

ESSMANN® functional façade

ESSMANN® daylight panel SVPC i and ih



Design variants

- Thermally separated aluminium profile system, available variants:
i (insulation) and
ih (insulation **high**)
- **Variant i** with polycarbonate web plates, thickness: 40, 50 or 60 mm
- **Variant ih** with AeroTech plates, thickness: 40 mm



Product description

ESSMANN® daylight panel SVPC i and ih



ESSMANN daylight panel SVPC i incl. top-hung sash and 230V chain drive for daily aeration and ventilation

Position of the drive on the inside of the top-hung sash

ESSMANN daylight panel SVPC i and ih


(Sprossenlose Verglasung mit PC-Steigplatten) Barless glazing with PC web plates

ESSMANN daylight panels SVPC i comprise a thermally separated aluminium profile system (i = insulation) with polycarbonate web plate glazing. The variant SVPC ih (ih = insulation high) is additionally filled with ESSMANN AeroTech. The PC plates in both variants are joined using a tongue and groove system without sash bars. The groove on the inner side of the daylight panel is fitted with an integrated purlin clip for absorbing

the wind suction loads. The joints of the PC web plates are covered with an overlapping sealing lip on the outer side. The weather-facing side of the PC web plates is also coated with co-extruded UV protection. The installation width of each plate is 500 mm. A standard plate is maximum 3 metres long; customised lengths are possible up to 12 metres. Depending on the requirements, ESSMANN daylight

panels SVPC i and ih can be fitted with glazing thicknesses of between 40 mm and 60 mm. The daylight panels SVPC i and ih can be equipped with bottom-hung, top-hung or side-hung sashes or with lamella for daily aeration and ventilation (see the section on "Ventilation systems").

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Type of web plate	Heat transfer coefficient U_g	Light transmission		Total energy transmission		Registration number:	Fire behaviour acc. to DIN 4102 **
		transparent	opal	transparent	opal		
PC 40/4	1.4 W/(m ² K)	66%	48%	68%	56%	Z-10.1-327	B2 / B1***
PC 40/6	1.2 W/(m ² K)	55%	39%	60%	47%	Z-10.1-327	B2 / B1***
PC 40/7	1.1 W/(m ² K)	53%	41%	56%	47%	Z-10.1-327	B2 / –
PC 40 AeroTech 1* ¹⁾	0.8 W/(m ² K)	64%	–	59%	–	Z-10.1-327	B2 / B1***
PC 40 AeroTech K* ¹⁾	0.48 W/(m ² K)	in progress	–	in progress	–	in progress	B2
PC 50/10	0.87 W/(m ² K)	44%	36%	50%	41%	in progress	B2 / B1***
PC 60/12	0.75 W/(m ² K)	41%	30%	43%	37%	in progress	B2 / –
Plate system	Tongue-groove					 <p>The glazing options marked ¹⁾ comply with the stringent energy efficiency standards demanded by ESSMANN GROUP. In addition to U values, these standards incorporate, for example, daylight utilisation, integration in intelligent refurbishing concepts, or appropriate renovation measures.</p>	
Plate width/length	500 mm / standard up to 3 m, customised up to 12 m						
Plate weight	approx. 4.0 - 5.5 kg/m ²						
Cavity seal	Butyl tape on the underside, permeable tape on the top side						
UV protection	Weather-facing side coated with co-extruded UV protection						
Plate colour	Transparent, opal and standard colours at customer's request						

* Special design, only available on request. 1 = AeroTech filling in one chamber ; K = Plate completely filled with AeroTech

