

design PH 1.5 PRO is the last free major update on *design* PH 1 and a first due outlook on the completely new *design* PH 2.

Existing customers can update for free at www.designph.org/patches_updates after login. New customers will automatically get the latest version when purchasing *design*PH from now on. More info on how to buy the bundle of *design* PH PRO and PHPP 9 with its excellent price-performance ratio you can find at www.designph.org/prices.

Overview Sheet

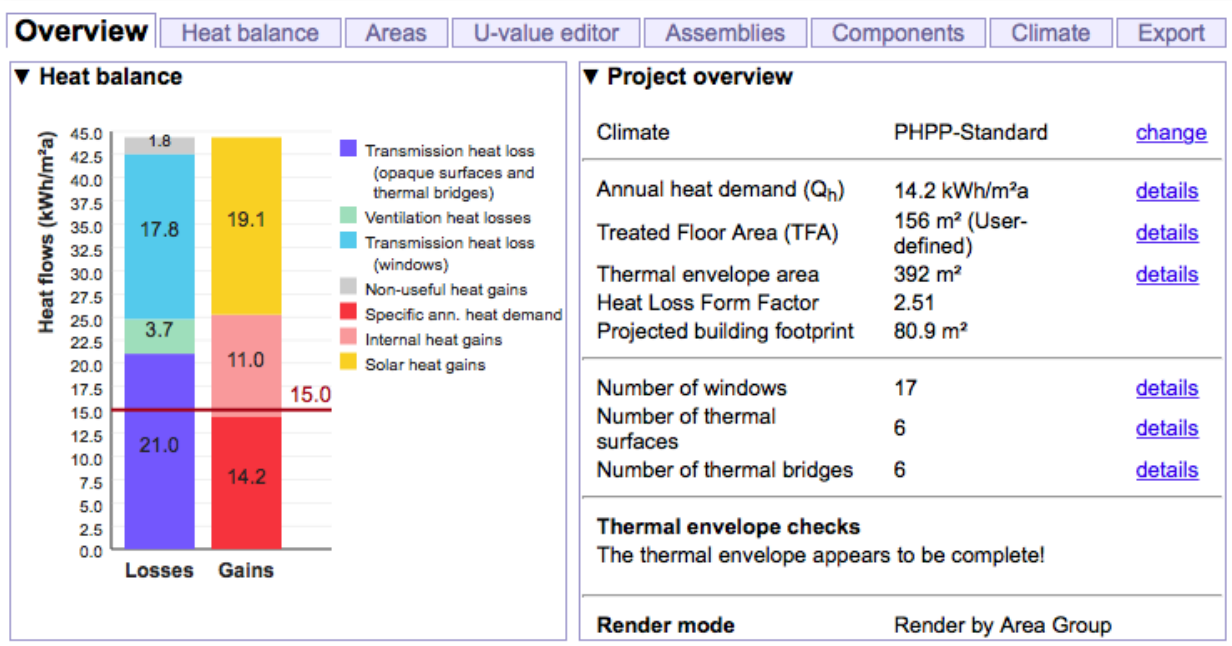
A new summary sheet has been added to the *design*PH main dialog. This provides an Energy Balance bar chart and an overview of the key figures from the analysis.

Energy Balance Bar Chart

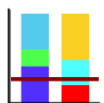
This shows the balance of losses and gains for the heating period in the same way as the graph in PHPP. A horizontal needle is shown for the target specific space heat demand of 15kWh/m²a required for Passive House.

Project Overview

This shows some keys figures from the analysis. It also shows the results of some new plausibility checks and information about the currently selected render mode.



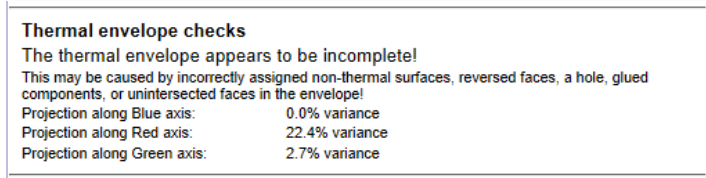
Run analysis



The toolbar button for run analysis has been changed! It now looks like the energy balance bar chart. The button with the red model images (previously used for run analysis) is now used only to switch to the “by Area Groups” render mode. Run analysis will always use the area groups render mode by default.

