

Sky-Frame 1

Index

Sky-Frame 1	Page:	Content:
3.1.x.y		Overview
		<ul style="list-style-type: none"> - Properties - Features - Combinations - maximum sizes
3.2.x.y		System details
3.3.x.y		Building connections
3.4.x.y		-
3.5.x.y		Scopes
		<ul style="list-style-type: none"> - Water tightness - Air permeability - Resistance to wind load - Sound insulation - Wet rooms (pool)
3.6.x.y		Profile dimensioning
3.7.x.y		System glasses «Sky-Glass»
3.8.x.y		Mounting and supports

Symbols



Outside



Opening direction of the sliding panel



Fixed glazing



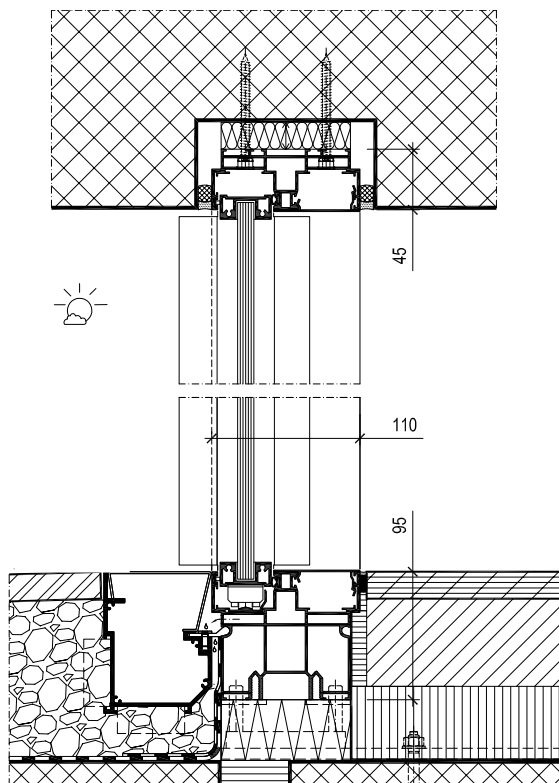
Drainage

Sky-Frame 1

Properties + Features

Properties

Sky-Frame 1 provides the following properties:



Single glass

d = 6 - 12mm

- TSG-H 12mm
- LSG 12-2

Guide values:

Lt = 87% g = 77%
Lt = 86% g = 74%

Daylight / glass ratio: 98%

Uw-Calculations:

Glas Ug = 5.5 W/m²K **SIA 331** **EN 10077**
Uw = 5.59 W/m²K 5.81 W/m²K
(Width x Height = 4.6m x 3m)

Classifications:

Water tightness (up to*) 6A (9A) (EN 12208 / EN 1027)
Air permeability (up to*) 3 (4) (EN 12207 / EN 12211)
Resistance to wind load C3 (EN 12210 / EN 1627)

Sound insulation (R_{w,P}) up to 37 dB

Features

Additional opportunities for Sky-Frame 1:

- Sky-Frame Fly
- Sky-Frame Sun
- Sky-Frame Automation
- Sky-Frame Guard
- Position monitoring (P)
- Deadbolt monitoring (R)

* if in compliance with the scopes
(Classification standard / Test standard)

Sky-Frame 1

Combinations

Combinations The following combinations are possible with Sky-Frame 1:

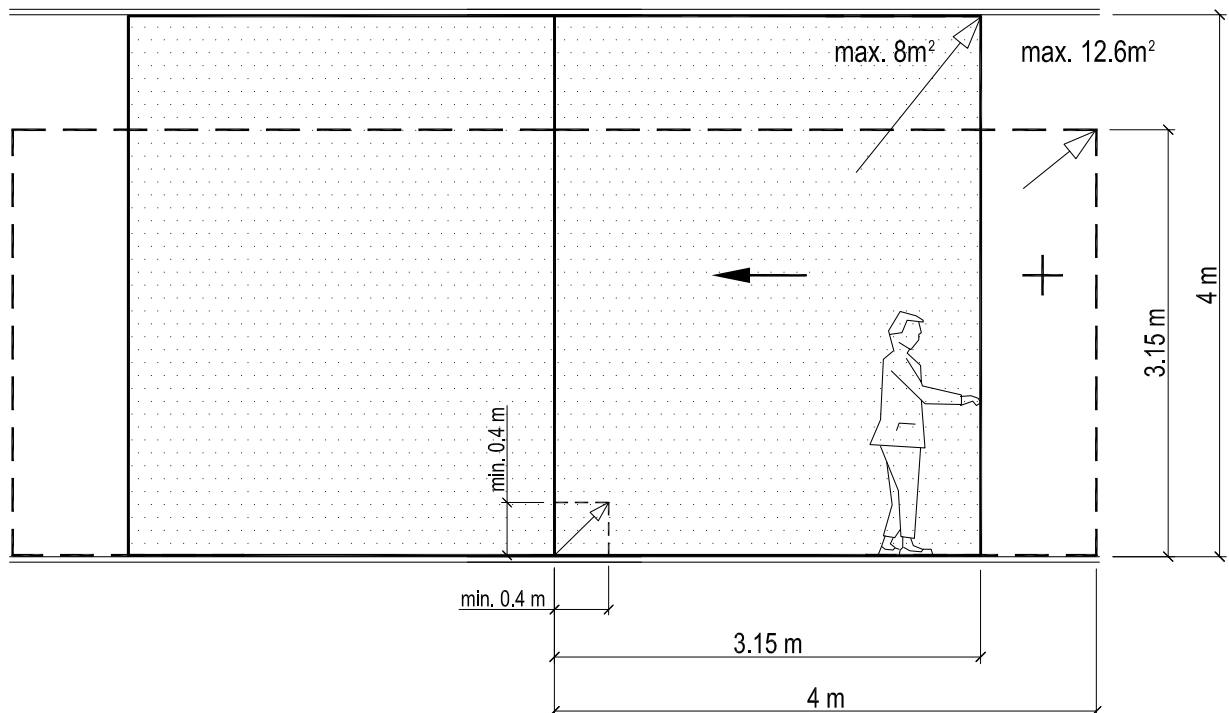
Technology: Sky-Frame 1											
Sky-Frame Classic	-	✓	✓	✓	-	✓	✓	✓ (>5°)	-	-	✓
Sky-Frame Slope	-	-	-	-	-	-	-	-	-	-	-
Sky-Frame Arc	-	-	-	-	-	-	-	-	-	-	-
Features Combinations:	Guard Burglary protection RC2 (WK2)	Guard Alarm surveillance (P / R)	Automation electric drive	Sound insulation	MINERGIE MINERGIE-P Modul window	Pocket-doors	Fly Insect screen, extensible	System in wet room (Pool)	Gun bullet-proofing	Hurricane special version	Sun shading solution
Guard Burglary protection RC2 (WK2)	=	-	-	-	-	-	-	-	-	-	-
Guard Alarm surveillance (P / R)	-	=	✓ (P)	✓	-	✓	✓	✓ (>5°)	-	-	✓
Automation electric drive	-	✓ (P)	=	✓	-	✓	✓	✓ (>5°)	-	-	✓
Sound insulation	-	✓	✓	=	-	(✓)	✓	✓ (>5°)	-	-	✓
MINERGIE MINERGIE-P Modul window	-	-	-	-	=	-	-	-	-	-	-
Pocket-doors	-	✓	✓	(✓)	-	=	✓	✓ (>5°)	-	-	✓
Fly Insect screen, extensible	-	✓	✓	✓	-	✓	=	✓ (>5°)	-	-	✓
System in wet room (Pool)	-	✓ (>5°)	✓ (>5°)	✓ (>5°)	-	✓ (>5°)	✓ (>5°)	=	-	-	✓ (>5°)
Gun bullet-proofing	-	-	-	-	-	-	-	-	=	-	-
Hurricane special version	-	-	-	-	-	-	-	-	-	=	-
Sun shading solution	-	✓	✓	✓	-	✓	✓	✓ (>5°)	-	-	=
Legend:											
✓	Sky-Frame 1										
()	in accordance with the certification										
✓ (P)	electric drive can only be combined with position monitoring (P); no deadbolt surveillance (R) / no glass breakage detectors (G)										
✓ (>5°)	climate-dependent, where outside temperature never drops below $T_{min} \geq 5^{\circ}\text{C}$										
-	not possible										
=	same combination										

Sky-Frame 1

maximum sizes

maximum sizes

The following maximum production sizes are available:
(the sizes are reduced at high wind loads)



SLIDING PANEL



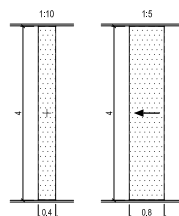
Width up to 3.15m + height up to 4m (max. 8m^2)
Larger sizes have to be clarified object-specific.
With electric drive, min. dimensions: $W \times H = 0.9 \times 1.3\text{m}$



FIXED PANEL

Width x height = max. $3.15\text{m} \times \text{max. } 4\text{m}$ (max. 12.6m^2)

aspect ratios



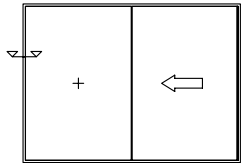
Maximum aspect ratio of the glass:

Sliding elements: $W \times H = \text{max. } 1 : 5$

Fixed elements: $W \times H = \text{max. } 1 : 10$

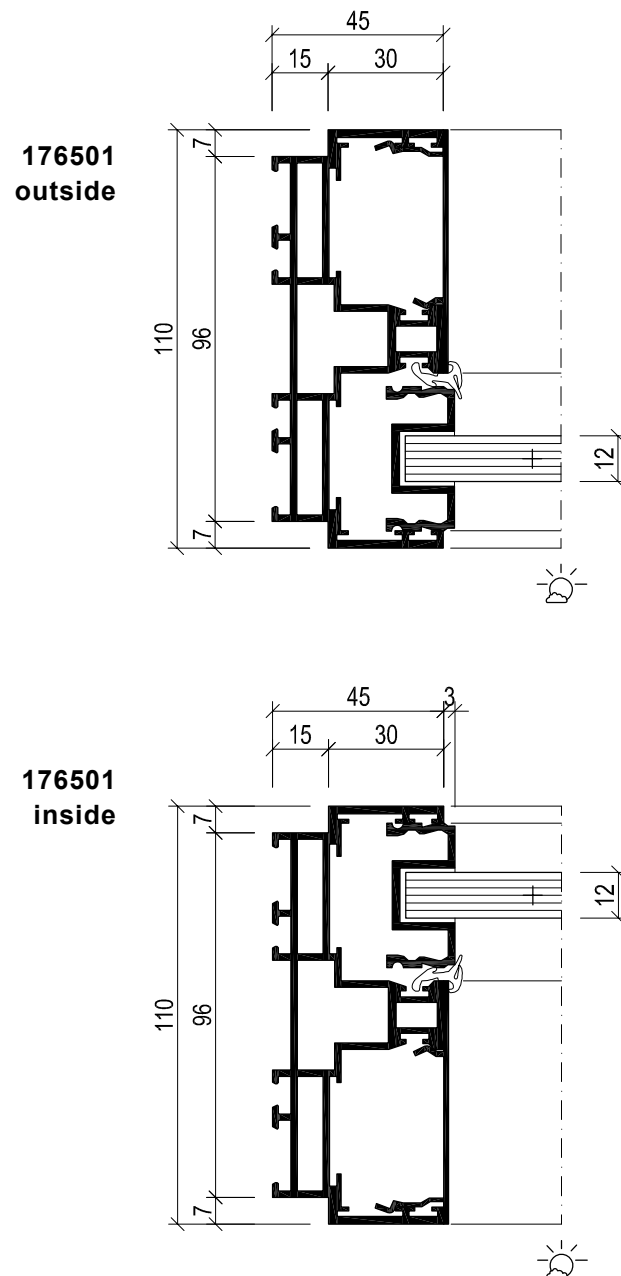
Square glasses with side ratio $W : H = 0.8$ to 1.2 with no warranties on increased running properties through glass distortion and glass contact between the panes.

Sky-Frame 1



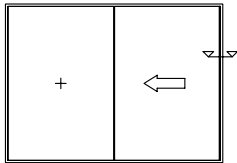
Horizontal section Wall connection, 2-track

Fixed panel M 1:2



Sky-Frame 1

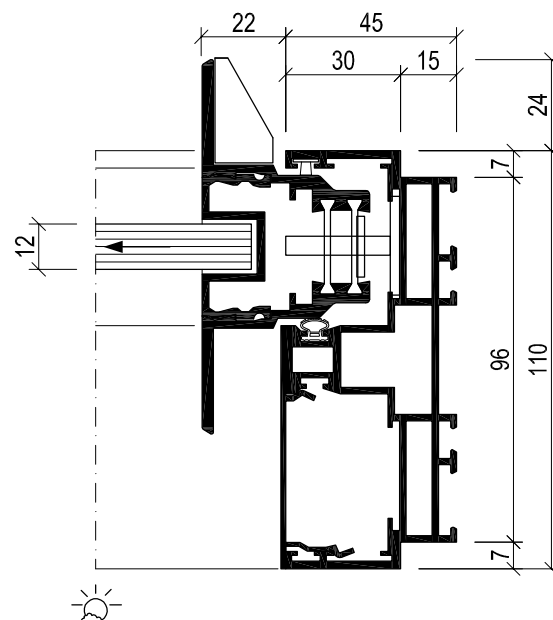
Horizontal section Wall connection, 2-track



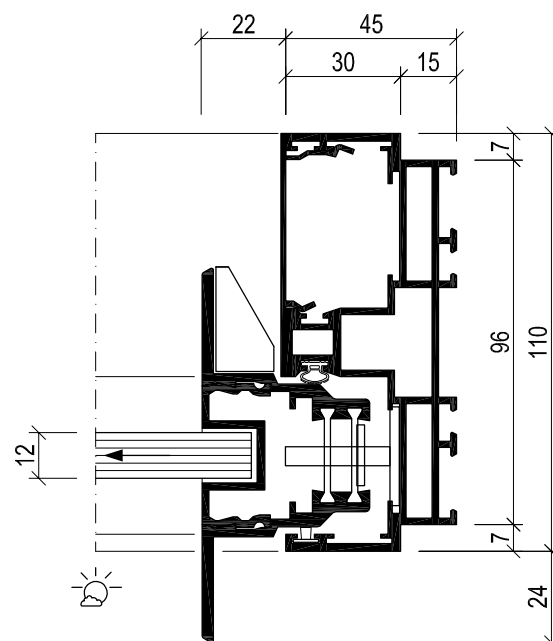
Sliding panel

M 1:2

110101/176501
inside

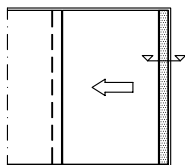


110101/176501
outside



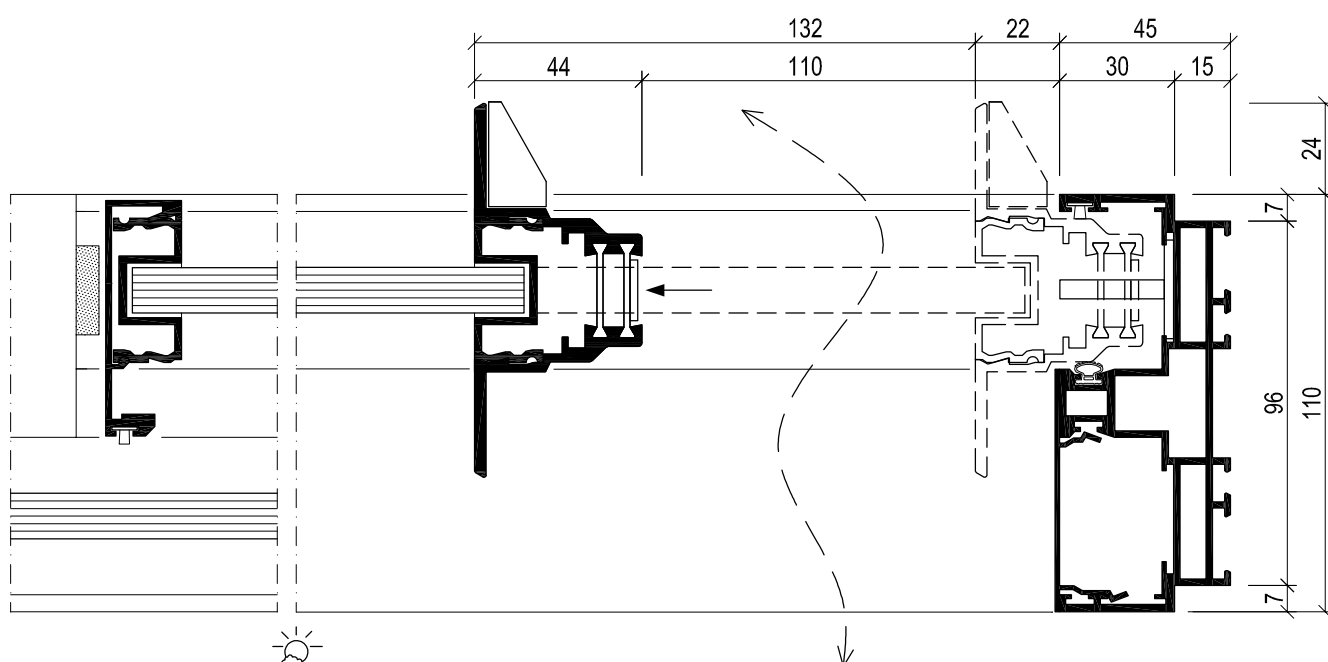
Sky-Frame 1

Horizontal section Opening stop



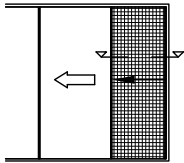
**Vent position
with opening stop**

M 1:2



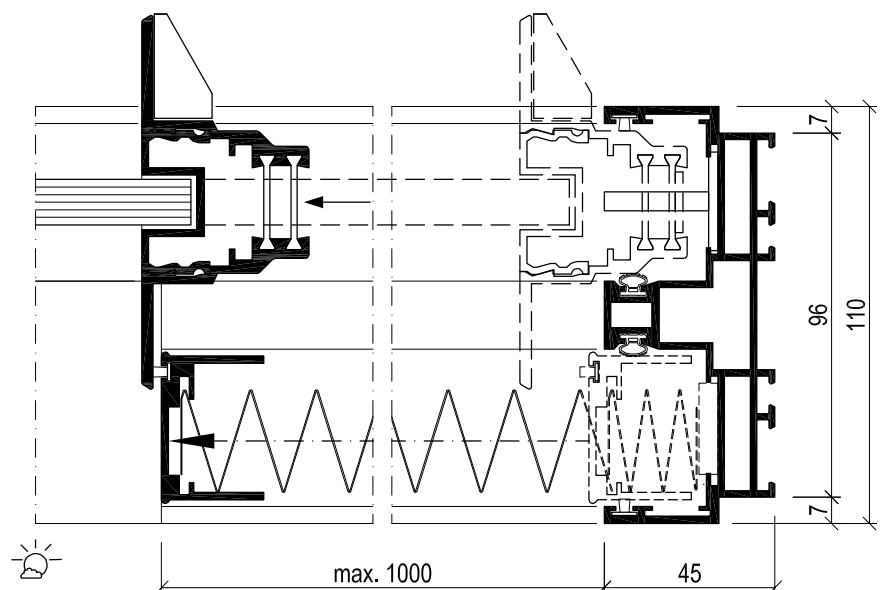
Sky-Frame 1

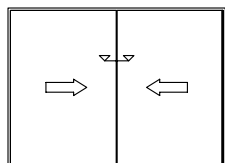
Horizontal section Insect screen



**Insect screen
extensible
2-track**

M 1:2





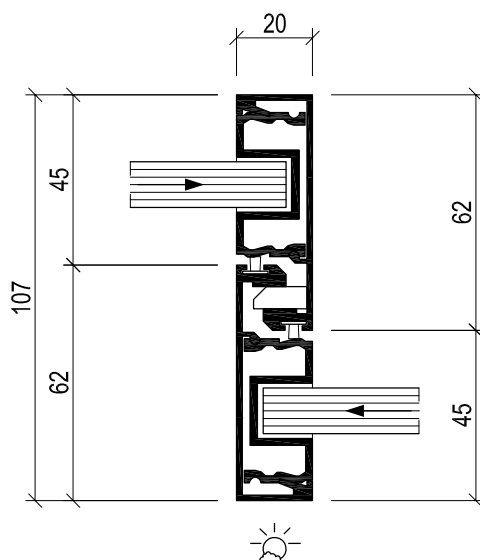
Sky-Frame 1

Horizontal section Labyrinth

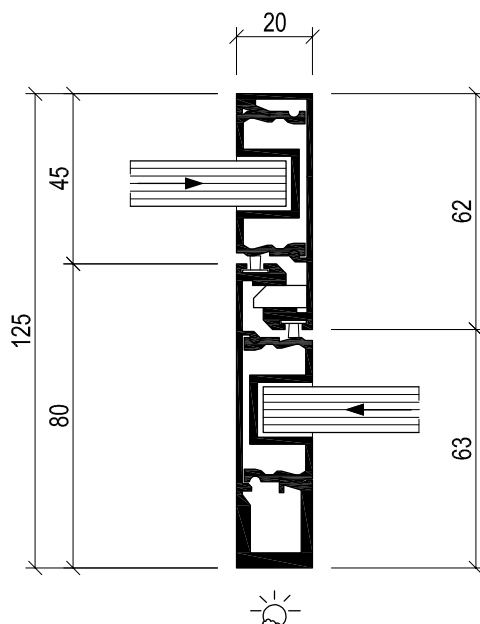
Labyrinth

M 1:2

120101/120101
(CFK reinforcable)