** Fire testing to EN 13501 has been performed and can be provided on request.

*** Plate material with fire protection class B1 at additional charge

Technical installation and design engineering details

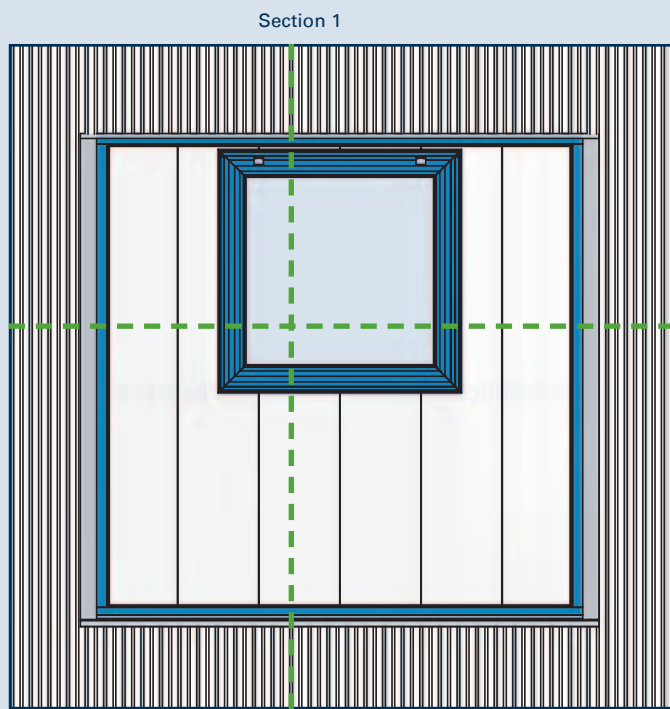
ESSMANN® daylight panel SVPC i and ih



Lower corner with sheet metal jamb and window ledge connection

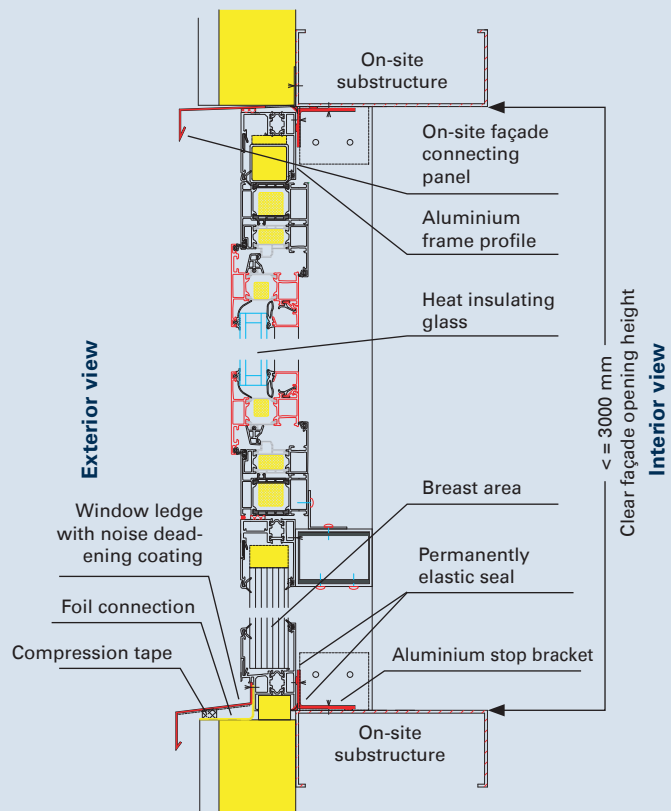


Upper corner with sheet metal jamb and upper drip guard

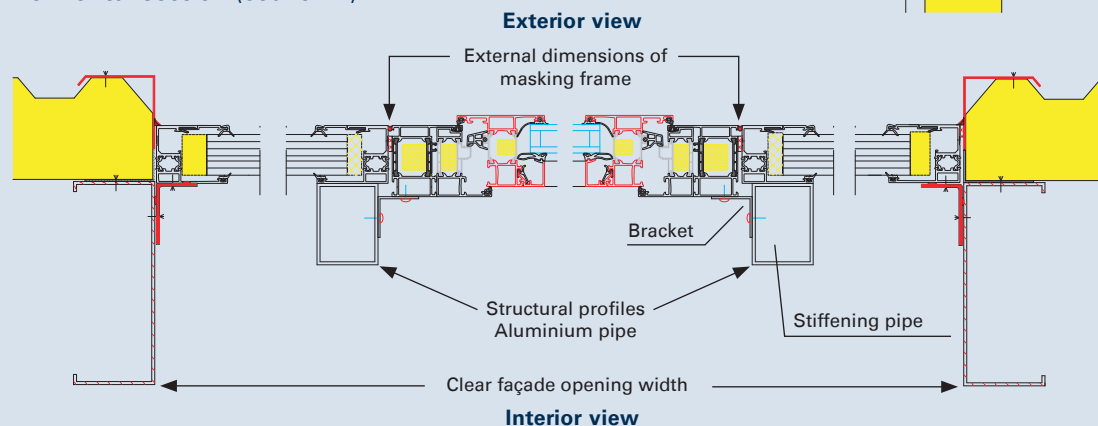


Diagrammatic exterior view of the ESSMANN daylight panel SVPC (example with top-hung sash)