Thermal envelope checks

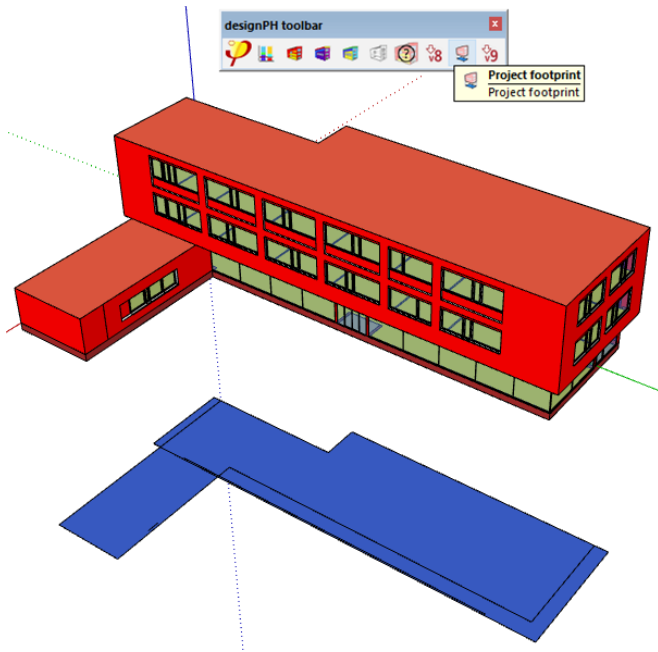
When the analysis is run, *designPH* calculates the sum of all the areas projected in each direction along each orthogonal axis. If these do not match, a warning is shown in the **Project Overview** sheet - this is an indication that the thermal envelope may not be complete. There can be various reasons that the projected areas do not match; there could be holes in the envelope, incorrectly assigned area groups, **reversed faces** (see under **Render by Area Groups**) or SketchUp components as part of the thermal envelope.



PHPP9 projected footprint



- The Project Footprint tool automatically creates the Projected Footprint Area surfaces directly below the model (analysis must be run first!).
- The resulting area is shown on the Overview sheet of the main dialog and is included in the export to PHPP.



Southern Hemisphere compatible

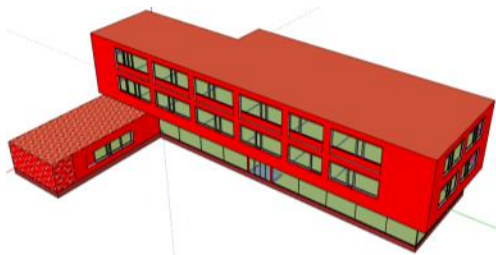
When a climate in the Southern Hemisphere has been selected, the *designPH* analysis will automatically correct for the actual orientations of the windows, so that the dominant solar gains will be from the north. When exporting to PHPP, the orientations will automatically be flipped in the north-south axis (however the automatic names of windows and surfaces will still reflect the true orientations in the model).

Render modes

There are now three render modes in *designPH*:

Render by Area Groups

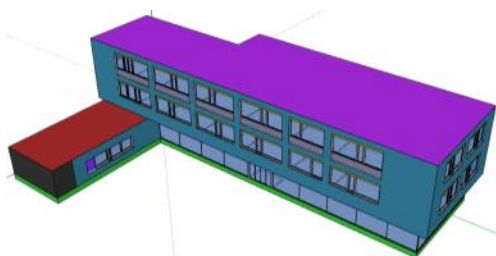
This is the default mode - in general, thermal surfaces in the model are coloured orange-red-brown according to the PHPP area group. Area Group X is coloured red-purple. TFA surfaces are coloured yellow-green (depending on the reduction factor applied). Non-thermal surfaces are coloured grey. Internal (non-thermal) surfaces are coloured pink. Shading surfaces are coloured violet. A reverse face texture has now been added so that it is easier to spot reversed faces in the model.



Two new render modes have been added:

Render by Components

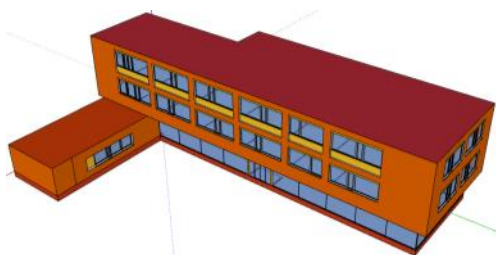
A colour code is assigned to each unique construction or component type. This provides a quick method to visually assess the range of component specifications and construction build-ups that have been used in the project and therefore provides a useful tool to rationalise them.