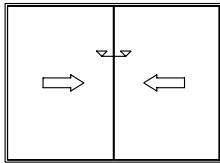


120101/120401
(CFK reinforcable)



Sky-Frame 1

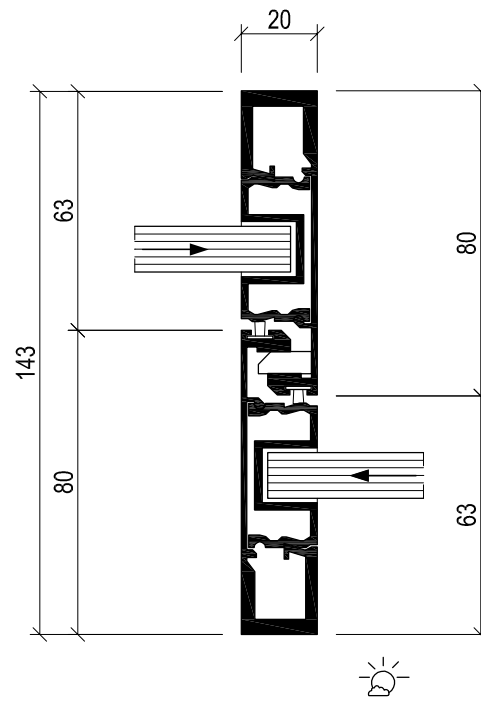
Horizontal section Labyrinth



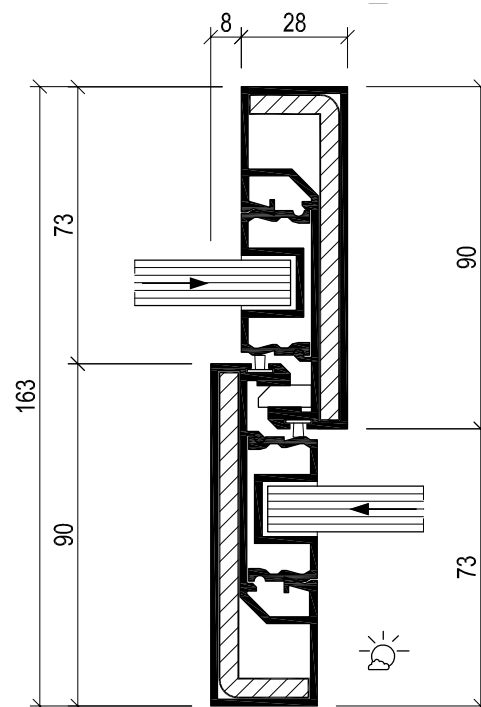
Labyrinth

M 1:2

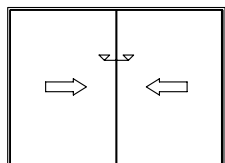
120401/120401
(CFK reinforcable)



121101/121101
steel reinforced



Sky-Frame 1

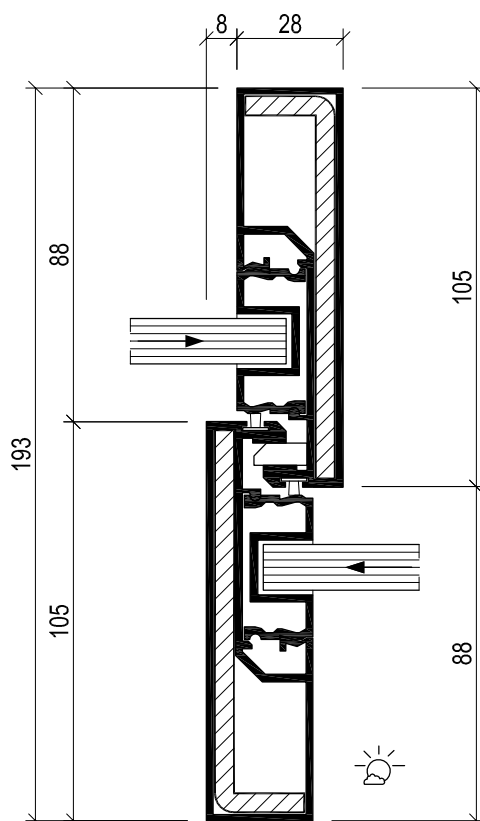


Horizontal section Labyrinth

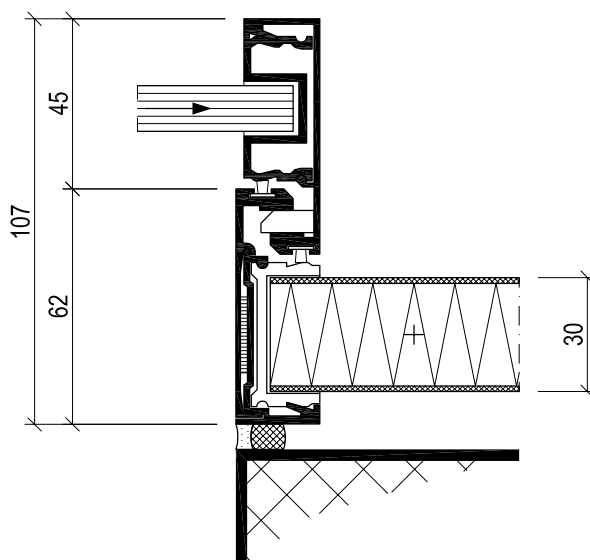
Labyrinth

M 1:2

121401/121401
steel reinforced
extra

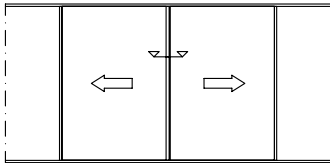


two-part
pocket-door
labyrinth



Sky-Frame 1

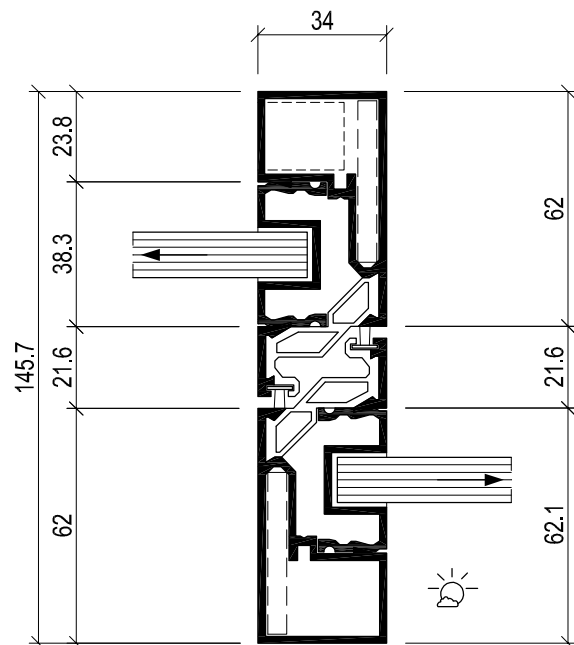
Horizontal section Centre opening



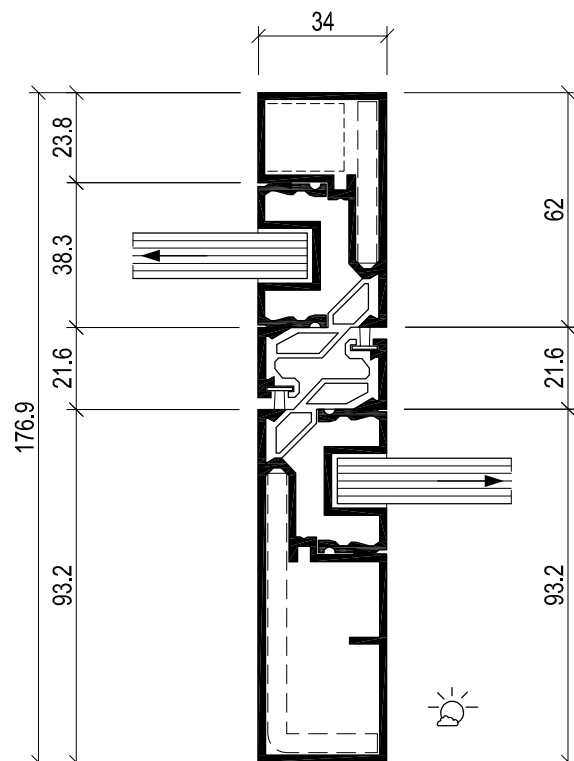
Centre opening
offset

M 1:2

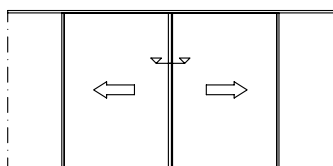
321901/321901
(steel reinforceable)



321901/322301
(steel reinforceable)



Sky-Frame 1

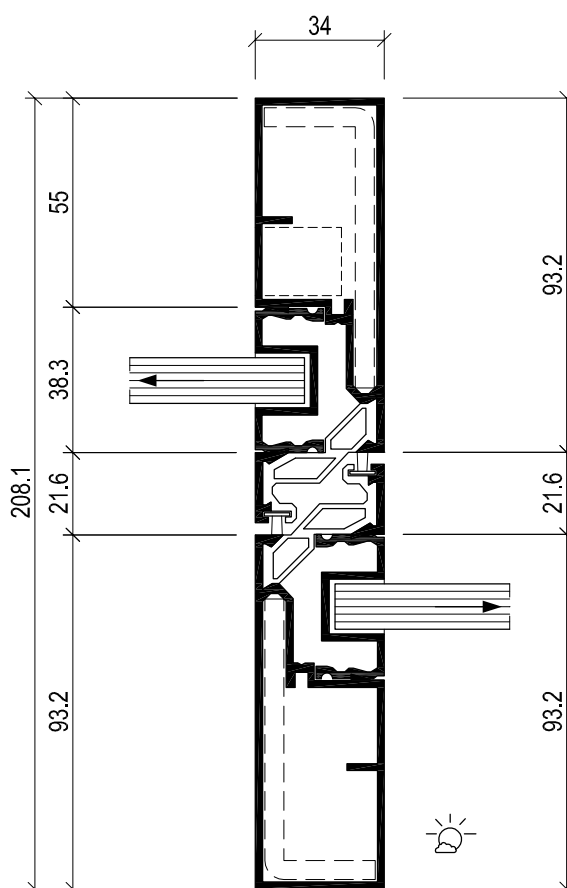


Horizontal section Centre opening

Centre opening
offset

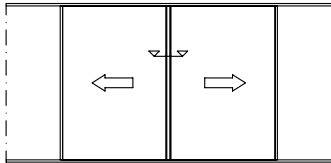
M 1:2

322301/322301
(steel reinforceable)



Sky-Frame 1

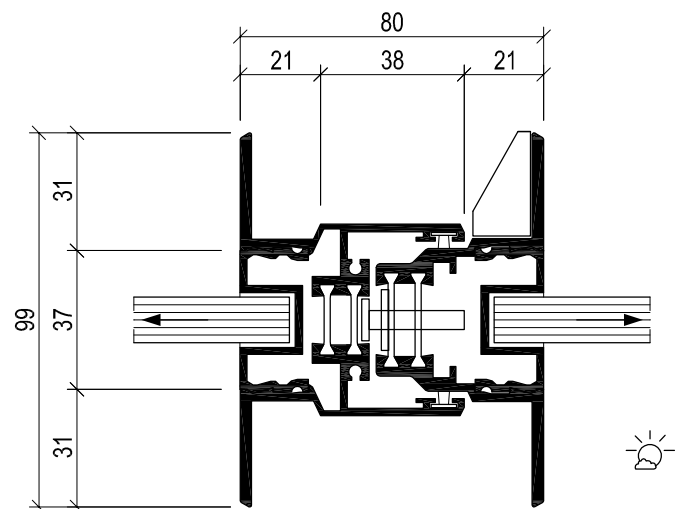
Horizontal section Centre opening



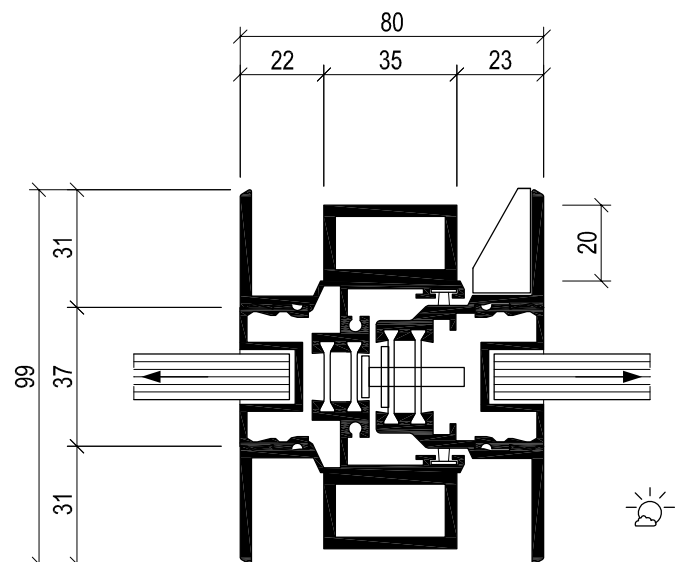
**Centre opening
on same level**

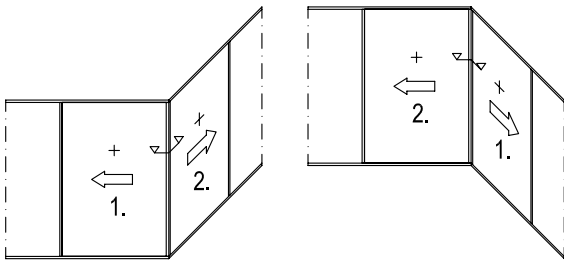
M 1:2

110101/110301



**110101/110301
reinforced**





Inside / outside corner

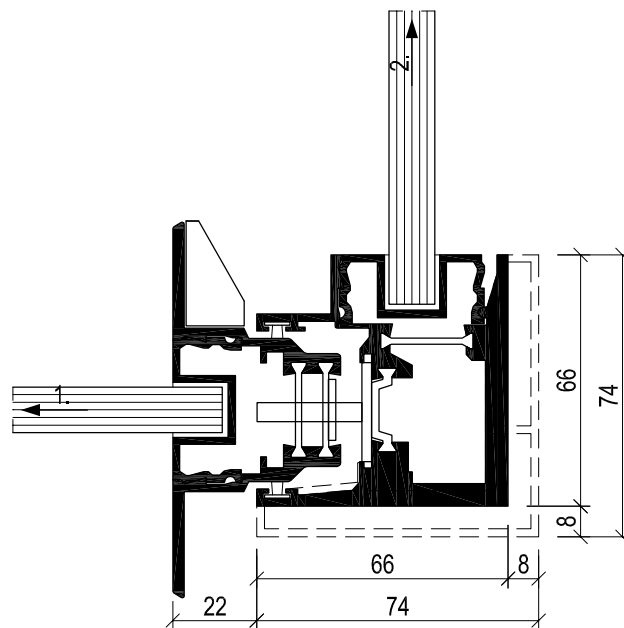
Sky-Frame 1

Horizontal section Corner opening / corner glazing

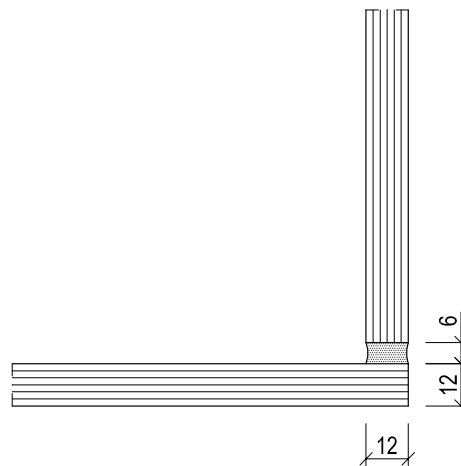
M 1:2

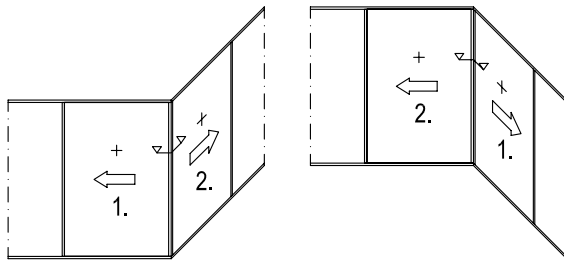
reinforced version for height > 2.5m

Corner opening
110101/110501
110101/116301



Fixed corner glazing





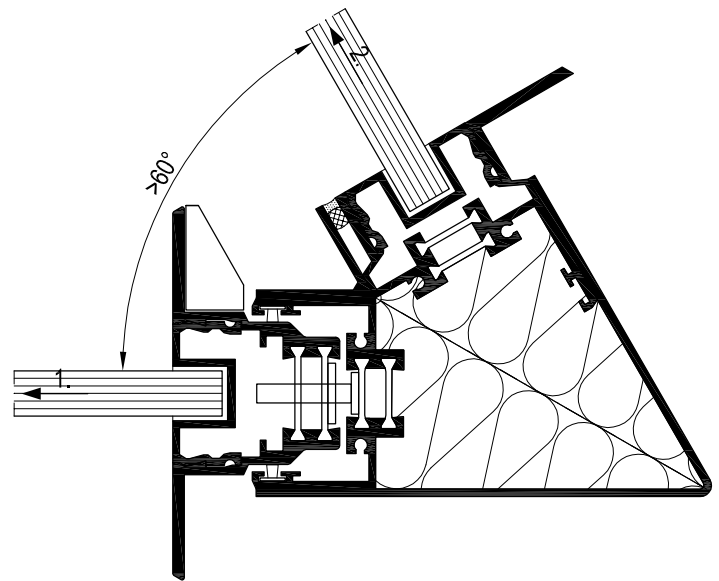
Inside / outside corner

Sky-Frame 1

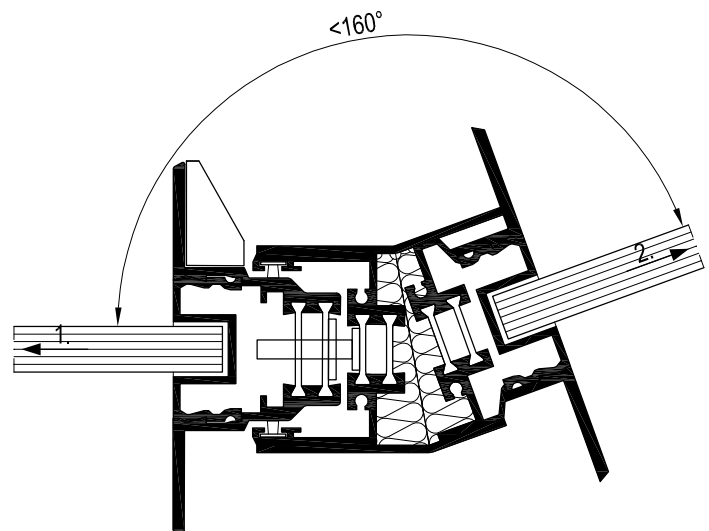
Horizontal section
Corner opening unequal to 90°