Vertical section (Section 1)



Horizontal section (section 2)



Ventilation systems

ESSMANN® daylight panel SVPC i and ih



Top-hung sash (opens to the outside)



Side-hung sash (opens to the outside)



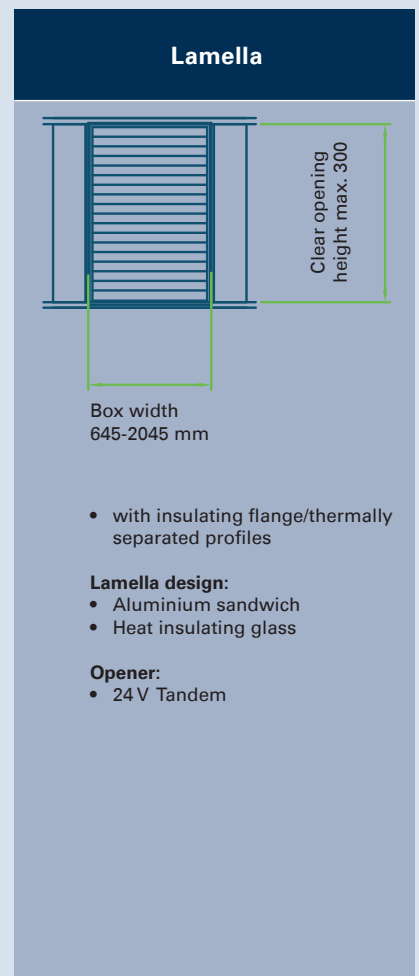
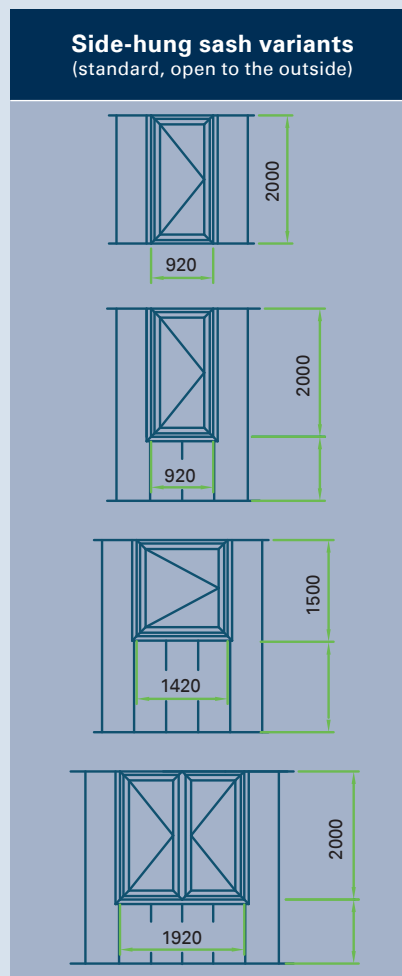
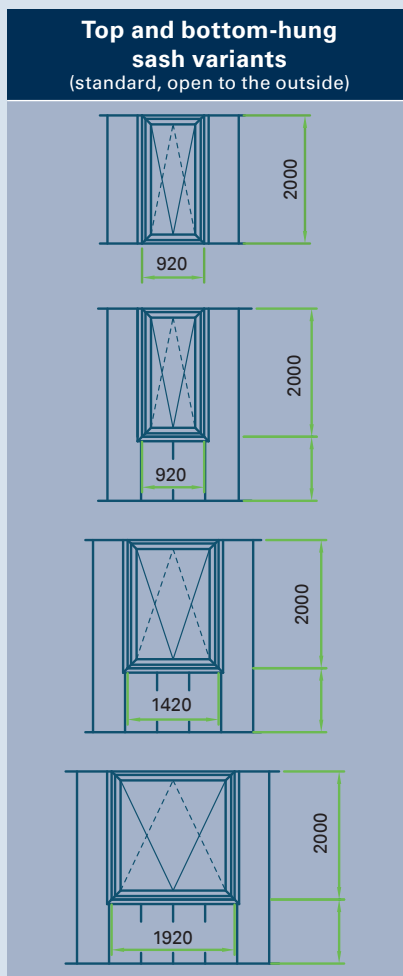
Lamella with heat insulation glazing