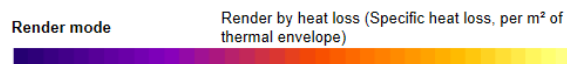


Render mode	Render by components
Number of unique assembly types used: 15	

Render by Heat Loss

A colour value is assigned to each surface of the thermal envelope according to its specific heat loss ($\text{kWh/m}^2\text{a}$). The corresponding scale is shown in the **Project Overview** sheet. This provides a quick visual method to assess the thermal quality of the model.



Render mode	Render by heat loss (Specific heat loss, per m^2 of thermal envelope)
	
Best component $0.00 \text{ kWh/m}^2\text{a}$	Worst component $38.04 \text{ kWh/m}^2\text{a}$

Heat Balance Sheet

The layout of the **Heat Balance Sheet** has been updated to highlight the important results more clearly with a green box, and all sub-totals are shown in kWh/m²a. The Annual Heat Demand table at the top has been removed, since this data is now shown on the **Energy Balance Bar Chart**.

Overview Heat balance Areas U-value editor Assemblies Components Climate Export							
▼ Transmission heat loss (opaque surfaces and thermal bridges)							
Group no.	Area group	Total area (m ²)	Area weighted U-value (W/m ² K)	Av. temp. factor	Ann. htg. degree hours (kKh/a)	Transmission heat losses (kWh/a)	Q _t (kWh/m ² a)
7	External Door	0.00			82.00		
8	External Wall - Ambient	184.34	0.14	1.00	82.00	2078.65	13.32
9	External Wall - Ground	0.00			82.00		
10	Roof/Ceiling - Ambient	83.40	0.10	1.00	82.00	683.91	4.38
11	Floor slab / Basement ceiling	80.93	0.13	0.60	82.00	520.90	3.34
12		0.00			82.00		
13		0.00			82.00		
14	Temperature zone X	0.00			82.00		
15	Thermal Bridges Ambient	0.00			82.00		
16	Perimeter Thermal Bridges	0.00			82.00		
17	Thermal Bridges Floor Slab / Basement Ceiling	0.00			82.00		
18	Partition Wall to Neighbour	100.96	0.25	0.00	82.00	0.00	0.00
		449.63				3283.45	21.05

Areas Sheet

The layout of the **Areas Sheet** has also been updated.

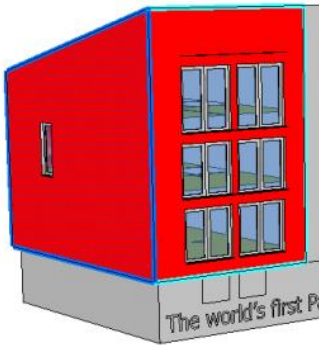
Overview Heat balance Areas U-value editor Assemblies Components Climate Export												
► Treated Floor Area												
▼ Opaque surfaces												
Assigned to group -All- expand columns >>												
Select	Area ID	Building element desc.	Assigned to group	Orientation	Total area (m ²)	Window areas (m ²)	Qty. windows	Net area (m ²)	Assem. no.	Assem. desc.	U-value	Transmission heat losses (kWh/a)
+	1	Wall_26968_W	External Wall - Ambient	W	100.96	2.00	1	98.96	01ud	Außenwand	0.14	1115.85
+	2	Wall_26979_N	External Wall - Ambient	N	53.33	11.04	4	42.29	01ud	Außenwand	0.14	476.90
+	3	Wall_26871_S	External Wall - Ambient	S	73.51	30.42	12	43.09	01ud	Außenwand	0.14	485.90
+	4	Roof_26999_H	Roof/Ceiling - Ambient	H	83.40	0.00	0	83.40	84ud	PH Roof	0.10	683.91
+	5	Floor_26887_D	Floor slab / Basement ceiling	D	80.93	0.00	0	80.93	03ud	Kellerdecke	0.13	520.90
+	6	Wall_26991_E	Partition Wall to Neighbour	E	100.96	0.00	0	100.96	87ud	PH Partition wall	0.25	
					493.09	43.46	17.00	449.63				3283.45

Two new features have been added. These are available on all tables on the Areas Sheet which list model elements - *TFA*, *Opaque surfaces*, *Windows*, *Shading Thermal Bridges* and *Non-thermal surfaces*:

Highlight-Select

This feature provides an easier way to cross-reference between rows in the results tables with the elements (surfaces, edges and windows) in the model.