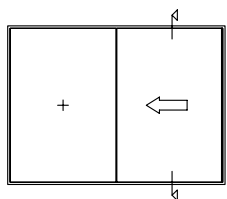
M 1:2

Corner opening
less than 90°



Corner opening
greater than 90°





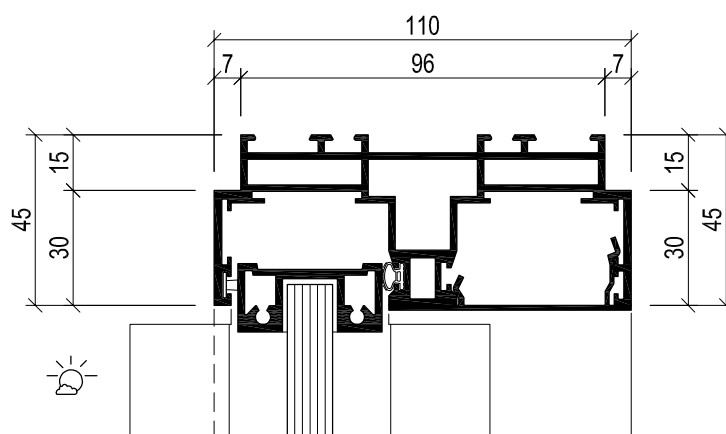
Sliding panel
outside

Sky-Frame 1

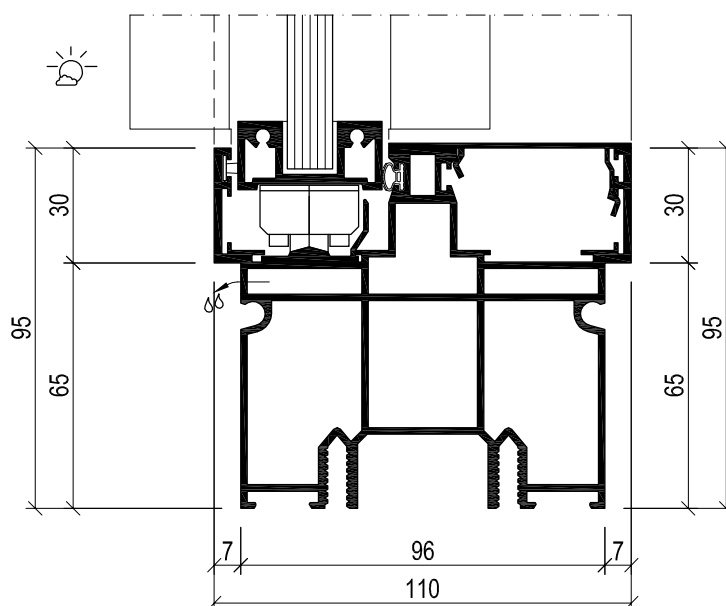
Vertical section
2-track

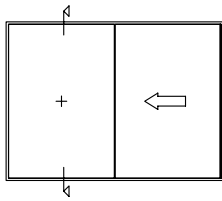
M 1:2

176501



176601





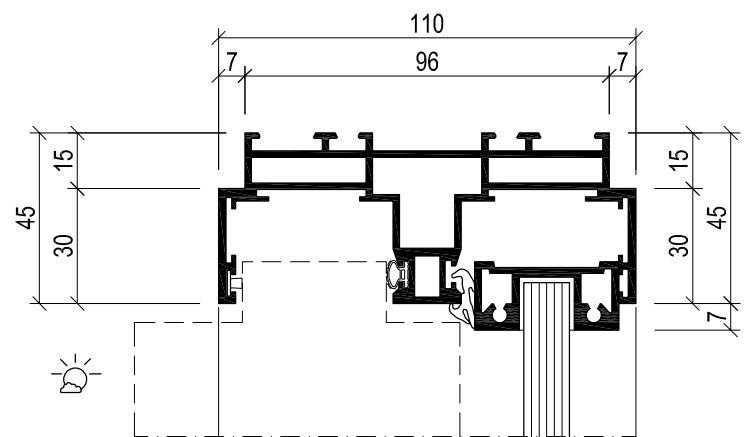
Sky-Frame 1

Vertical section 2-track

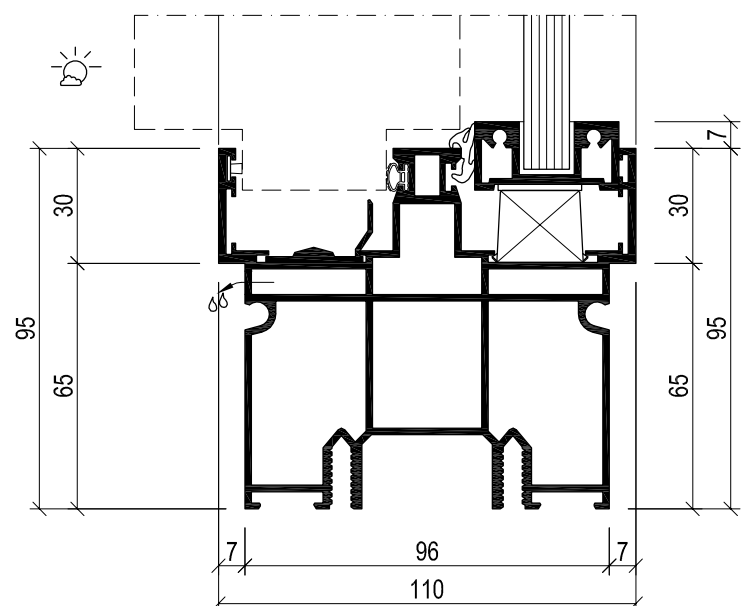
Fixed panel
inside

M 1:2

176501



176601



Sky-Frame 1

Building connections Index

Building connections

A few recommended building connections are in the following:

3.3.2.x = Wall

- .1 Niche mounting

3.3.3.x = Base

- .1 Base 75
- .2 Wooden deck
- .3 Solid floor with gutter
- .4 Solid floor with slot gutter