Window system with side-, bottom- or top-hung sashes

The ESSMANN daylight panel SVPC i and ih can be fitted with various ventilation systems. In addition to windows with side-hung, bottom-hung or top-hung

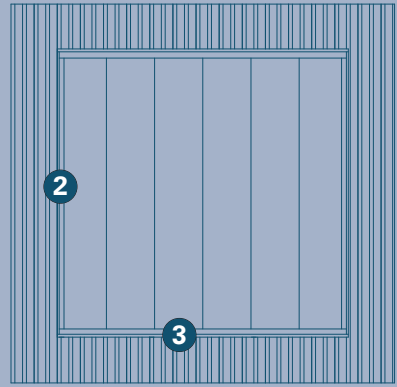
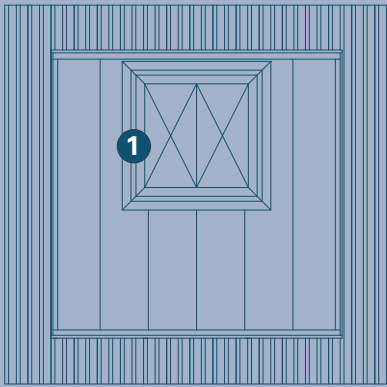
sashes, a special pivot sash version is available on request. Added to which, lamella can be incorporated into a daylight panel SVPC i and ih for daily ventilation

purposes, to provide fresh air, or to naturally extract smoke and heat (acc. to EN 12101-2).