- Hovering over the rows in the results table highlights the corresponding elements in the model
- Selecting the elements in the model highlights the corresponding table rows
- Elements can be selected / deselected from the table using the + / - buttons



Select	Area ID	Building element desc.	Assigned to group	Orientation	Total area (m²)	Window	Qty.	Net area (m²)	Assem. no.	Assem. desc.	U-value	Transmission heat losses (kWh/a)
-	1	Wall_26968_W	External Wall - Ambient	W	100.96	2.00	1	98.96	01ud	Außenwand	0.14	1115.85
+	2	Wall_26979_N	External Wall - Ambient	N	53.33	11.04	4	42.29	01ud	Außenwand	0.14	476.90
+	3	Wall_26871_S	External Wall - Ambient	S	73.51	30.42	12	43.09	01ud	Außenwand	0.14	485.90
+	4	Roof_26999_H	Roof/Ceiling - Ambient	H	83.40	0.00	0	83.40	84ud	PH Roof	0.10	683.91
+	5	Floor_26887_D	Floor slab / Basement ceiling	D	80.93	0.00	0	80.93	03ud	Kellerdecke	0.13	520.90
				E	100.96	0.00	0	100.96	87ud	PH Partition wall		

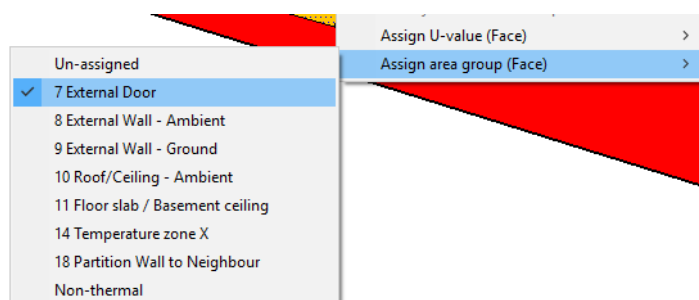
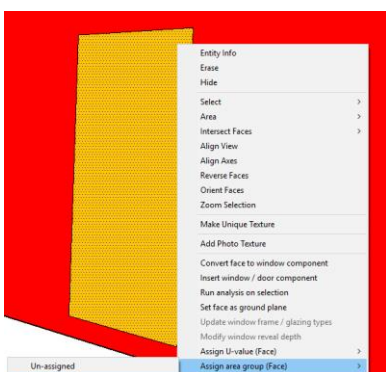
Edit names of elements

- The name of each element can now also be edited directly in the table so user-defined element names can be entered, this makes it easier to cross-reference the elements after exporting to PHPP. The user-defined name always takes priority over the automatically generated name. If the user-defined is deleted, the automatic name is restored

Select	Area ID	Building element desc.	Assigned to group	Orientation	Total area (m²)	Window areas (m²)	Qty. windows	Net area (m²)	Assem. no.	Assem. desc.	U-value	Transmission heat losses (kWh/a)
+	1	Wall_26968_W	External Wall - Ambient	W	100.96	2.00	1	98.96	01ud	Außenwand	0.14	1115.85
+	2	Wall_26979_N	External Wall - Ambient	N	53.33	11.04	4	42.29	01ud	Außenwand	0.14	476.90
+	3	Wall_26871_S	External Wall - Ambient	S	73.51	30.42	12	43.09	01ud	Außenwand	0.14	485.90
+	4	Main roof	Roof/Ceiling - Ambient	H	83.40	0.00	0	83.40	84ud	PH Roof	0.10	683.91
+	5	Floor_26887_D	Floor slab / Basement ceiling	D	80.93	0.00	0	80.93	03ud	Kellerdecke	0.13	520.90

Area Group 7 - External Door

External doors can now be entered by simply assigning a surface as Area Group 7.



Export Sheet

A new Export sheet has been added to *designPH* main dialog, this provides **Selective Export** options. Initially, 4 default export profiles are provided:

Standard export

Use this option when making the first export of your model to a blank PHPP. In addition to exporting Areas, Windows and Shading data, and all user-defined Components and calculated U-values, default values will be exported to the Ventilation sheet and others to give a more complete result in PHPP.