3.3.4.x = Soffit

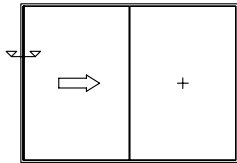
- .1 Niche mounting

3.3.5.x = Soffit with electric drive

- .1 2-track
- .2 Niche, minimum dimensions

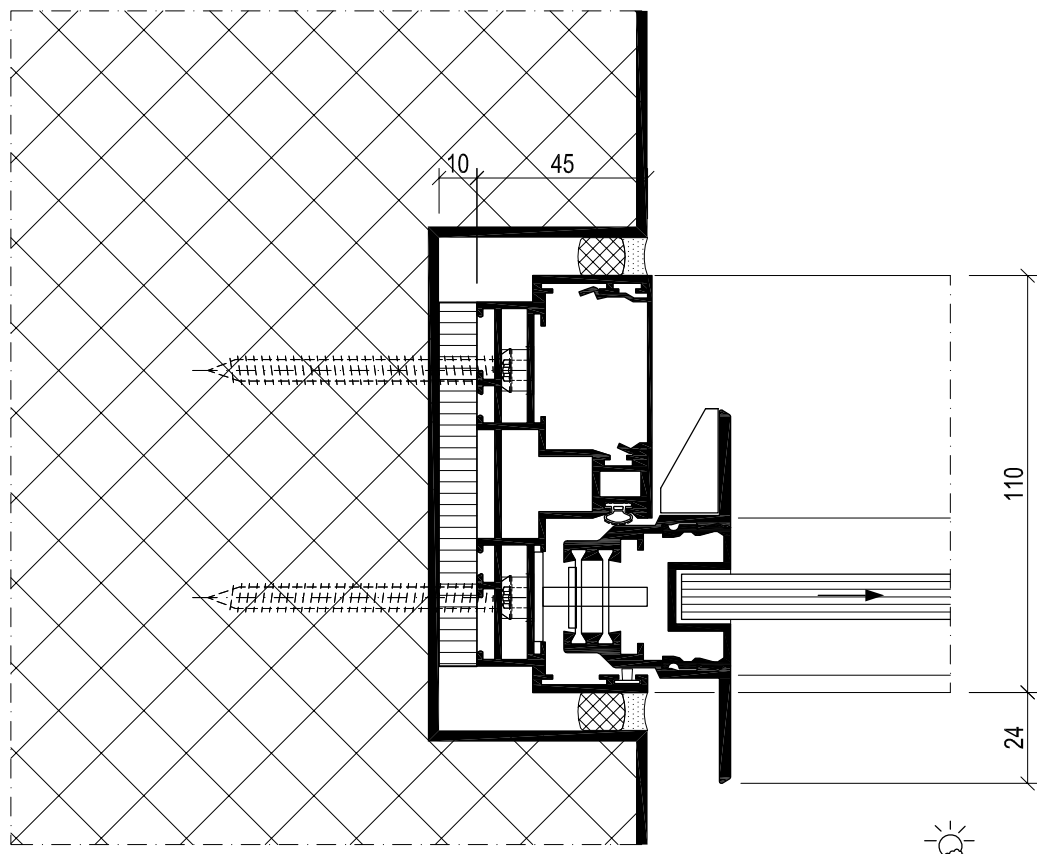
Sky-Frame 1

Building connection Wall



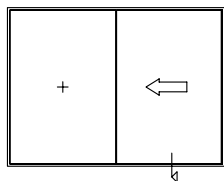
Wall detail
niche mounting

M 1:2

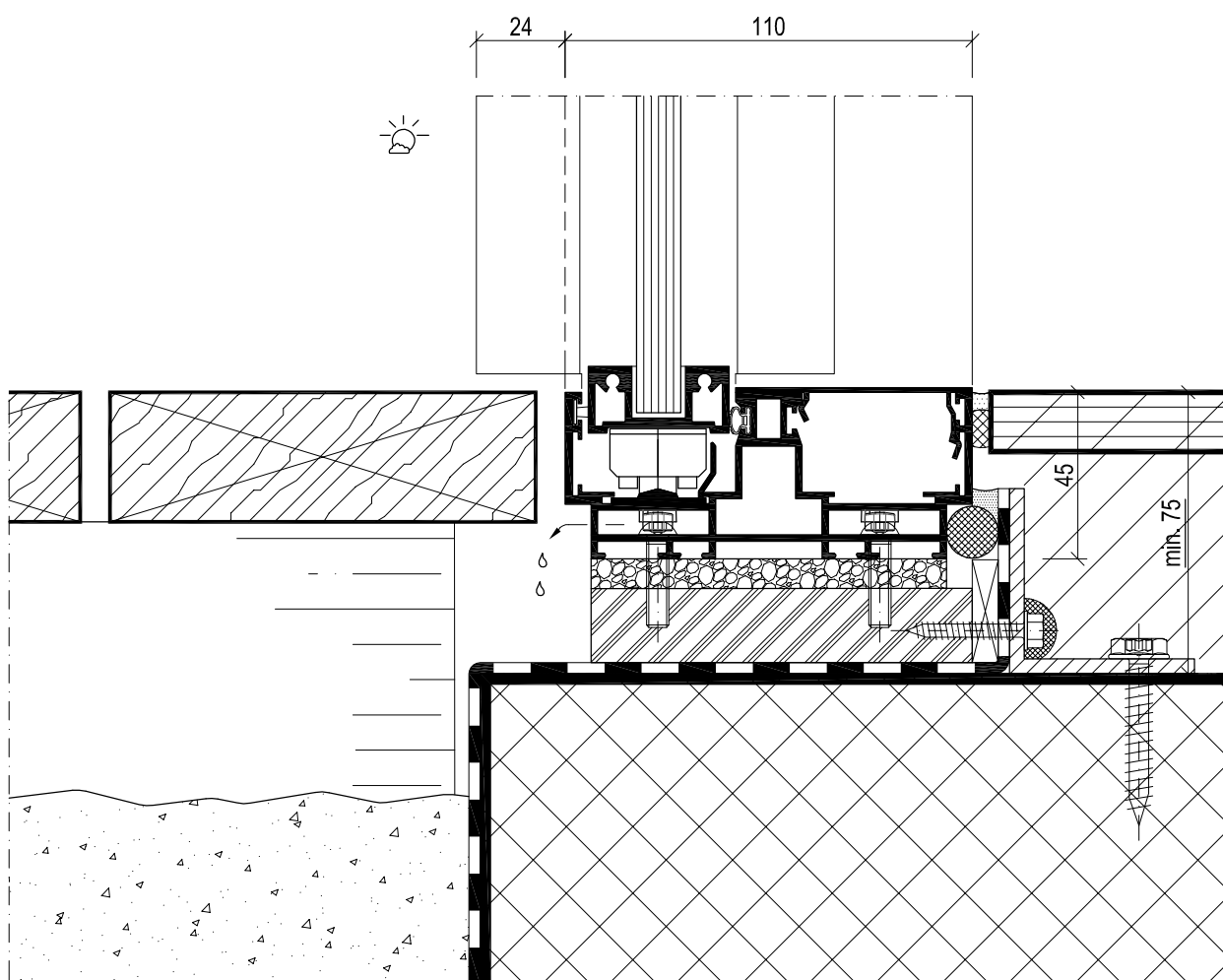


Sky-Frame 1

Building connection Base 75

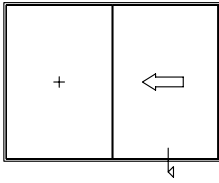


Base 75 M 1:2



Sky-Frame 1

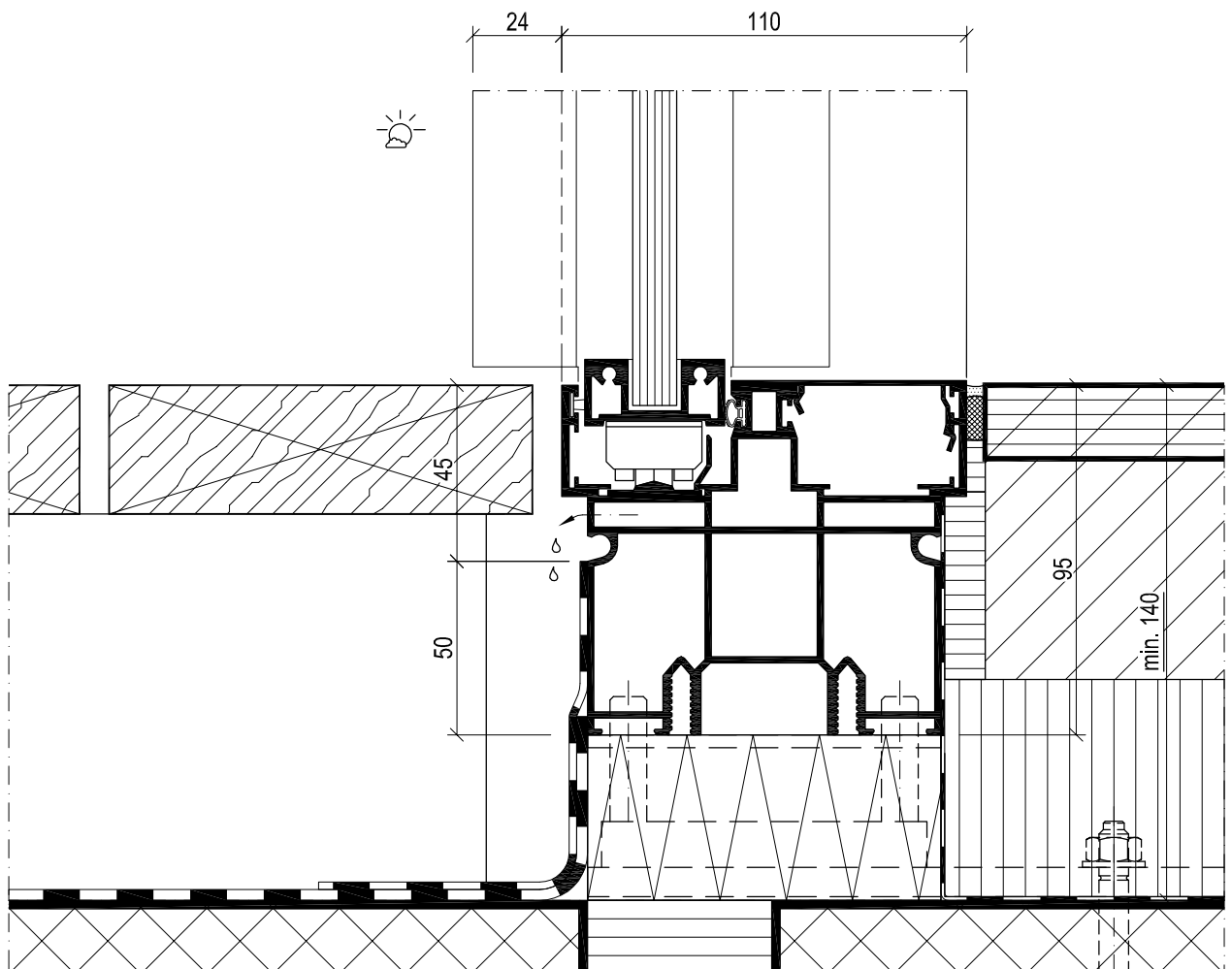
Building connection Base



**Base detail
with wooden deck**

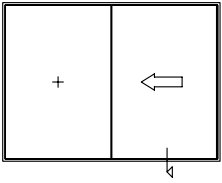
M 1:2

without gutter



Sky-Frame 1

Building connection Base

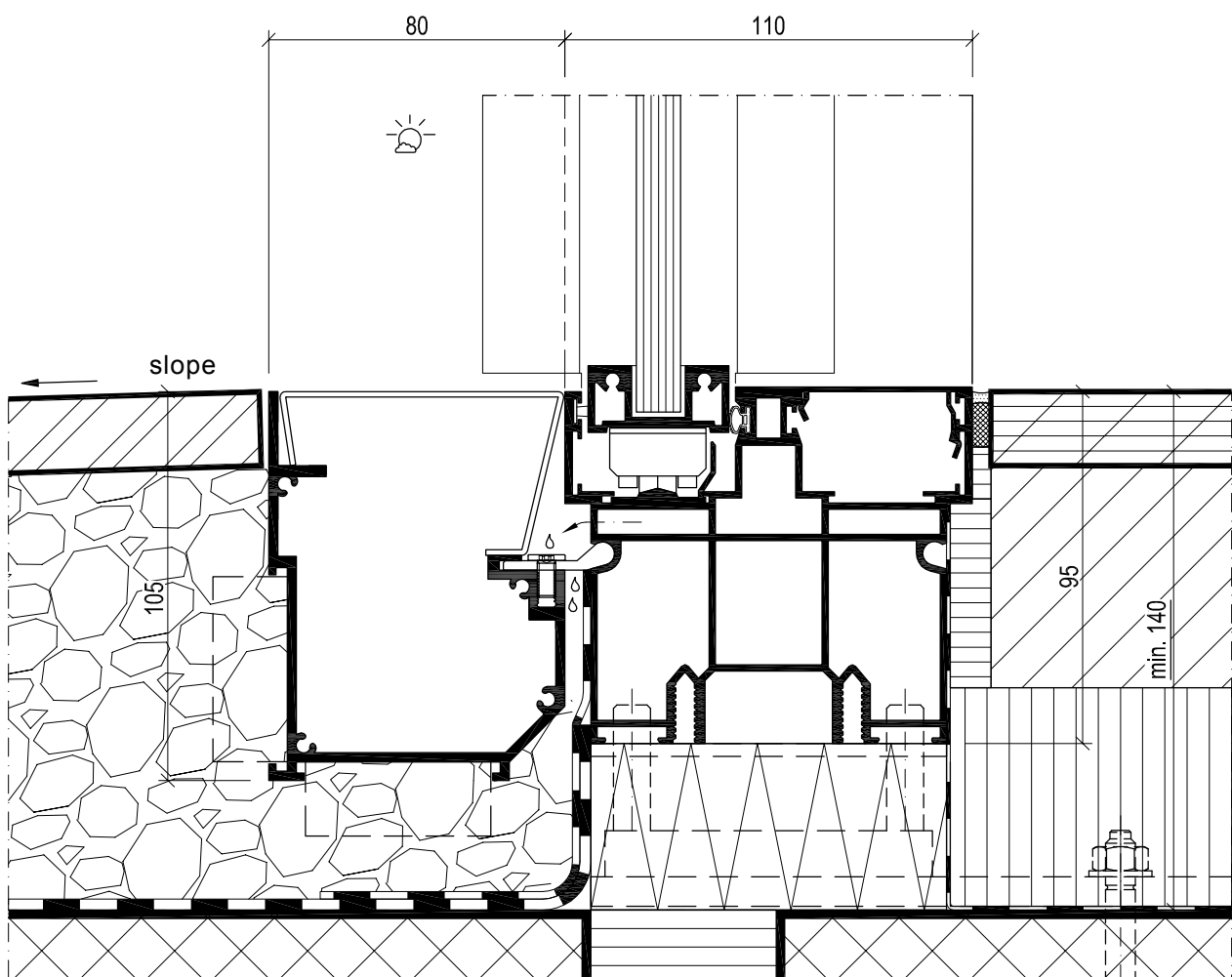


**Base detail
with solid floor**

M 1:2

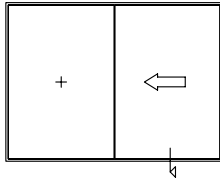
**gutter and
stainless steel cover**

**drain socket
to the side / downward**



Sky-Frame 1

Building connection Base

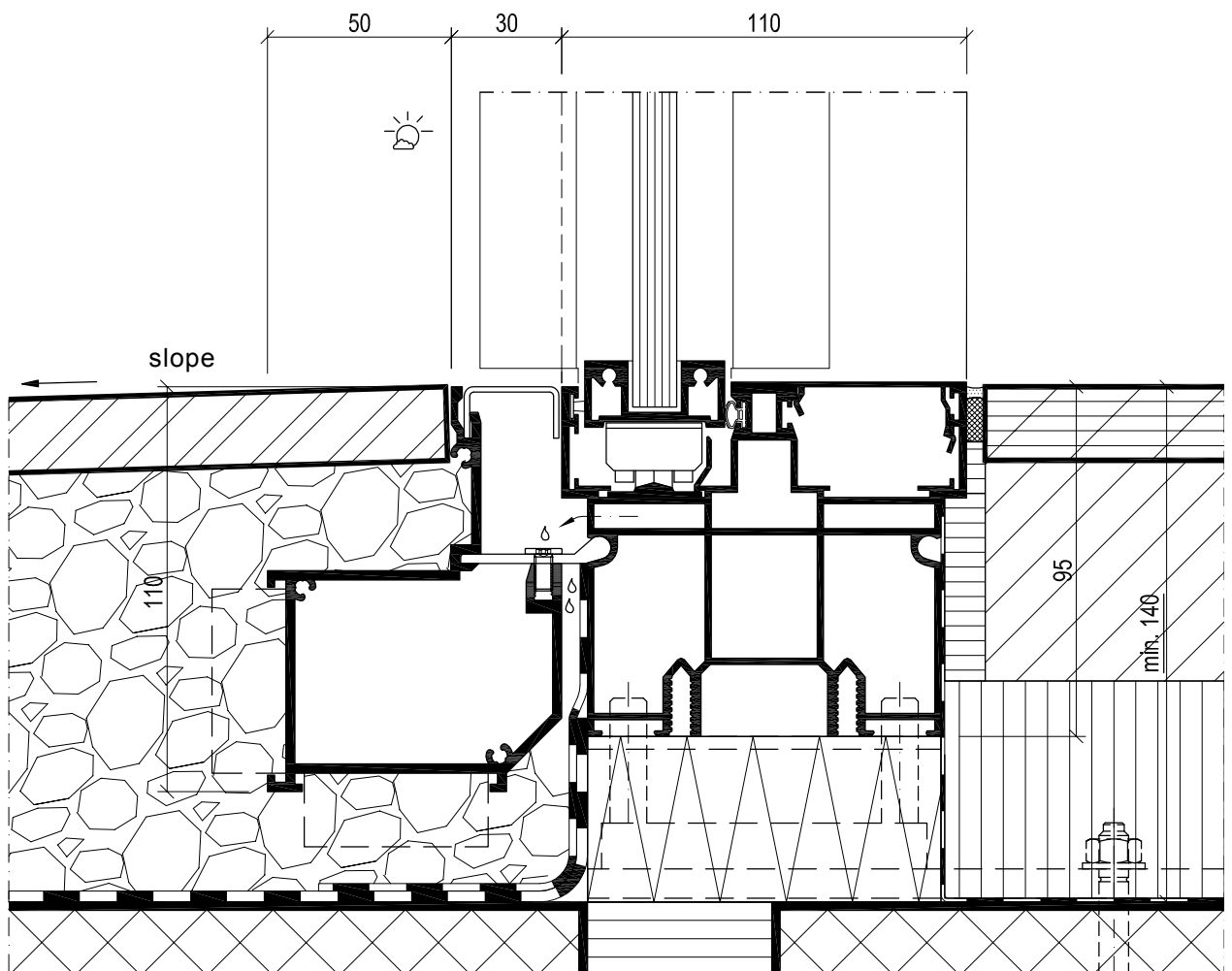


**Base detail
with solid floor**

M 1:2

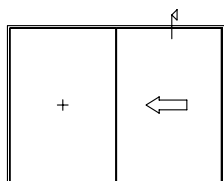
**slot gutter and
stainless steel cover**

**drain socket
to the side / downward**



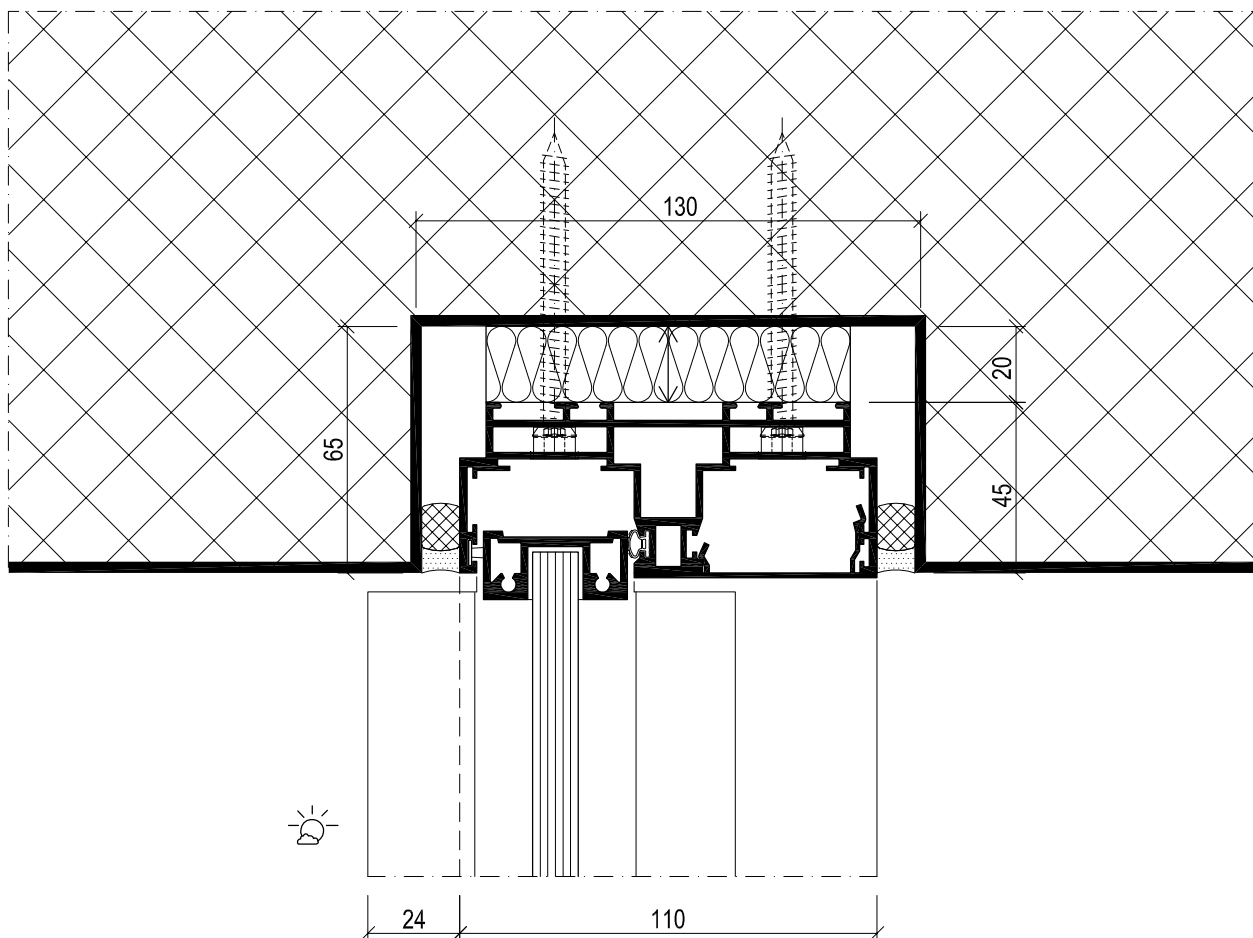
Sky-Frame 1

Building connection Soffit

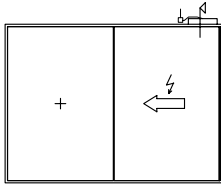


**Soffit detail
niche mounting**

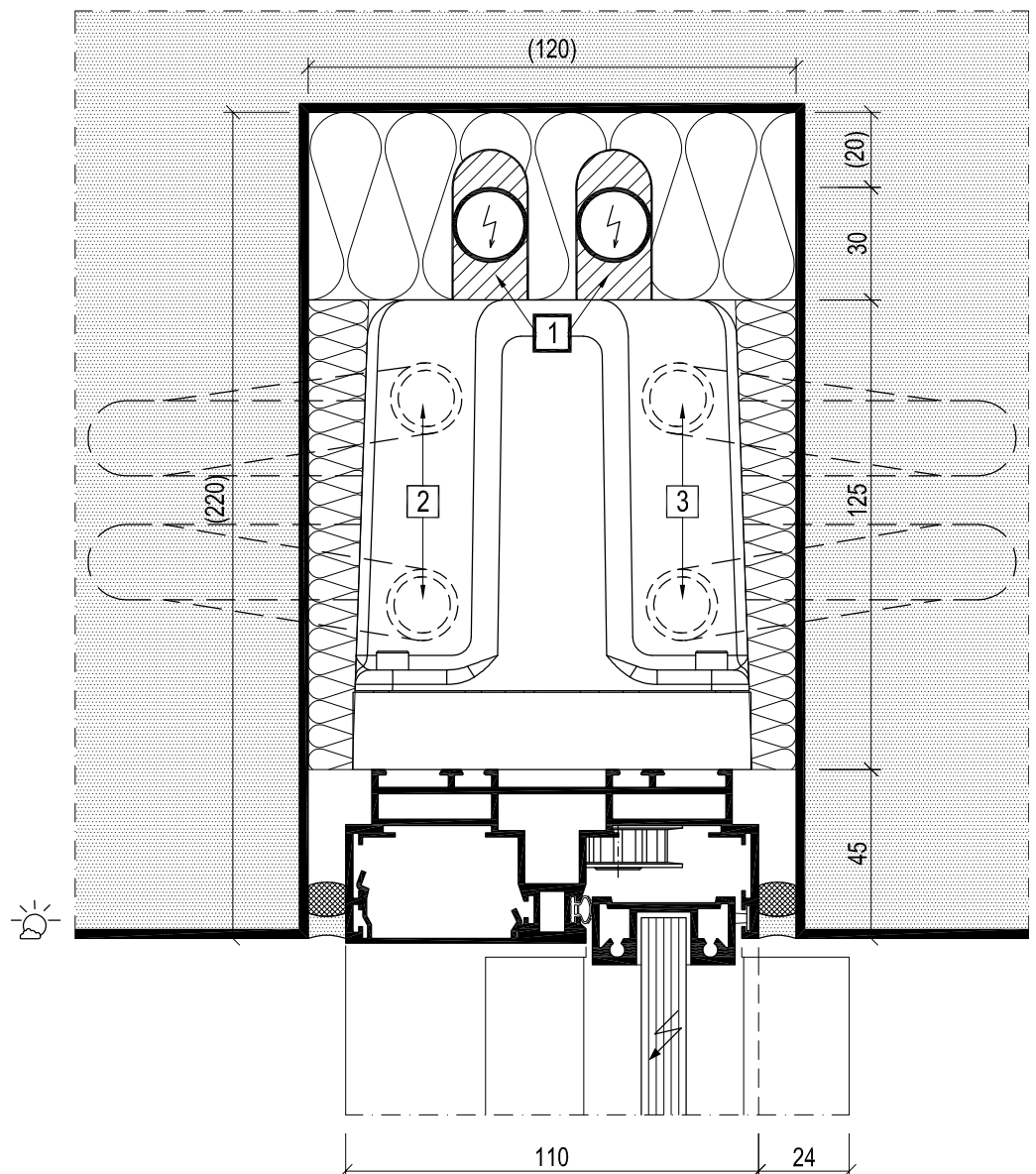
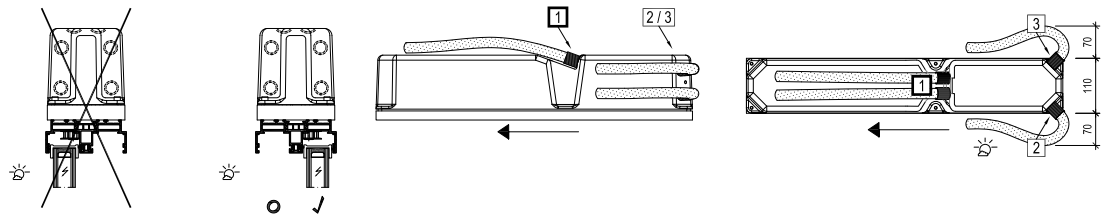
M 1:2



Building connection
Soffit with electric drive, 2-track



Connection options for M20 conduits at pos 1/2/3.
Standard for single drive = **Position 1 (above)**





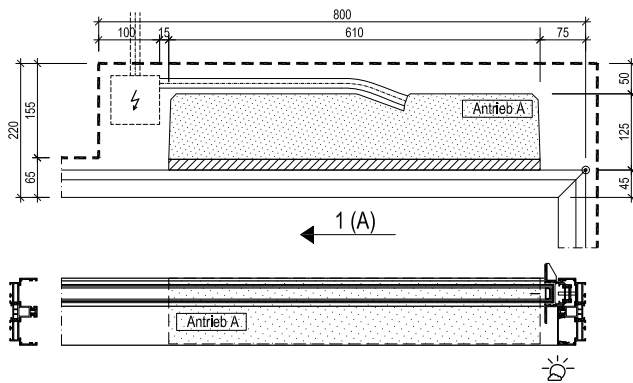
Sky-Frame 1

Building connection Soffit with electric drive, niche dimensions

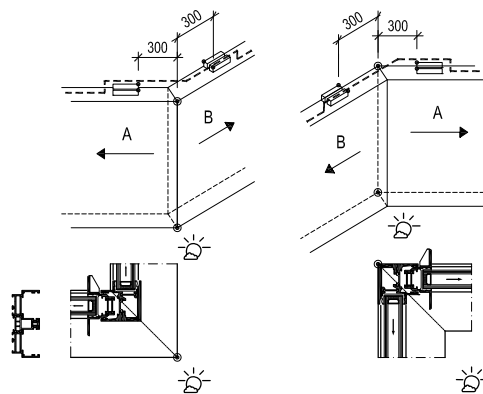
Installation situation

Niche, minimum dimensions:

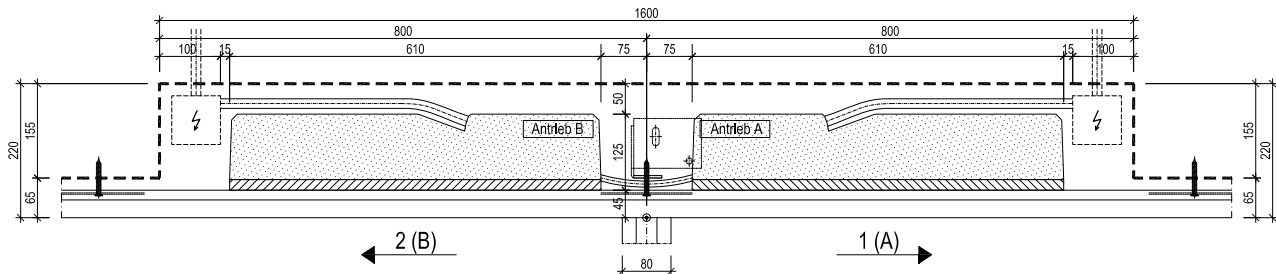
Single drive:



Edge-situations:



Telescope-drive:



Sky-Frame 1

Classifications (Scopes)

Classifications

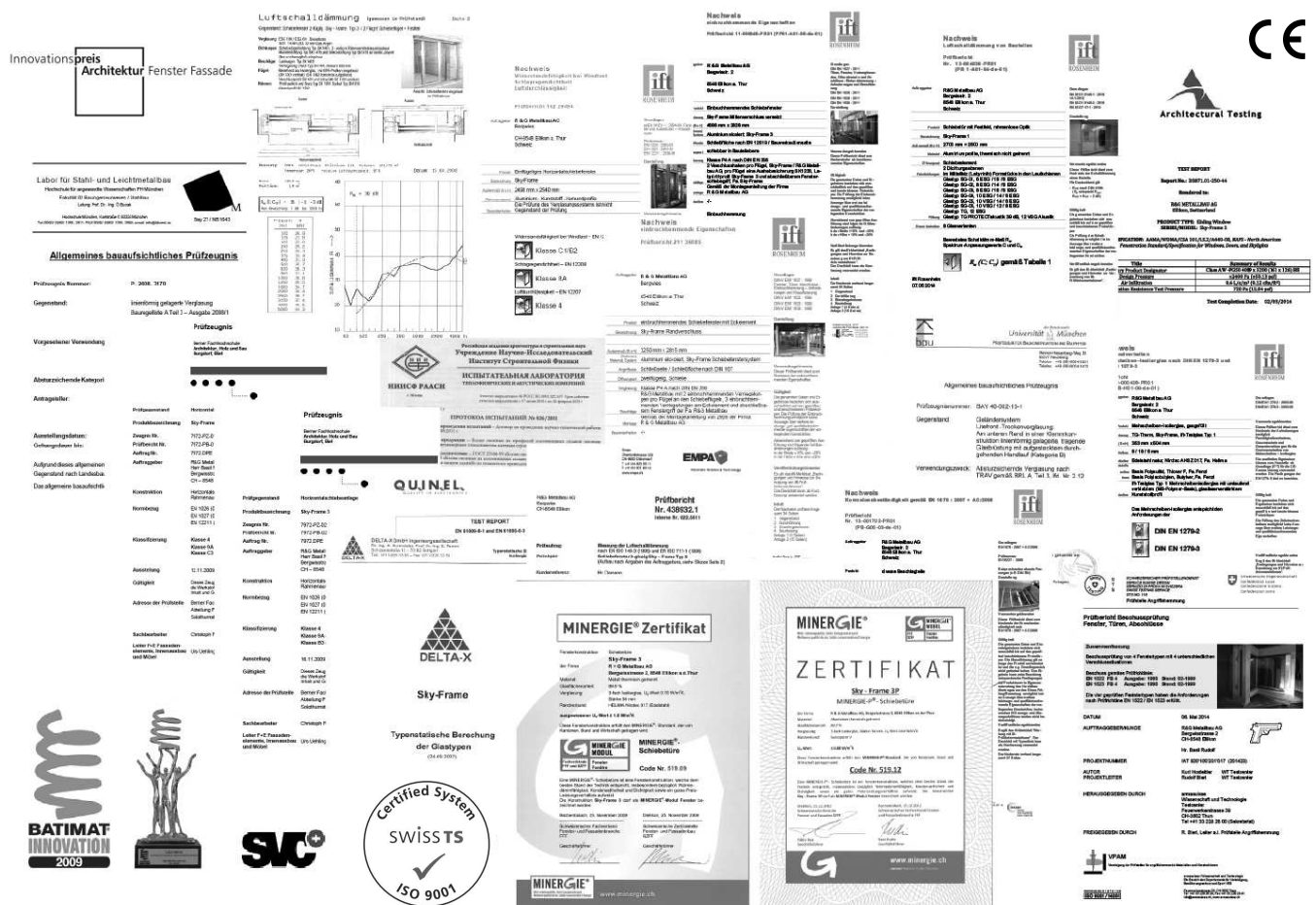
In order to achieve tested requirements (classifications), certain scopes must be taken into consideration at the pre-planning phase:

- min. / max. element sizes
- permissible opening types
- tested profile combination

Required classifications are needed for pre-planning.

Certificates

Some certificates from Sky-Frame 1 - 3:



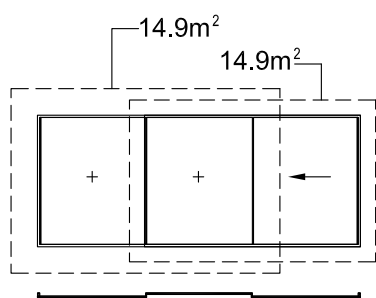
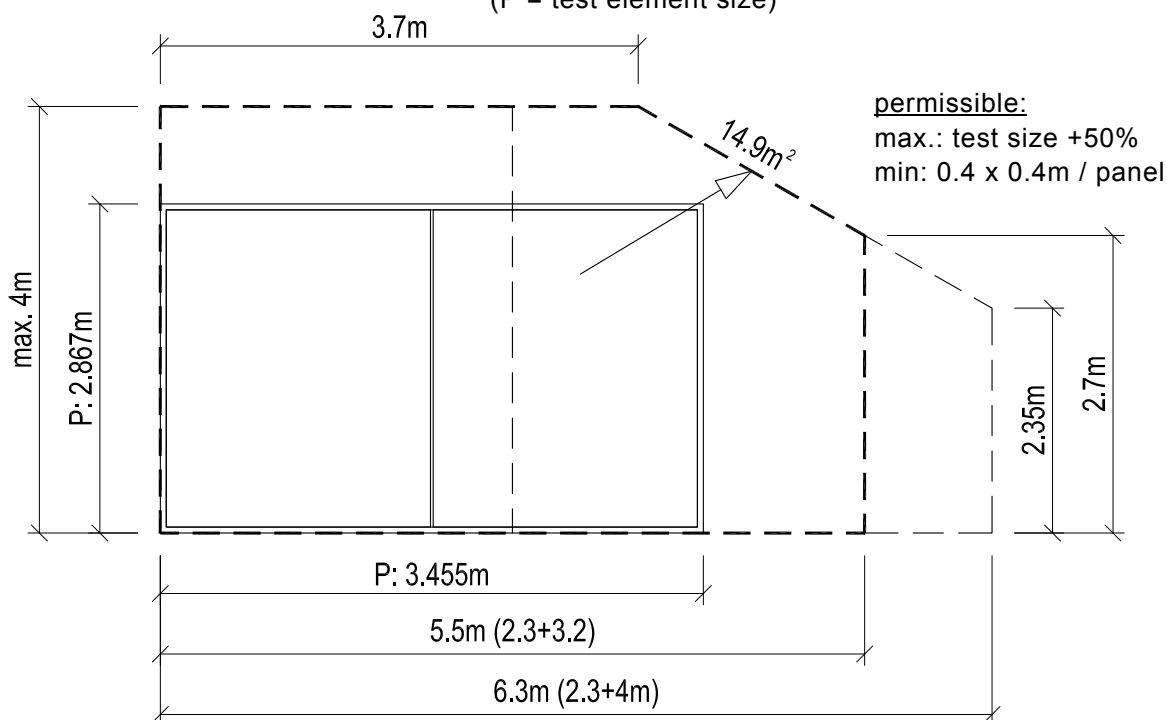


Sky-Frame 1

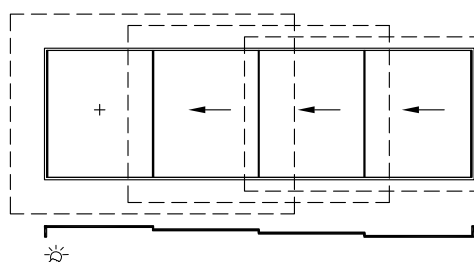
Information concerning scope Water tightness

Water tightness

The following maximum element sizes (over 2 panels) are within the scope of the classification:
(P = test element size)



Always calculate 2 panels together for the maximum area.



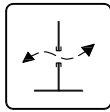
Class

Water tightness, class = 9A
in acc. with EN 12208 (600 Pa)



Prerequisites

- max. 14.9m² area (over 2 panels)
- inner track with fixed panel
- corner or centre openings are not tested

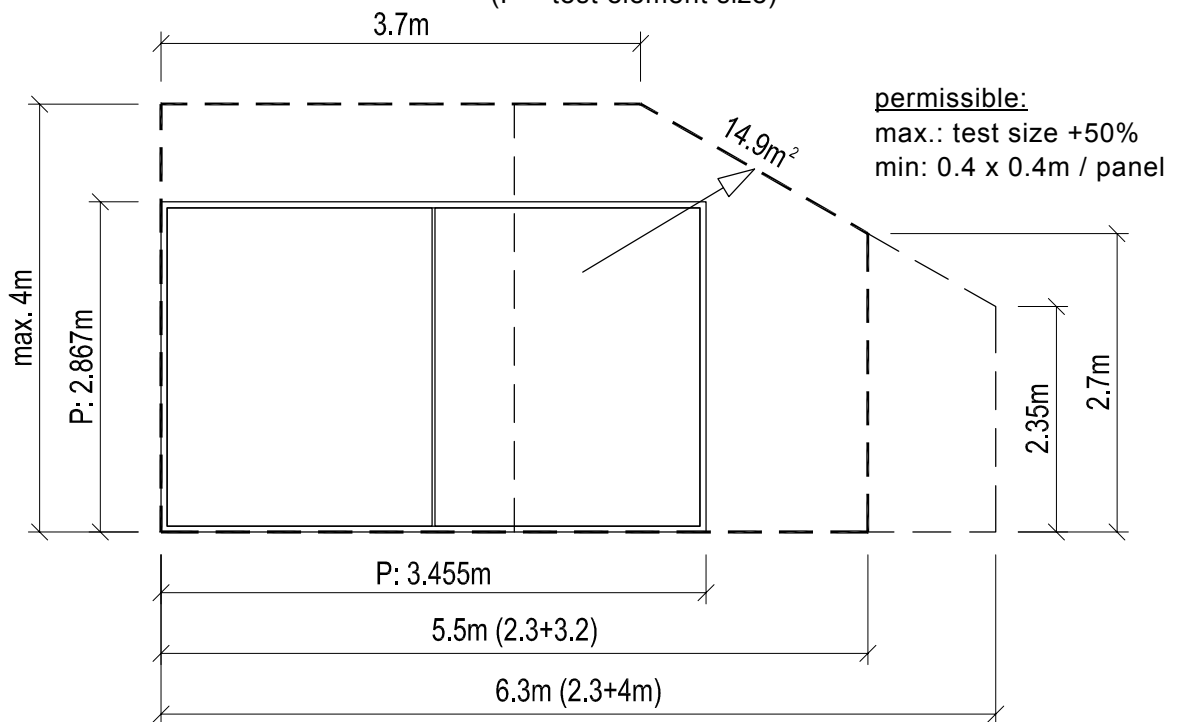


Sky-Frame 1

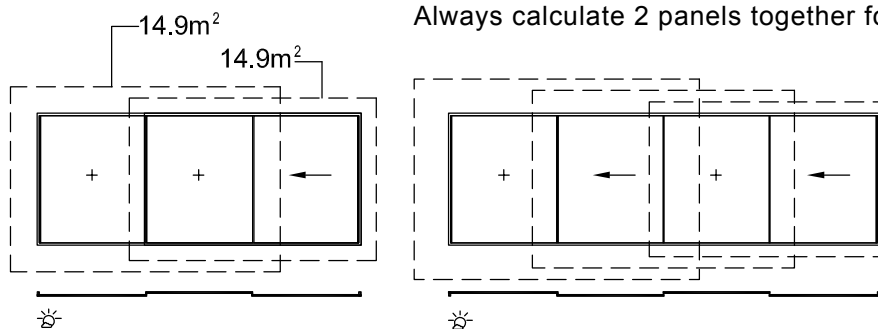
Information concerning scope Air permeability

Air permeability

The following maximum element sizes (over 2 panels) are within the scope of the classification:
(P = test element size)



Always calculate 2 panels together for the maximum area.



Class

Air permeability, class = 4
in acc. with EN 12207 (600 Pa)



Prerequisites

- 2-track system
- inner track with fixed panel
- max. 14.9m² area (over 2 panels)
- at least half of the area as fixed elements
- corner or centre openings are not tested



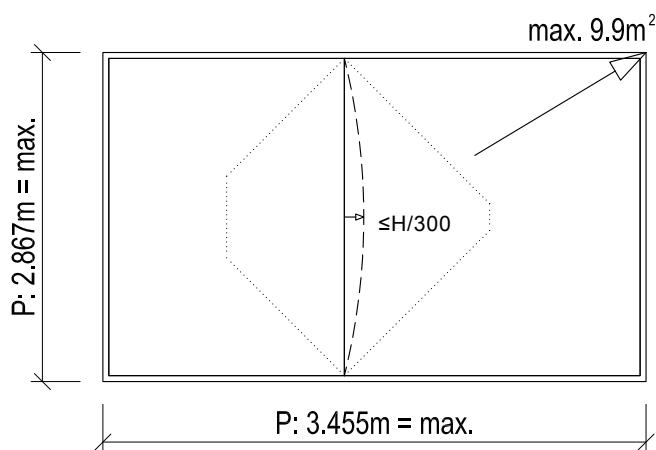
Sky-Frame 1

Information concerning scope Resistance to wind load

Resistance to wind load

The following maximum element sizes (over 2 panels) are within the scope of the classification:
(P = test element size)

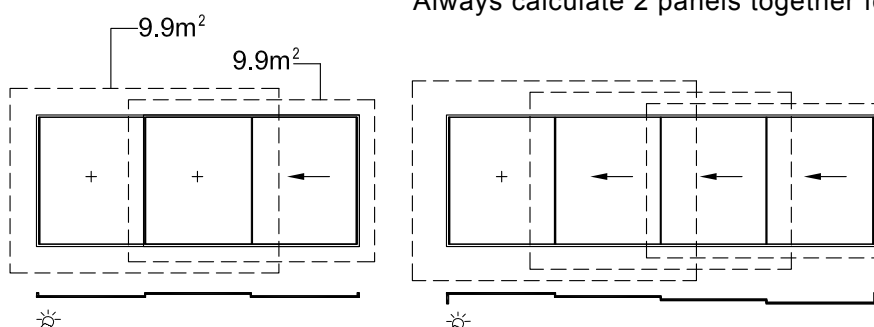
Neither the height, the length nor the area must be exceeded!



permissible:
max.: test size +0%
min: 0.4 x 0.4m / panel

The side position of the mullion can be freely selected.

Always calculate 2 panels together for the maximum area.



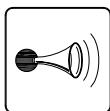
Class

Resistance to wind load, class = C3
in acc. with EN 12210 ($\leq H/300$ at 1200 Pa)



Prerequisites

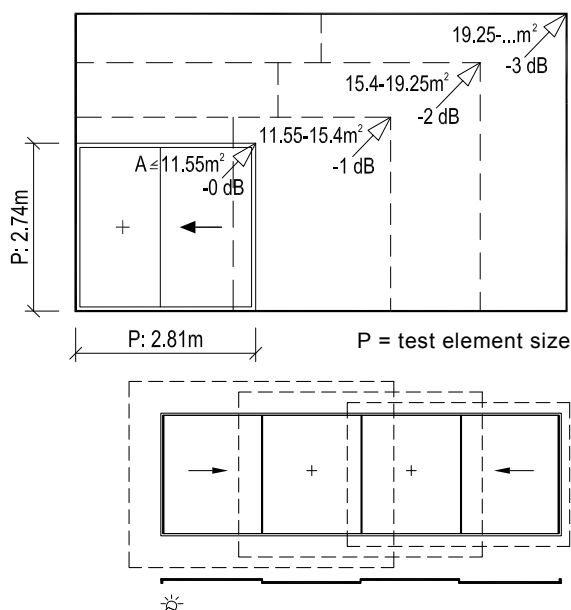
- max. 9.9m² area (over 2 panels)
- Labyrinth: 121101/121101 + steel reinforced
- corner or centre openings are not tested



Sky-Frame 1

Information concerning scope Sound insulation

Sound insulation



Example

$$\begin{aligned} R_{w,P,Glas} &= 39 \text{ dB} \\ R_{w,P} &= 37 \text{ (-1; -2) dB} \end{aligned}$$

The sound insulation values are area-dependent. The evaluated sound reduction $R_{w,P}$ must be reduced on the basis of the window area (EN 14351-1 Tab. B3). This value is used for the CE labelling.

<u>Area reduction:</u>	up to 11.55m ² = -0 dB
	11.55-15.4m ² = -1 dB
	15.4-19.25m ² = -2 dB
	>19.25m ² = -3 dB

In order to determine the actual sound insulation value R_A the previously reduced value is reduced by the spectrum adaptation value C or C_{tr} (depending on the situation).

Depending on the choice that is made, the actual sound insulation value is referred to as:

$$R_A = R_w + C \quad \text{oder} \quad R_{A,tr} = R_w + C_{tr}$$

For the maximum area always calculate 2 panels together.

2-panel element: 1x sliding + 1x fixed panel
Width of elements: each 2.1m (2x2.1=4.2m) x height 2.5m

Test value glass: $R_{w,P,Glas} = 39 \text{ dB}$ (LSG 12-2)
Test value frame*: $R_{w,P}(C, C_{tr}) = 37 \text{ (-1; -2) dB}$

* = Frame in installed state with test glass
according to EN ISO 10140-1+2 and EN ISO 717-1

Window area: $A_w = 10.5\text{m}^2$ (2-panels together)
Area reduction: since the area $A_w < 11.55\text{m}^2 \rightarrow -0 \text{ dB}$

Sound reduction for CE labelling:

$$R_{w(A)} = 37 - 0 \text{ dB} \text{ (-1; -2)} \rightarrow R_{w(A)} = 37 \text{ (-1; -2) dB}$$



Example 1: Location highway \rightarrow Choice: $C = -1 \text{ dB}$
 $R_A = R_{w(A)} + C = 37 + (-1) \rightarrow R_A = 36 \text{ dB}$

Example 2: Location airport \rightarrow Choice: $C_{tr} = -2 \text{ dB}$
 $R_{A,tr} = R_{w(A)} + C_{tr} = 37 + (-2) \rightarrow R_{A,tr} = 35 \text{ dB}$

Prerequisites

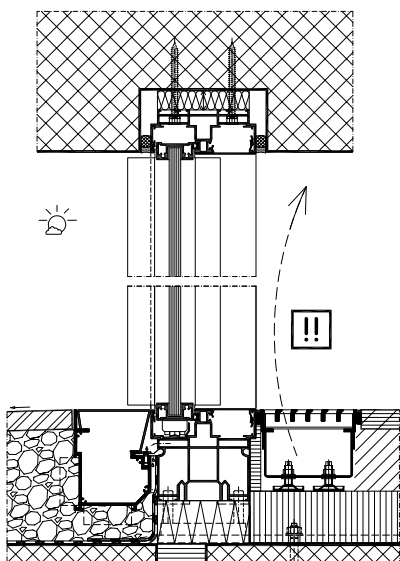
- 2-track system
- at least half of the area as fixed elements
- corner or centre openings are not tested

Sky-Frame 1

Terms of use

Wet rooms (pool) with alarm and el. drives

Systems in wet rooms (pool)



Sky-Frame sliding windows can be used in wet rooms such as swimming pools / in the pool area.