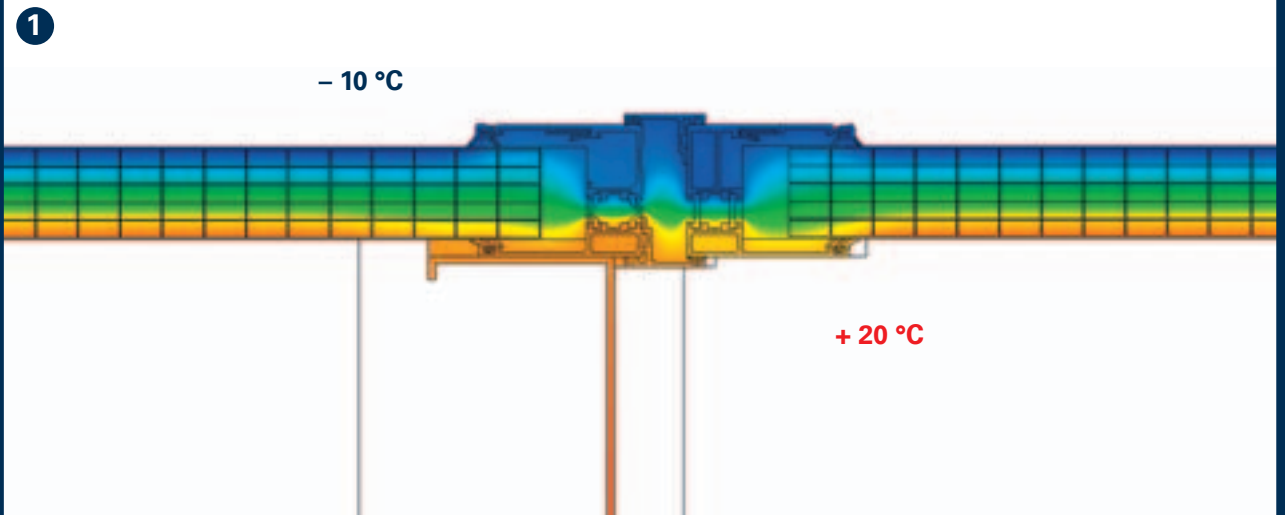


Building physics

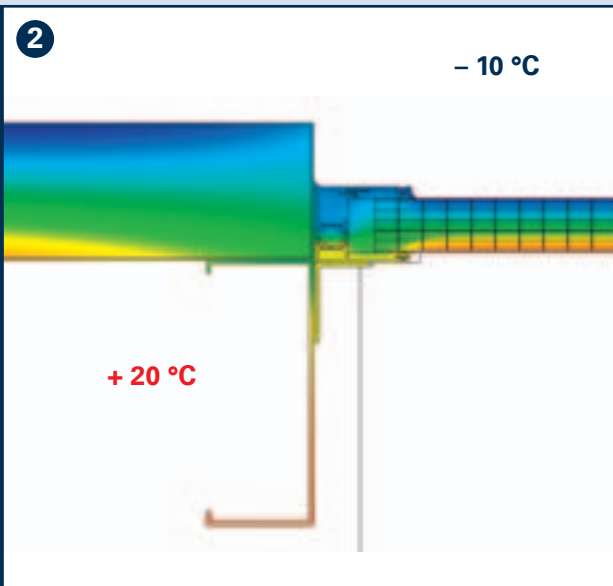
ESSMANN® daylight panel SVPC i and ih



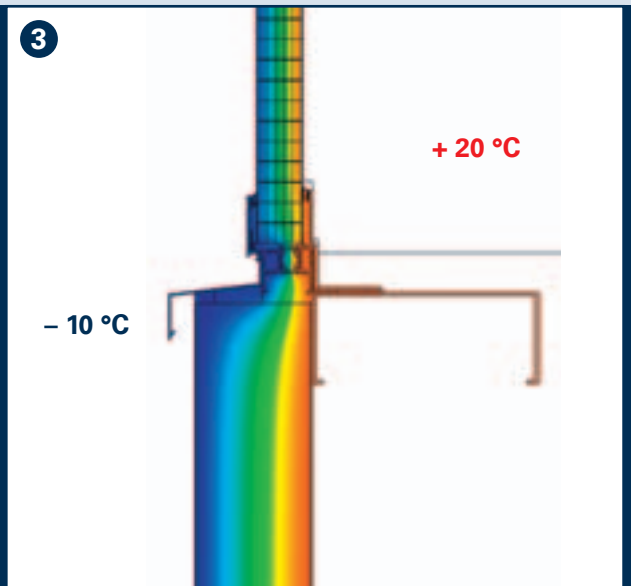
Positions of the isothermal curves shown below in the area of the façade connections and ventilation systems on the ESSMANN daylight panel SVPC i and ih



Horizontal section: Top-hung sash detail



Horizontal section: Lateral façade connection

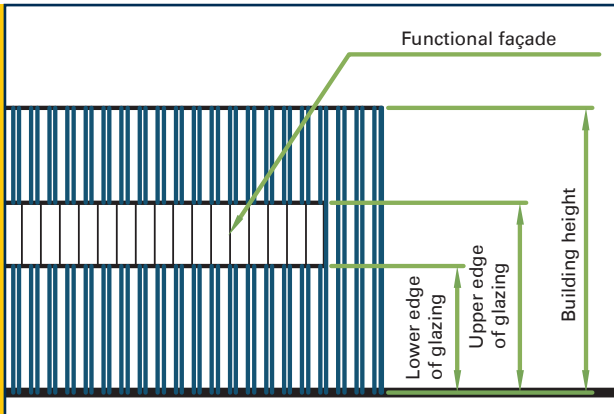


Lower vertical section: Base



Wind pressure and suction loads

ESSMANN® daylight panel SVPC i and ih



Installation situation: ESSMANN daylight panel SVPC i and ih

Flat purlin clip as installed (magnified in smaller photo)

