 2004):

PIBP Polski Instytut Budownictwa Pasywnego
Dipl.Ing. Günter Schlagowski
ul. Homera 57
80-299 GDANSK
POLAND
Telephone: +48 / (0) 58 524 12 00
Fax: +48 / (0) 58 522 98 50
pibp@pibp.pl
www.pibp.pl

or

Dipl.-Ing. Günter Schlagowski
Schwachhauser Ring 103
28213 BREMEN
GERMANY
Telephone: +49 / (0) 421 211210
Fax: +49 / (0) 421 212772
g.schlagowski@t-online.de

French/Français (Version 2007):

Association "La Maison Passive France"
Siège social: 7 bis rue de Rouvray
F-92200 Neuilly sur Seine
postmaster@lamaisonpassive.fr
www.lamaisonpassive.fr
Critères pour en tant que bâtiment d'habitation pdf (69 kB)
Critères pour en tant que bâtiments non résidentiels pdf (45 kB)

Magyar (Version 2007):

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H-2100 Gödöllő
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