Multi-track systems are possible with Sky-Frame 1 with the sliding elements on the inner or outer track, provided that the following usage conditions are met.

Conditions for use in wet rooms:

- Use of Sky-Frame 1 in wet rooms (pool) only possible to a limited extent (climate-dependent = only southern countries where temperature never drops below 5°C: $T_{\min} > +5^{\circ}\text{C}$)
- Systems in wet rooms must have a permanent inside warm / dry air curtain
- Surfaces for wet rooms / near the sea:

anodized layer thickness: **25my**

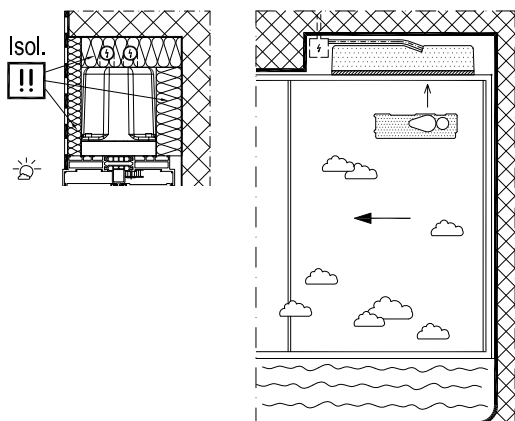
powder-coated systems: **with pre-anodizing**

Wet rooms + alarm components

Alarm components can be used in wet rooms, as long as the following usage conditions are met:

- All cable-carrying tubes must be sealed vapour-proof on site

Wet rooms + electric drive



Sliding elements with drive are only permitted on the inner tracks due to the system (never on the outmost track).

Tests in a climatic test chamber have shown that no condensation develops in the drive box due to the additional sealing measures:

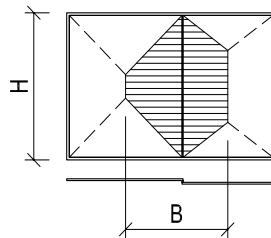
- Drive box must be insulated all around
- Additional placement of a special sealing insert in the drive housing by the factory
- All cable-carrying tubes must be sealed vapour-proof on site

Sky-Frame 1

Statics

Structural statics tables

Profile dimensions



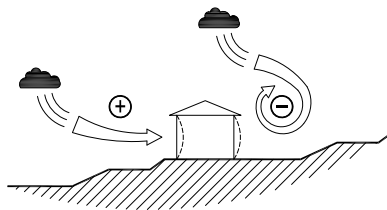
The profile dimensions are based on the following influence factors:

Element height (H), effective width (B), wind load (q)

The effective width, which the wind affects, is combined from half the left and right field width.

The effective width (axis-axis) for symmetric field widths equals one wing width.

Wind loads



The tables show graphs for four wind loads:

$$q = 0.5 \text{ kN/m}^2$$

$$q = 0.9 \text{ kN/m}^2$$

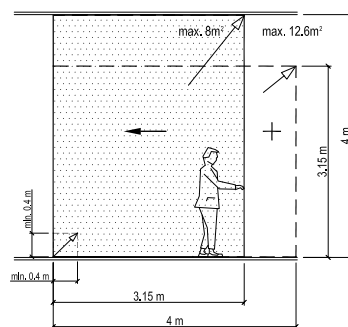
$$q = 1.3 \text{ kN/m}^2$$

$$q = 2.0 \text{ kN/m}^2$$

They are dependent on the wind zone, depending on the building location, the terrain situation, building height, building form and the building situation.

The actual wind loads must be clarified in advance.

Profile selection



Wing sizes that are below the corresponding profile type curve meet the structural statics requirements.

The maximum dimensions of the glasses are:

Sliding elements: $W \times H = \text{max. } 3.15\text{m} \times 4\text{m}$ (max. 8m^2)

Fixed elements: $W \times H = \text{max. } 3.15\text{m} \times 4\text{m}$ (max. 12.6m^2)

The designation **+CFK** means that the profile combination is reinforced with additional carbon fibre strips and can therefore resist higher wind loads.

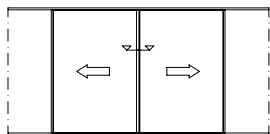
Note

The statics diagrams do not replace the project-specific structural statics calculations. The country-specific standards apply.

Sky-Frame 1

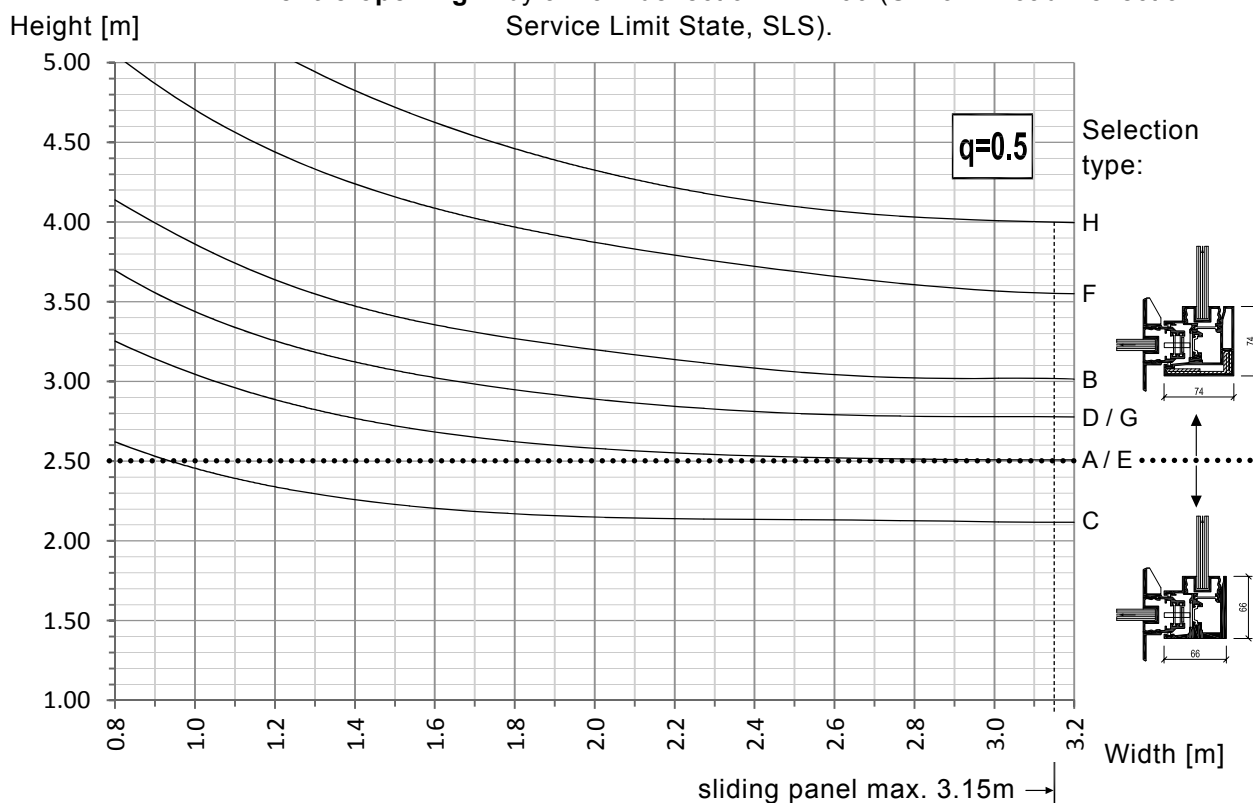
Statics

Centre opening - wind load $q=0.5 \text{ kN/m}^2$

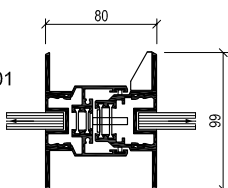


STATICS table
Centre opening

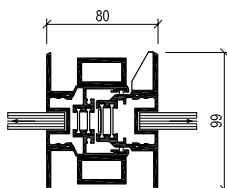
Selection of the vertical profiles at a wind load of 0.5 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



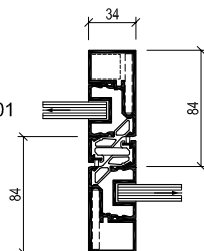
Typ A
110101/110301



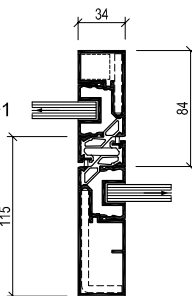
Typ B
11011/110301
+AL.



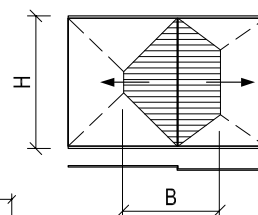
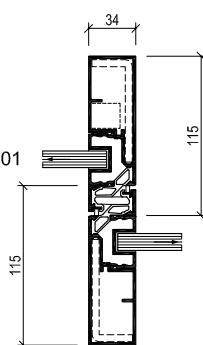
Typ C (D)
321901/321901
(D)=+ST.



Typ E (F)
321901/322301
(F)=+ST.



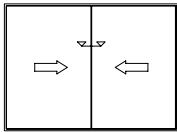
Typ G (H)
322301/322301
(H)=+ST.



Note

The structural statics diagrams do not replace the project-specific structural statics calculations.

Sky-Frame 1

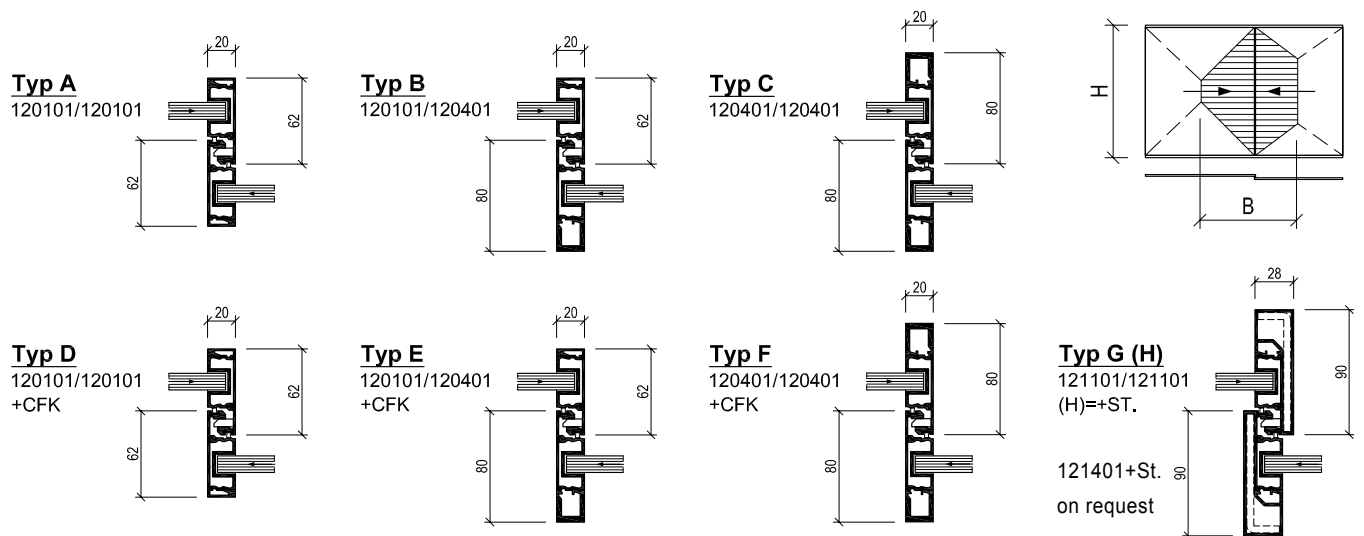
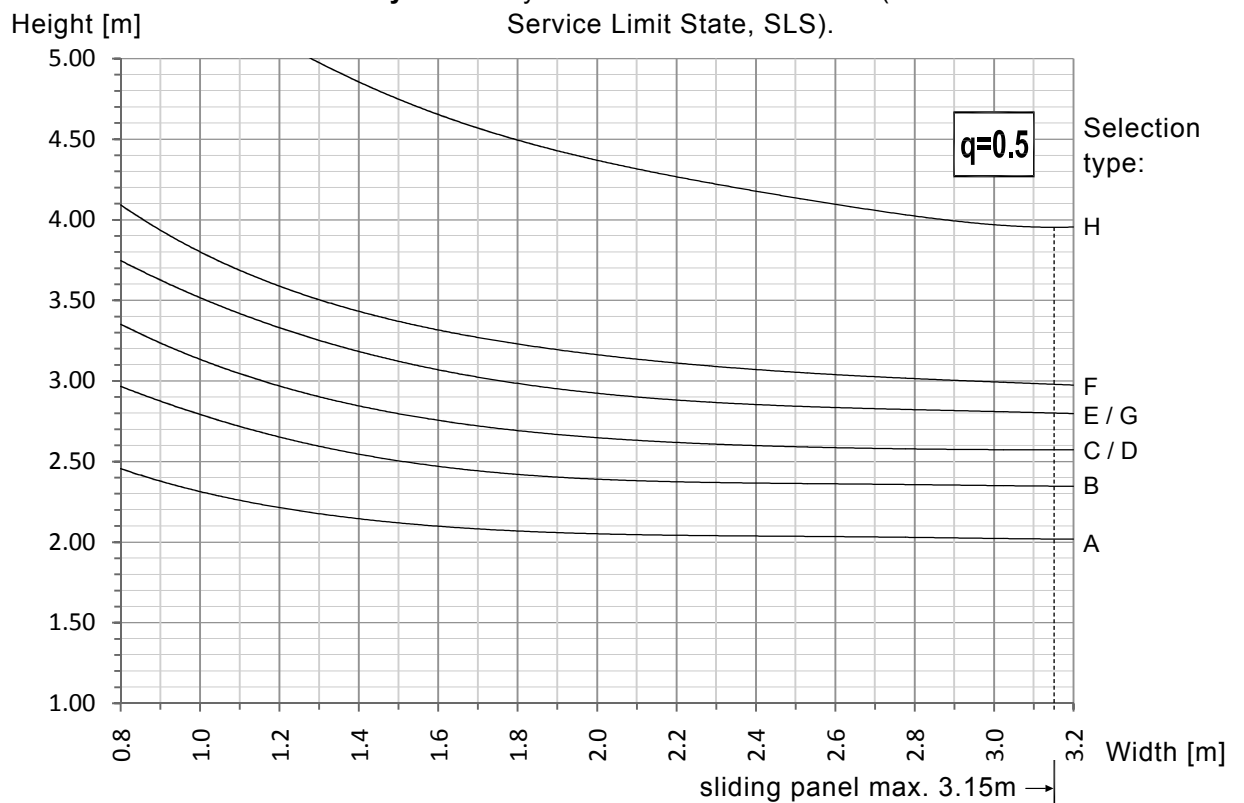


Statics

Labyrinth - wind load $q=0.5 \text{ kN/m}^2$

STATICS table Labyrinth

Selection of the vertical profiles at a wind load of 0.5 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



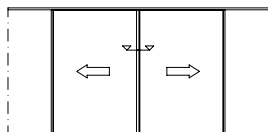
Note

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Sky-Frame 1

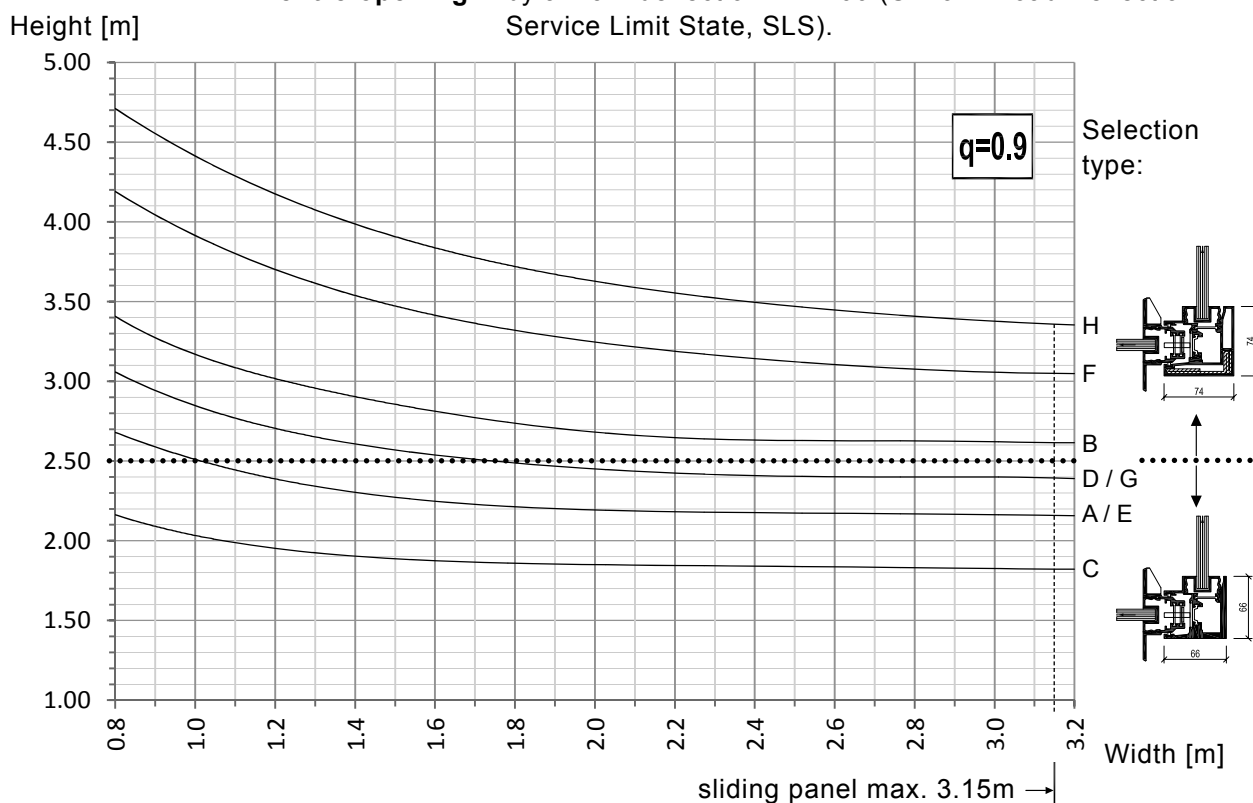
Statics

Centre opening - wind load $q=0.9 \text{ kN/m}^2$



STATICS table
Centre opening

Selection of the vertical profiles at a wind load of 0.9 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



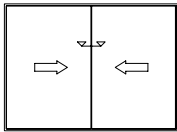
Note

The structural statics diagrams do not replace the project-specific structural statics calculations.