Load table for wind pressure and suction loads (for 40 mm PC web plates)¹

Building height LBE 2540-4	Wind zone	Single-pane glazing PC 2540-4			2-pane glazing PC 2540-4 AF 50			2-pane glazing PC 2540-4 AF 100			3-pane glazing PC 2540-4 AF 50			3-pane glazing PC 2540-4 AF 100		
		Area A Cpe, 1,4	Area B Cpe, 1,1	Area C (D) Cpe, 1,0	Area A Cpe, 1,4	Area B Cpe, 1,1	Area C (D) Cpe, 1,0	Area A Cpe, 1,4	Area B Cpe, 1,1	Area C (D) Cpe, 1,0	Area A Cpe, 1,4	Area B Cpe, 1,1	Area C (D) Cpe, 1,0	Area A Cpe, 1,4	Area B Cpe, 1,1	Area C (D) Cpe, 1,0
$h \leq 10$ $q = 0.50$ kN/m ²	1	2.05 m	2.25 m	2.30 m	1.48 m	1.75 m	1.85 m	1.62 m	1.90 m	2.00 m	1.58 m	1.90 m	2.00 m	1.75 m	2.05 m	2.15 m
$10 m < h \leq 18$ $q = 0.65$ kN/m ²	1	1.80 m	2.05 m	2.15 m	1.15 m	1.47 m	1.55 m	1.30 m	1.59 m	1.70 m	1.24 m	1.57 m	1.65 m	1.45 m	1.75 m	1.85 m
$18 m < h \leq 25$ $q = 0.75$ kN/m ²	1	1.70 m	1.90 m	2.00 m	0.95 m	1.25 m	1.40 m	1.15 m	1.42 m	1.55 m	1.08 m	1.40 m	1.45 m	1.28 m	1.56 m	1.70 m
$h \leq 10$ $q = 0.65$ kN/m ²	2	1.80 m	2.05 m	2.15 m	1.15 m	1.47 m	1.55 m	1.30 m	1.59 m	1.70 m	1.24 m	1.57 m	1.65 m	1.45 m	1.75 m	1.85 m
$10 m < h \leq 18$ $q = 0.80$ kN/m ²	2	1.65 m	1.85 m	1.95 m	0.90 m	1.15 m	1.30 m	1.07 m	1.33 m	1.50 m	1.02 m	1.25 m	1.40 m	1.15 m	1.50 m	1.60 m
$18 m < h \leq 25$ $q = 0.90$ kN/m ²	2	1.55 m	1.78 m	1.85 m	0.80 m	1.04 m	1.13 m	0.93 m	1.20 m	1.32 m	0.90 m	1.13 m	1.25 m	1.08 m	1.36 m	1.45 m
$h \leq 10$ $q = 0.80$ kN/m ²	3	1.65 m	1.85 m	1.95 m	0.90 m	1.15 m	1.30 m	1.07 m	1.33 m	1.50 m	1.02 m	1.25 m	1.40 m	1.15 m	1.50 m	1.60 m
$10 m < h \leq 18$ $q = 0.95$ kN/m ²	3	1.50 m	1.70 m	1.80 m	0.80 m	1.00 m	1.05 m	0.91 m	1.14 m	1.25 m	0.85 m	1.07 m	1.20 m	1.03 m	1.29 m	1.40 m
$18 m < h \leq 25$ $q = 1.10$ kN/m ²	3	1.40 m	1.60 m	1.70 m	0.65 m	0.83 m	0.95 m	0.78 m	1.00 m	1.10 m	0.74 m	0.90 m	1.00 m	0.89 m	1.05 m	1.20 m
$h \leq 10$ $q = 0.95$ kN/m ²	4	1.50 m	1.70 m	1.80 m	0.80 m	1.00 m	1.05 m	0.91 m	1.14 m	1.25 m	0.85 m	1.07 m	1.20 m	1.03 m	1.29 m	1.40 m
$10 m < h \leq 18$ $q = 1.15$ kN/m ²	4	1.35 m	1.60 m	1.65 m	0.64 m	0.80 m	0.90 m	0.75 m	0.92 m	1.05 m	0.71 m	0.92 m	0.95 m	0.84 m	1.03 m	1.15 m
$18 m < h \leq 25$ $q = 1.30$ kN/m ²	4	1.30 m	1.45 m	1.55 m	0.57 m	0.72 m	0.80 m	0.66 m	0.85 m	0.95 m	0.64 m	0.75 m	0.85 m	0.74 m	0.93 m	1.00 m

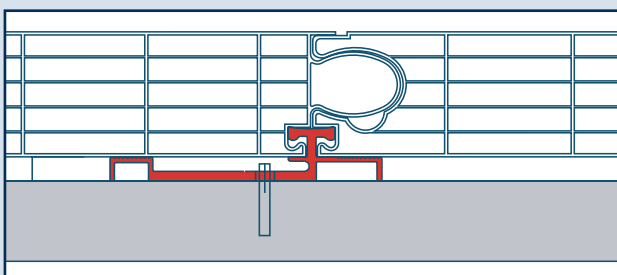
The span widths as indicated are recommended for buildings which, in accordance with the simplified conditions of DIN 1055-4, are max. 25 m high, less high than they are wide or long $H < \text{or} = 1$, situated at less than 800 m above sea level NN, and not built in coastal areas. Buildings in exposed locations and vibration dependent buildings have not been taken into consideration. The internal pressure and suction conditions in buildings that are closed or open on one side may need to be taken into consideration. In each case, the reference variables are the cp values for 1 m². Before commencing assembly, please verify that the simplified conditions are applicable for your project. The following span width diagrams provide information about deviating load situations. According to DIN 1055-4, different loads must be assumed for the areas A, B and C on façades. Together, areas A and B produce a length e. The length e is = d or 2h resp. b or 2h, whereby the smaller value prevails. Area A is = e / 5 and area B as the adjacent area to A must therefore be B = e / 4/5. Area C borders on areas A and B (some projects don't have an area C). The data are only valid in connection with RODECA System accessories and subject to compliance with RODECA installation guidelines. Basis: KPF component tests 86/06

¹ Load data for 50 and 60 mm PC web plates are available on request

PC web connection with purlin clip

The flat aluminium clips must be used in accordance with the general building code approval specifications Z-10.1-327.