Geometry + components

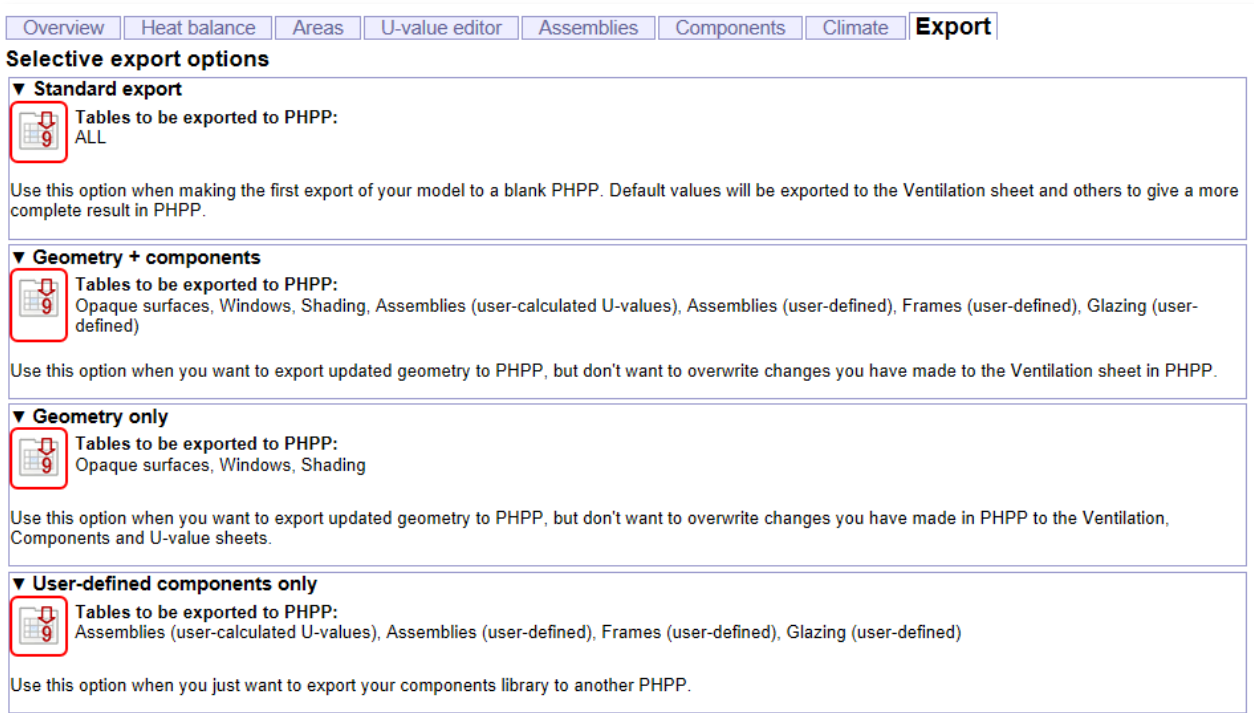
Use this option when you want to export updated geometry to PHPP, but don't want to overwrite changes you have made to the Ventilation sheet in PHPP.

Geometry only

Use this option when you want to export updated geometry to PHPP, but don't want to overwrite changes you have made in PHPP to the Ventilation, Components and U-value sheets.





User-defined components only

Use this option when you just want to export your user-defined components library from a *designPH* model to another PHPP.



Overview Heat balance Areas U-value editor Assemblies Components Climate **Export**

Selective export options

- Standard export**
 Tables to be exported to PHPP:
 ALL
 Use this option when making the first export of your model to a blank PHPP. Default values will be exported to the Ventilation sheet and others to give a more complete result in PHPP.
- Geometry + components**
 Tables to be exported to PHPP:
 Opaque surfaces, Windows, Shading, Assemblies (user-calculated U-values), Assemblies (user-defined), Frames (user-defined), Glazing (user-defined)
 Use this option when you want to export updated geometry to PHPP, but don't want to overwrite changes you have made to the Ventilation sheet in PHPP.
- Geometry only**
 Tables to be exported to PHPP:
 Opaque surfaces, Windows, Shading
 Use this option when you want to export updated geometry to PHPP, but don't want to overwrite changes you have made in PHPP to the Ventilation, Components and U-value sheets.
- User-defined components only**
 Tables to be exported to PHPP:
 Assemblies (user-calculated U-values), Assemblies (user-defined), Frames (user-defined), Glazing (user-defined)
 Use this option when you just want to export your components library to another PHPP.

Export button

The export to PHPP9 (and export to PHPP-IPv9) button will now activate the new Export sheet in the main dialog so the Selective Export options can be used. Selective export is not available for PHPP8 - the export to PHPP8 (and export to PHPP-IPv8) button just launches the Save dialog as before.