Sky-Frame 1

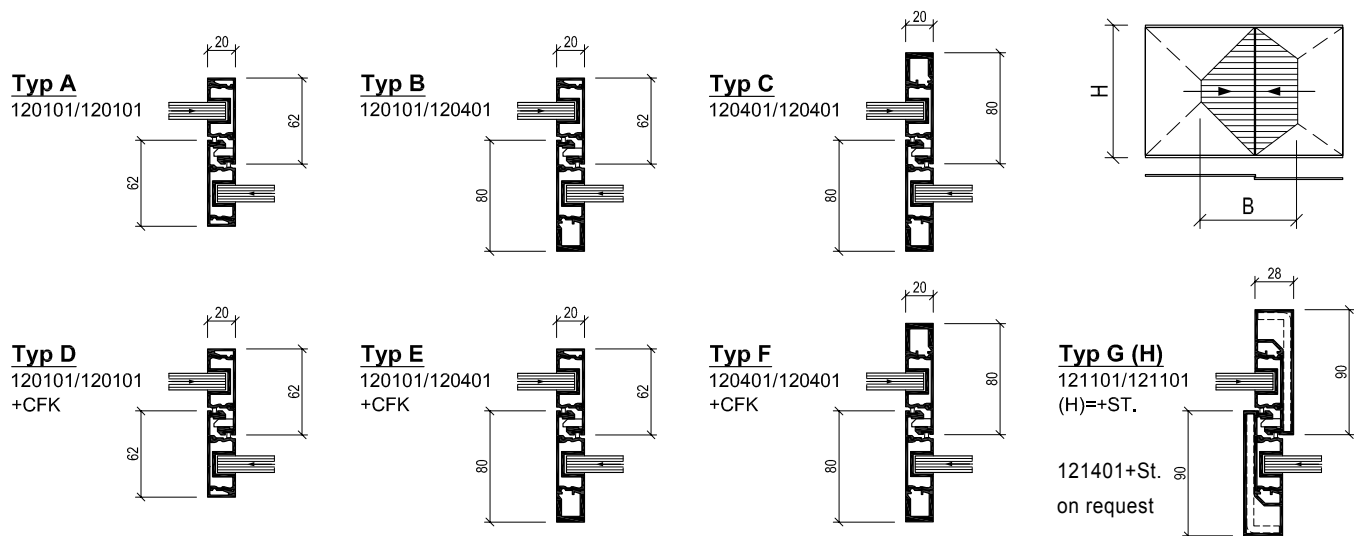
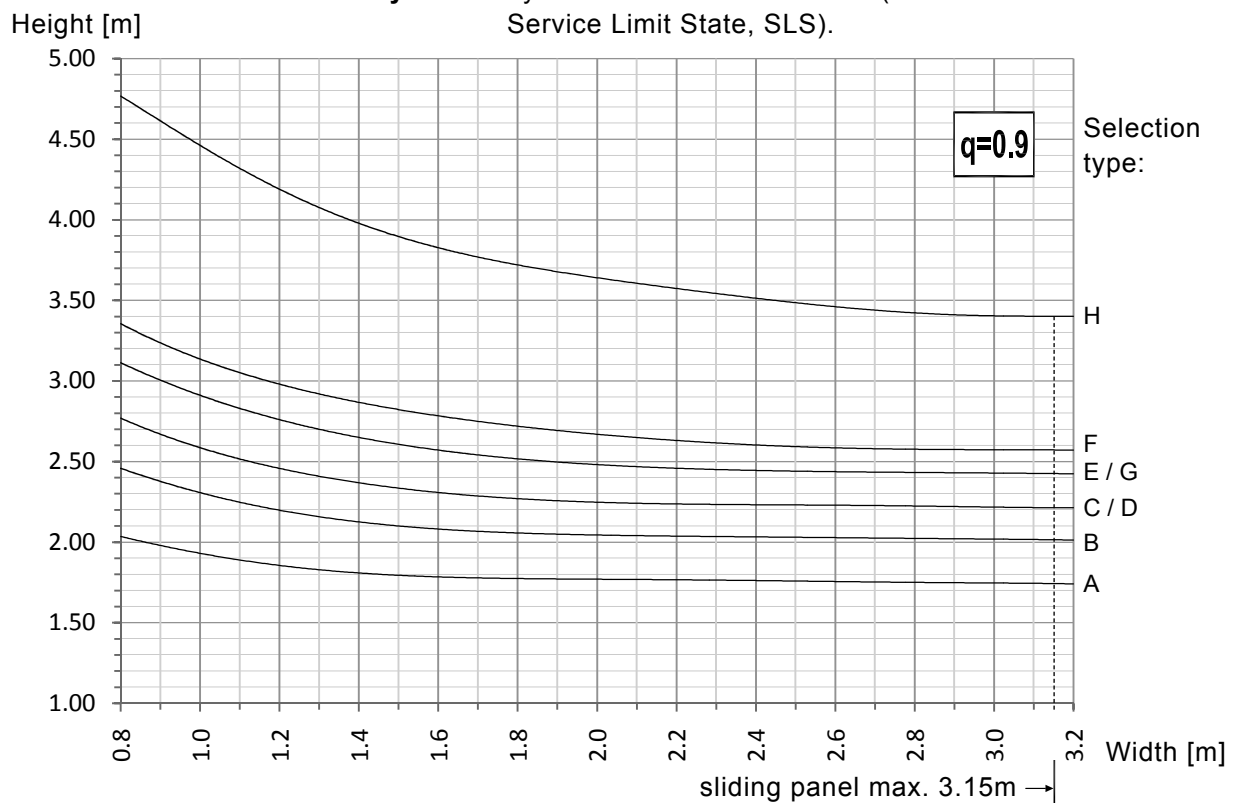
Statics

Labyrinth - wind load $q=0.9 \text{ kN/m}^2$



**STATICS table
Labyrinth**

Selection of the vertical profiles at a wind load of 0.9 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



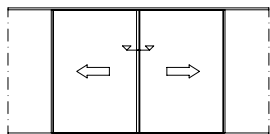
Note

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Sky-Frame 1

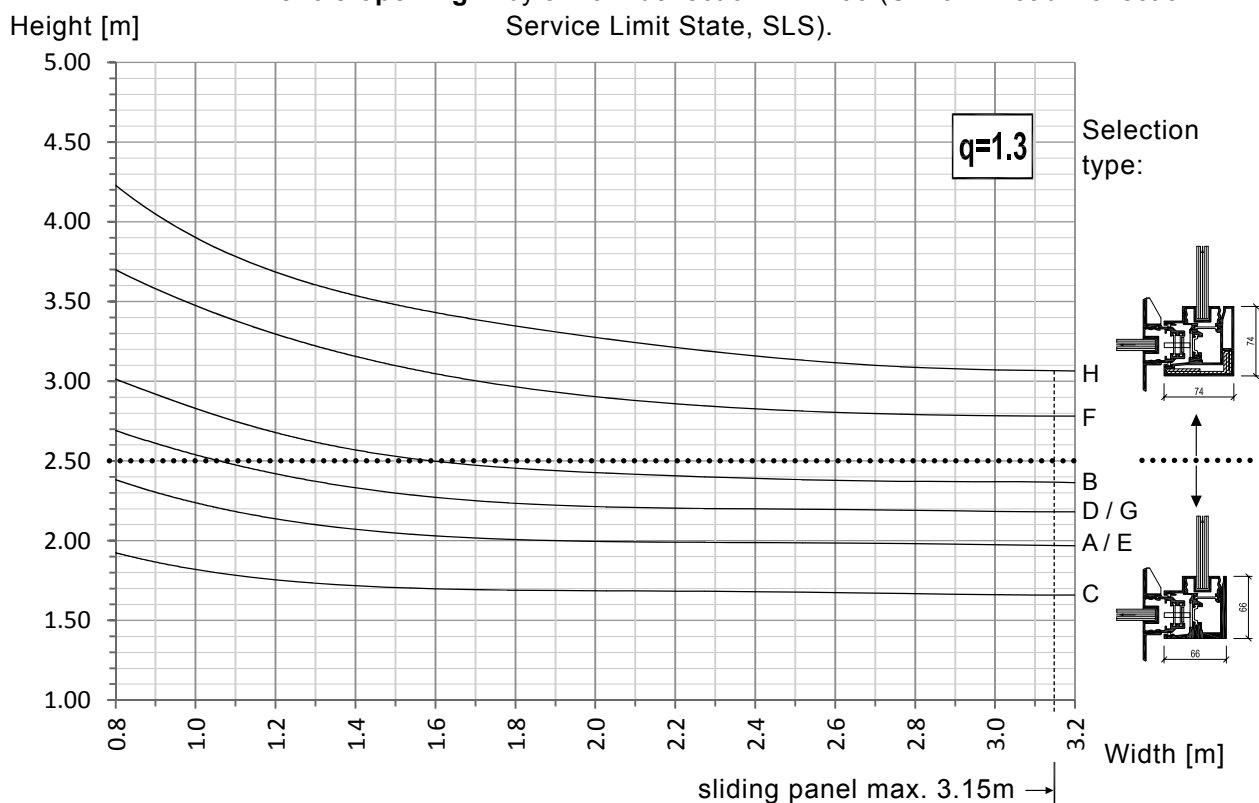
Statics

Centre opening - wind load $q=1.3 \text{ kN/m}^2$

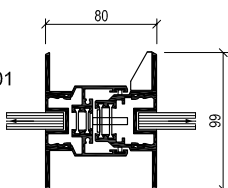


STATICS table
Centre opening

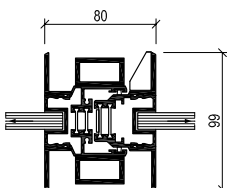
Selection of the vertical profiles at a wind load of 1.3 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



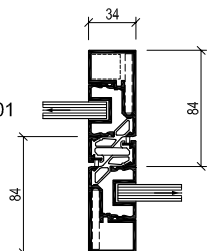
Typ A
110101/110301



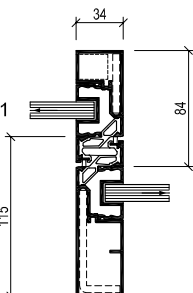
Typ B
11011/110301
+AL.



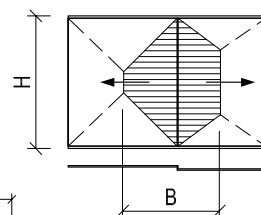
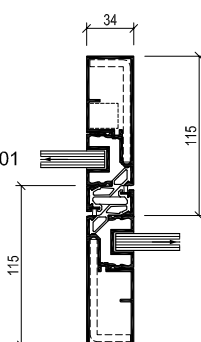
Typ C (D)
321901/321901
(D)=+ST.



Typ E (F)
321901/322301
(F)=+ST.



Typ G (H)
322301/322301
(H)=+ST.



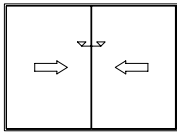
Note

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Sky-Frame 1

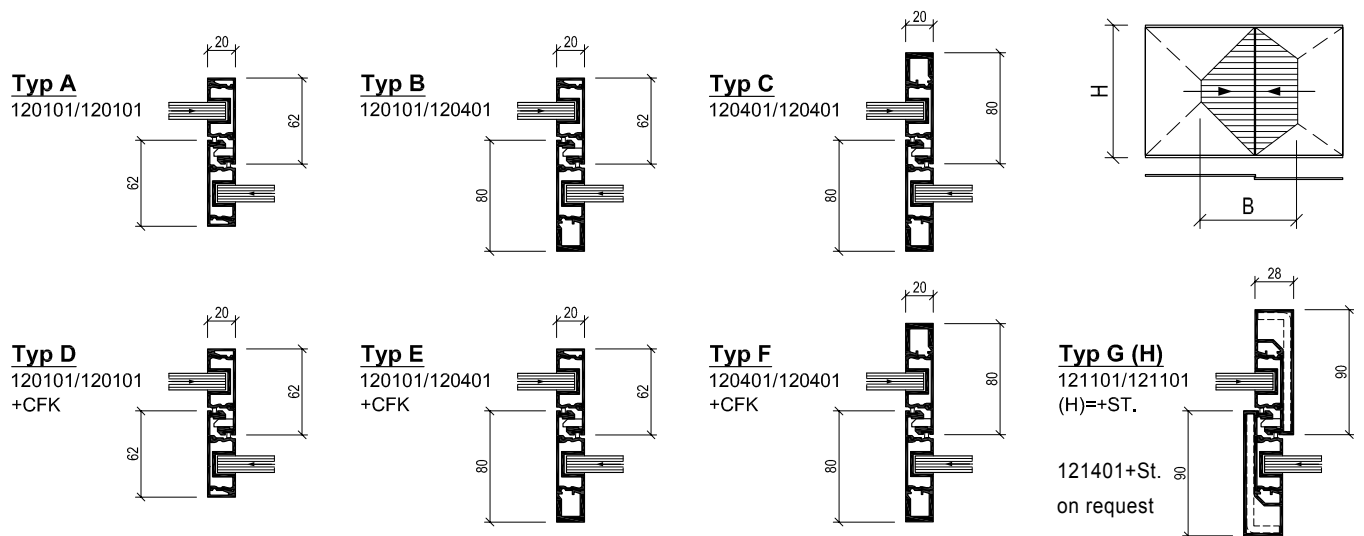
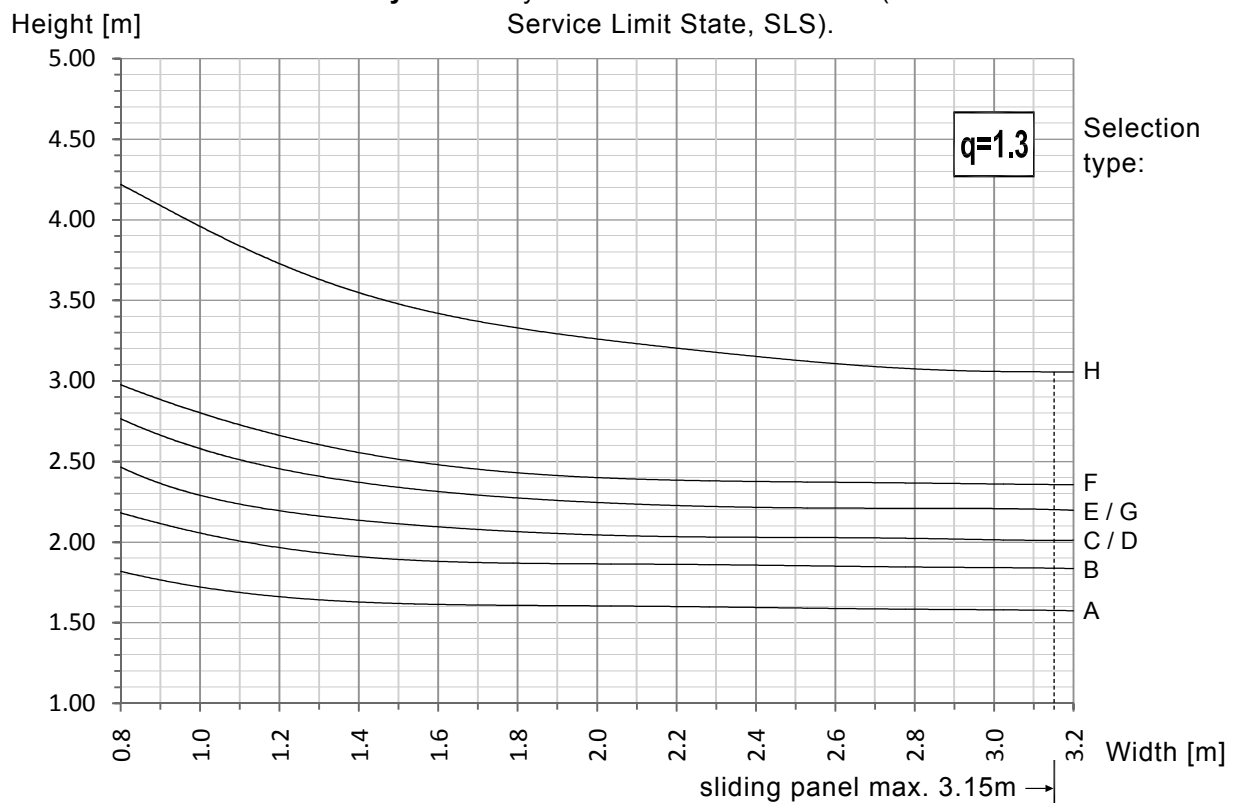
Statics

Labyrinth - wind load $q=1.3 \text{ kN/m}^2$



STATICS table Labyrinth

Selection of the vertical profiles at a wind load of 1.3 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



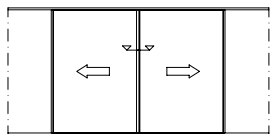
Note

The structural statics diagrams do not replace the project-specific structural statics calculations.

Sky-Frame 1

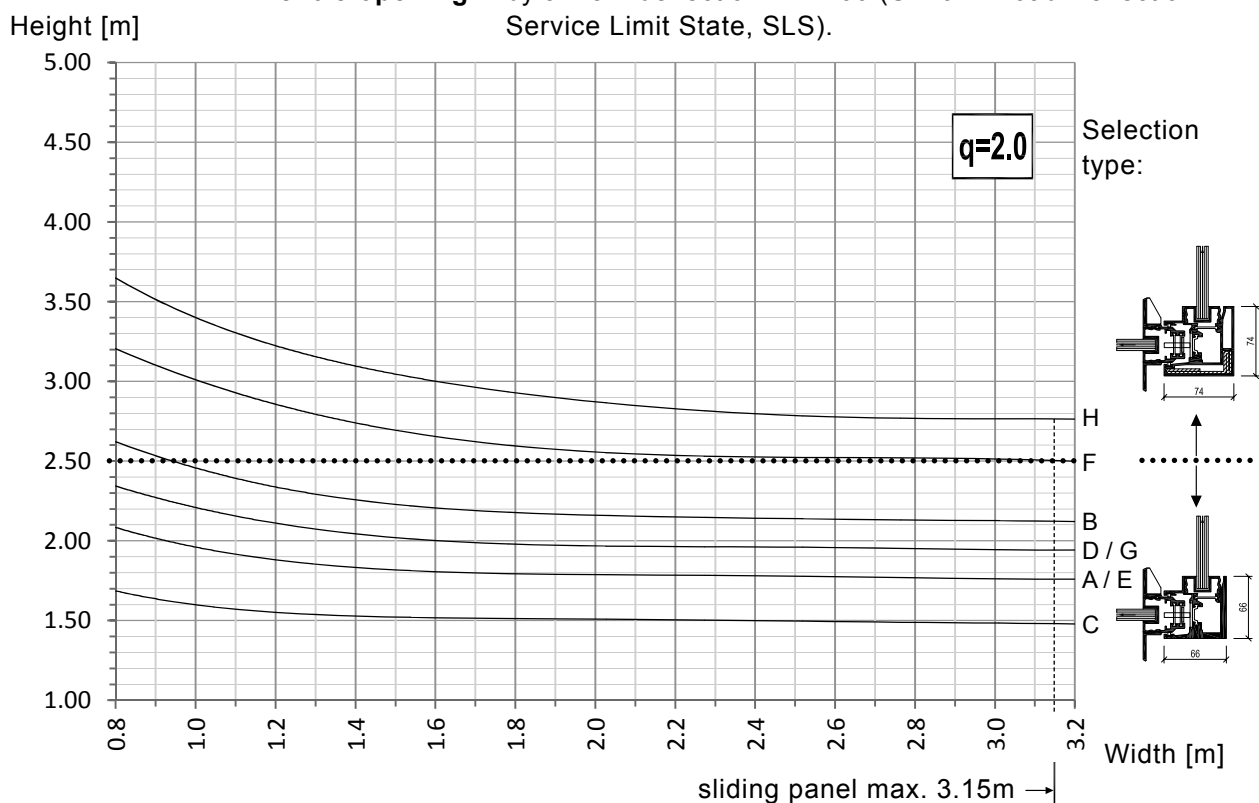
Statics

Centre opening - wind load $q=2.0 \text{ kN/m}^2$

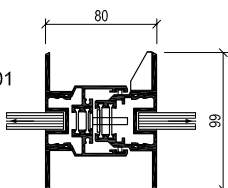


STATICS table
Centre opening

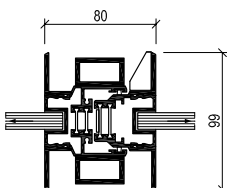
Selection of the vertical profiles at a wind load of 2.0 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



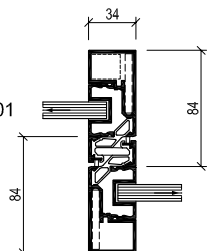
Typ A
110101/110301



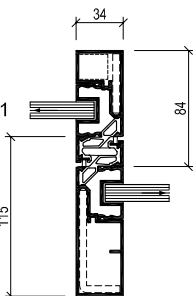
Typ B
11011/110301
+AL.