Care must be taken to ensure that the on-site sub-structure complies with the structural stability requirements and offers sufficient fastening surface. We recommend the use of stainless steel screws.



Optimised heat insulation

with ESSMANN® AeroTech in an ESSMANN daylight panel SVPC ih



© Cabot



Loose translucent aerogel

PC glazing with ESSMANN® AeroTech

ESSMANN AeroTech: Innovation for enhanced efficiency

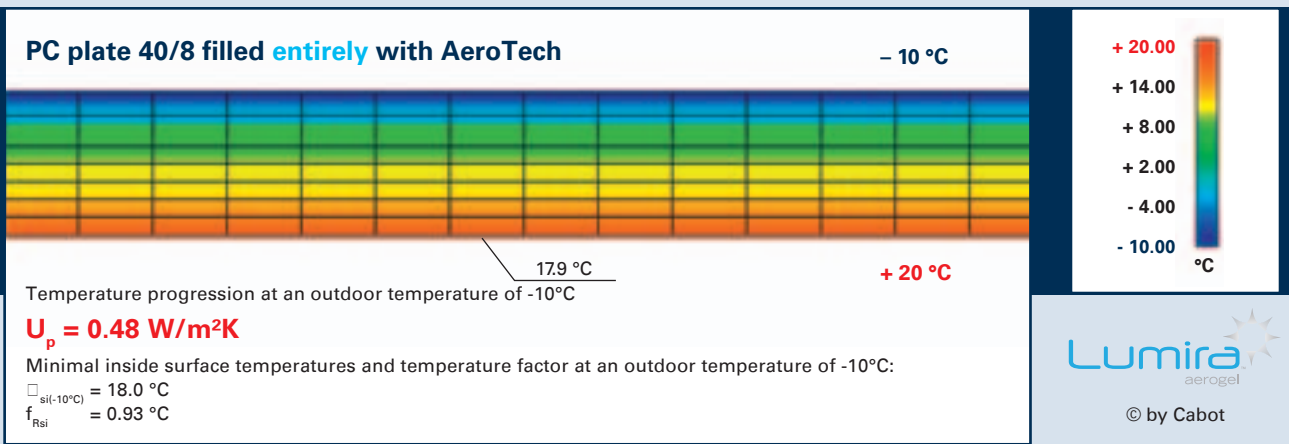
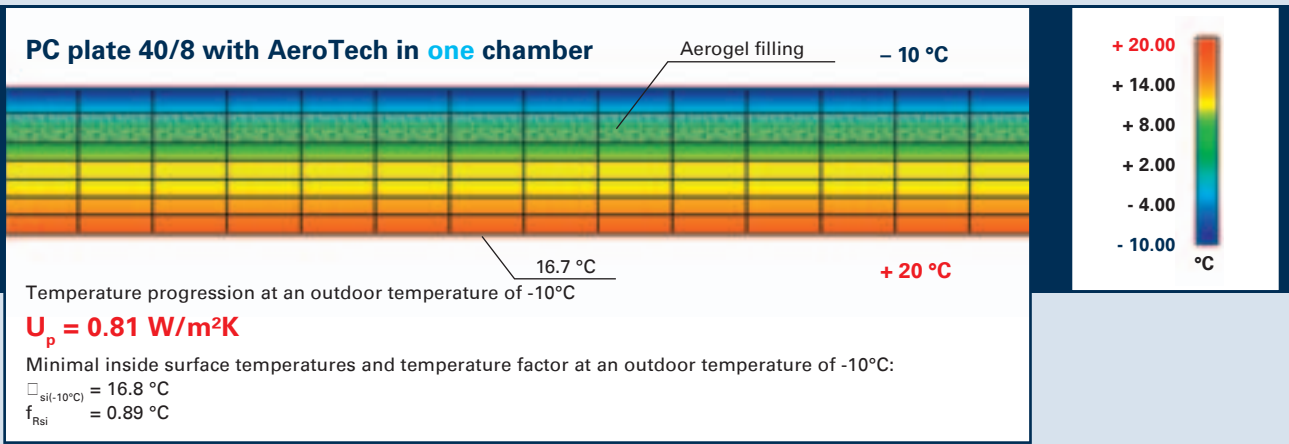
ESSMANN AeroTech has a low ratio of solid matter, a fine-pore structure, and superb light transmission properties. Unlike conventional polycarbonate web plates, ESSMANN AeroTech

plates achieve a much better U value, while at the same time ensuring excellent light transmission and superb glare-free diffusion. Heat losses are also optimised thanks to the low heat conductivi-

ty of $\lambda = 0.018 \text{ W/mK}$ of the aerogel.

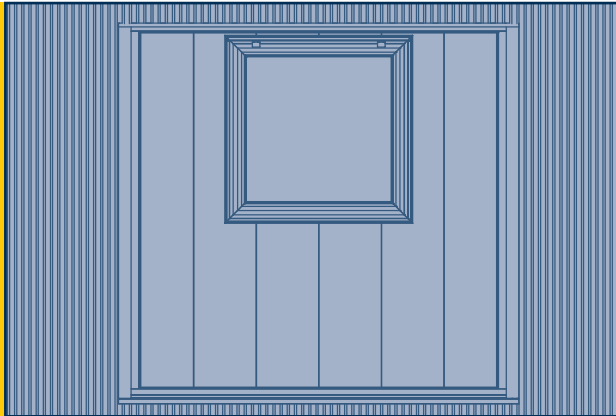
Further information can be found at:

www.essmann-aerotech.com

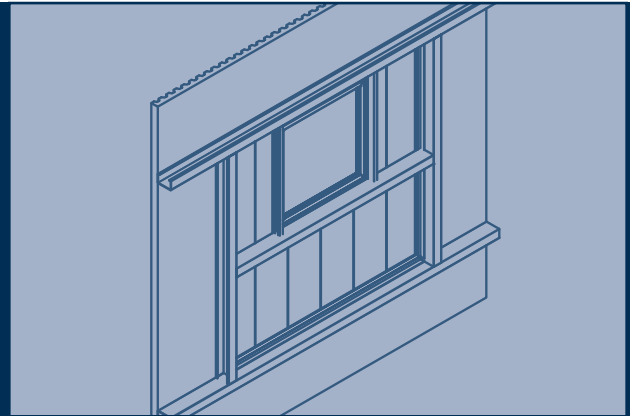


Standards and approvals

ESSMANN® daylight panel SVPC i and ih



Technical drawing: Front view of ESSMANN daylight panel SVPC



Technical drawing: Rear view of ESSMANN daylight panel SVPC

<p>General building code approval Z-10.1-327</p>	<p>Since the PC plate system is not a regulated building product general building code approval must be obtained, which includes component tests to determine the maximum wind pressure and suction loads. The approval does not, however, eliminate the requirement to provide evidence of the structural stability of the on-site substructure and the fastening of the light strip system onto the same.</p>
<p>German legal accident insurance association (Deutsche Gesetzliche Unfallversicherung – DGUV)</p>	<p>Although “visual contact to the outside” is no longer expressly stipulated in the new workplace directive, it still plays a crucial role in ensuring the wellbeing of the workforce. The following must be taken into account:</p> <ul style="list-style-type: none"> • Breast height between 0.85 m and 1.25 m • Transparent glazing/non-distorting (only possible with real transparent glass) • Width of the transparent part of a window: at least 1.00 m • Height of the transparent part of a window: at least 1.25 m
<p>Technical rules for the workplace, “Lighting” (ASR A3.4)</p>	<ul style="list-style-type: none"> • Adoption of the DGUV specifications • Specification of minimum light intensities
<p>Trade association rules (BGR 131)</p>	<p>Govern the provision of natural and artificial lighting to workplaces</p> <ul style="list-style-type: none"> • Adoption of the DGUV specifications
<p>DIN 18232-T2: Fresh air, smoke and heat extraction</p>	<p>The size of the air supply face in the façade is 1.5 times the size of the aerodynamic face in the roof area.</p>
<p>Machinery directive 2006 / 42 / EC</p>	<p>Windows, flaps and lamella systems that can be opened, and which are installed at a height of ≤ 2.50 metres above floor level, must be safeguarded against jamming and pinching.</p>

Further information can be found at www.essmann.de

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