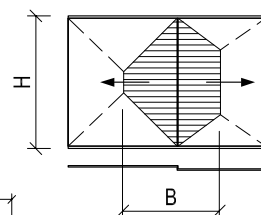
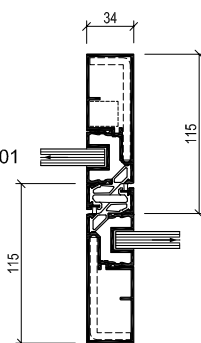
Typ C (D)
321901/321901
(D)=+ST.



Typ E (F)
321901/322301
(F)=+ST.



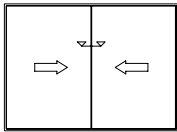
Typ G (H)
322301/322301
(H)=+ST.



Note

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Sky-Frame 1

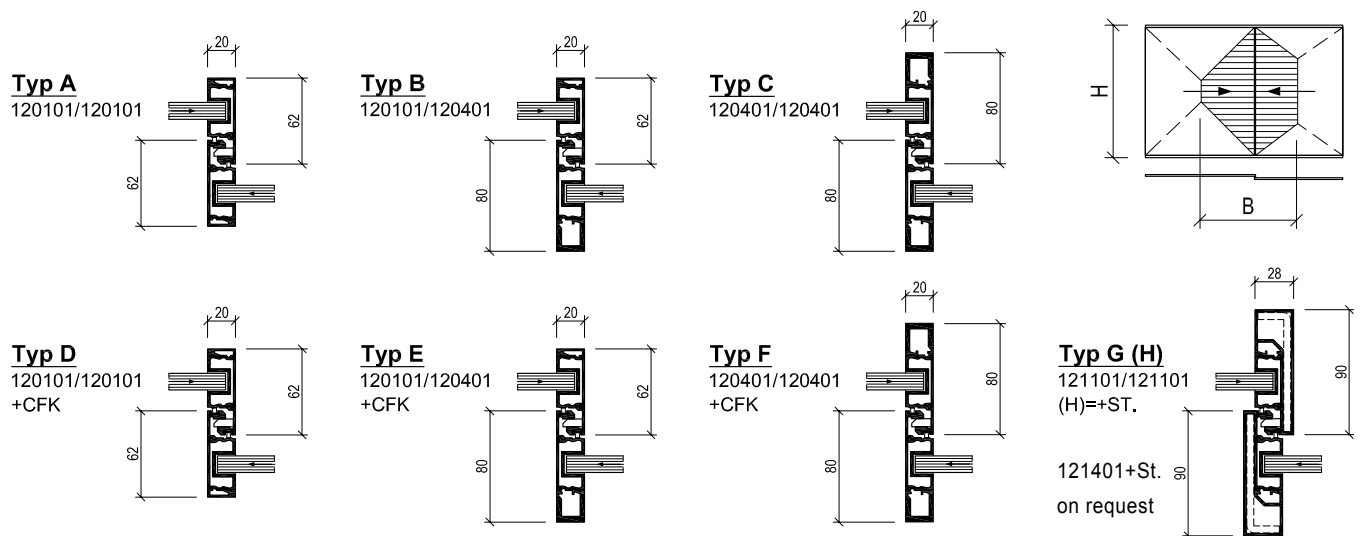
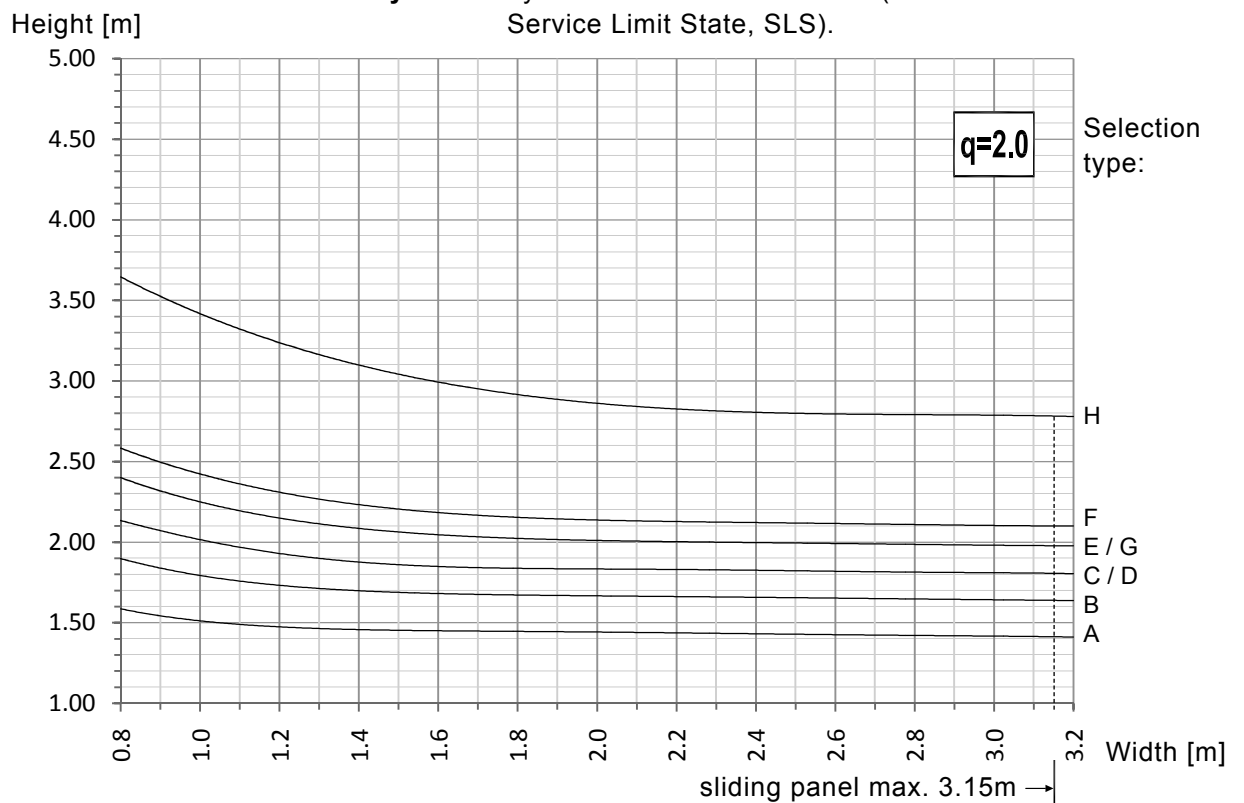


Statics

Labyrinth - wind load $q=2.0 \text{ kN/m}^2$

STATICS table
Labyrinth

Selection of the vertical profiles at a wind load of 2.0 kN/m^2 by a max. deflection = $H/200$ (Uniform Load Deflection / Service Limit State, SLS).



Note

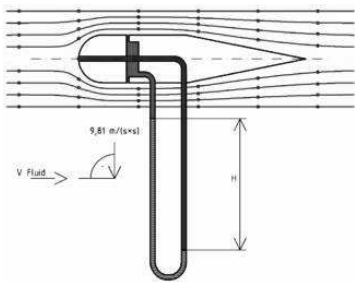
The structural statics diagrams do not replace the project-specific structural statics calculations.



Sky-Frame 1

Statics
Wind load conversion table

Wind speed and dynamic pressure



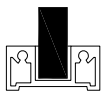
The table is used to illustrate the relation of wind speed and dynamic pressure.

The dynamic pressure in the table is defined as the increase of pressure at the stagnation point of a passed around body relative to the static pressure of the surrounding medium (Prandtl probe).

The four underlined dynamic pressures are taken into account in the static tables.

Wind speed			Wind load q		Wind force	Description
m/s	km/h	mph	kN/m²	psf = lbf/ft²	Beaufort	
8.0 – 10.7	29 – 38	18.0 – 23.6	0.040 – 0.072	0.835 – 1.504	5	Fresh breeze
10.8 – 13.8	39 – 49	24.2 – 30.4	0.073 – 0.119	1.525 – 2.485	6	Strong wind
13.9 – 17.1	50 – 61	31.1 – 37.9	0.120 – 0.183	2.506 – 3.822	7	Stiff wind
17.2 – 20.7	62 – 74	38.5 – 46.0	0.184 – 0.268	3.843 – 5.597	8	Stormy wind
20.8 – 24.4	75 – 88	46.6 – 54.7	0.269 – 0.373	5.618 – 7.790	9	Storm
24.5 – 28.4	89 – 102	55.3 – 63.4	0.374 – 0.505	7.811 – 10.547	10	Strong storm
28.5 – 32.6	103 – 117	64.0 – 72.7	0.506 – 0.665	10.568 – 13.889	11	Hurricane-like storm
32.7 – 36.9	118 – 133	73.3 – 82.6	0.666 – 0.853	13.910 – 17.815	12	Hurricane class 1
37.0 – 41.4	134 – 149	83.3 – 92.6	0.854 – 1.060	17.836 – 22.139		Hurricane class 2
41.5 – 46.1	150 – 166	93.2 – 103.1	1.070 – 1.320	22.347 – 27.569		
46.2 – 50.5	167 – 183	103.8 – 113.7	1.330 – 1.610	27.778 – 33.626		class 3
51.0 – 56.0	184 – 201	114.3 – 124.9	1.620 – 1.990	33.834 – 41.562		class 4 + 5
60.0 – 80.0	215 – 290	133.6 – 180.2	2.250 – 4.000	46.992 – 83.543		

Note The values may not be used for static dimensioning. Additional parameters, such as the building geometry, openings, the alignment of the structure and the local topography must be included in a wind load calculation on buildings.



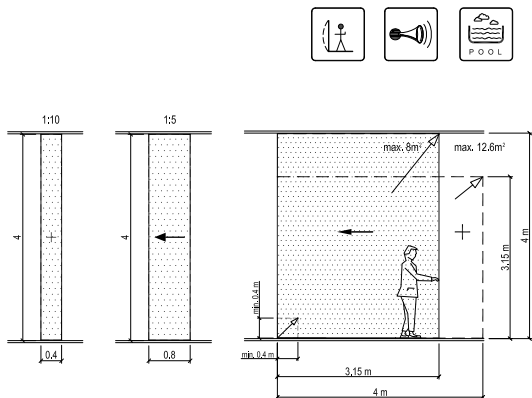
Sky-Frame

Statics
Single glass

Glass dimensioning

The glass is dimensioned on the basis of the following influential factors:

Element height, glass width, wind load, purpose of use
(anti-fall protection, sound insulation, bathrooms / pool)



The maximum dimensions of the glasses are:
Sliding elements: $W \times H = \text{max. } 3.15\text{m} \times 4\text{m}$ (max. 8 m^2)
Fixed elements: $W \times H = \text{max. } 3.15\text{m} \times 4\text{m}$ (max. 12.6 m^2)

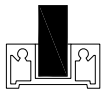
Maximum aspect ratio of the glass:
Sliding elements: $W \times H = \text{max. } 1:5$
Fixed elements: $W \times H = \text{max. } 1:10$

Square glasses with side ratio $W : H = 0.8$ to 1.2 with no warranties on increased running properties through glass distortion and glass contact between the panes.

Designations

The following designations are used:
(ESG-H = TSG-H / VSG = LSG)

q	Wind load [kN/m^2]
U_g	Thermal transmission of the glass [$\text{W/m}^2\text{K}$]
L_t	Light transmission [%]
g	Energy transmission [%]
ESG-H	Tempered safety glass with heat-soak test
VSG-F	Laminated glass made from 2x float glass
P (Phono)	LSG with special sound insulation films
$R_{w,P,Glas}$	Sound insulation factor of the glass [dB]
$R_{w,P} (C, C_{tr})$	Sound insulation factor of the whole system [dB]



Sky-Frame 1

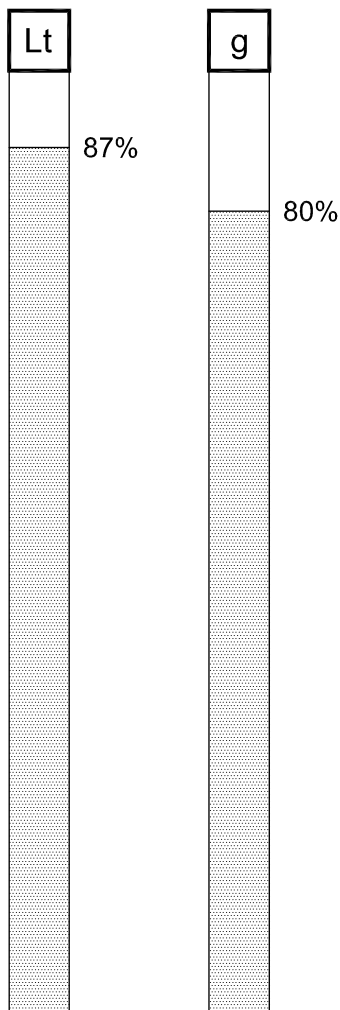
Statics

System glasses «Sky-Glass»

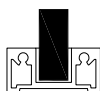
«Sky-Glass»

Following system glasses are available:

Single glazing



		U_g	Lt	g	$R_{w,P,Glas}$	$R_{w,P} (C; C_{tr})$
ESG (TSG)						
SG-71	ESG 6	5.7	89	84	32	
SG-72	ESG 10	5.6	88	80	34	
SG-73	ESG 12	5.5	87	77	36	31(-1;-2)
VSG (LSG)						
SG-74	VSG 8-2 (4/4-2)	5.6	88	77	37	
SG-75	VSG 10-2 (6/4-2)	5.6	87	76	38	
SG-76	VSG 12-2 (6/6-2)	5.5	86	74	39	37(-1;-2)



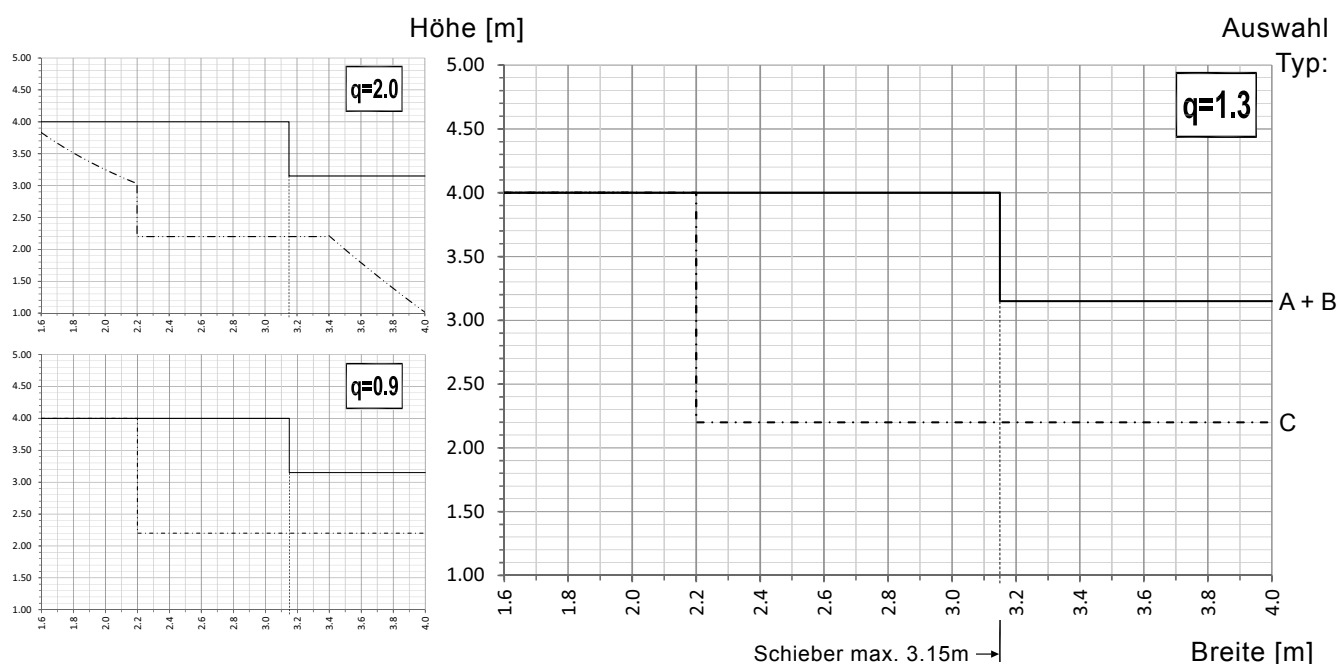
Sky-Frame 1

Statics Single glazing (ESG)



STATICS table Single glass (TSG)

Single glass with $U_g \geq 5.5 \text{ W/m}^2\text{K}$ for elements without heat or sun protection coating.



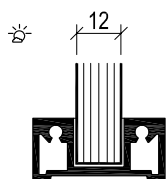
SG-73
5.5
87
77

Typ A

ESG-H 12

[30 kg/m²]

$R_{w,P,Glas} = 36 \text{ dB}$
 $R_{w,P} = 31 \text{ (-1; -2) dB}$



Note:

The sound insulation values $R_{w,P}$ have been determined on a two-track system (slide-fix).

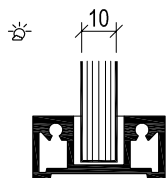
SG-72
5.6
88
80

Typ B

ESG-H 10

[25 kg/m²]

$R_{w,P,Glas} = 34 \text{ dB}$



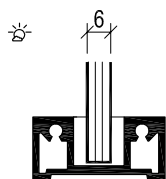
SG-71
5.7
89
84

Typ C

ESG-H 6

[15 kg/m²]

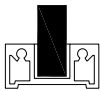
$R_{w,P,Glas} = 32 \text{ dB}$



ESG-H

U_g
 L_t
 g

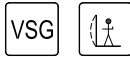
Tempered safety glass with heat soak test
Thermal transmission of the glass [W/m²K]
Light transmission [%]
Energy transmission [%]



Sky-Frame 1

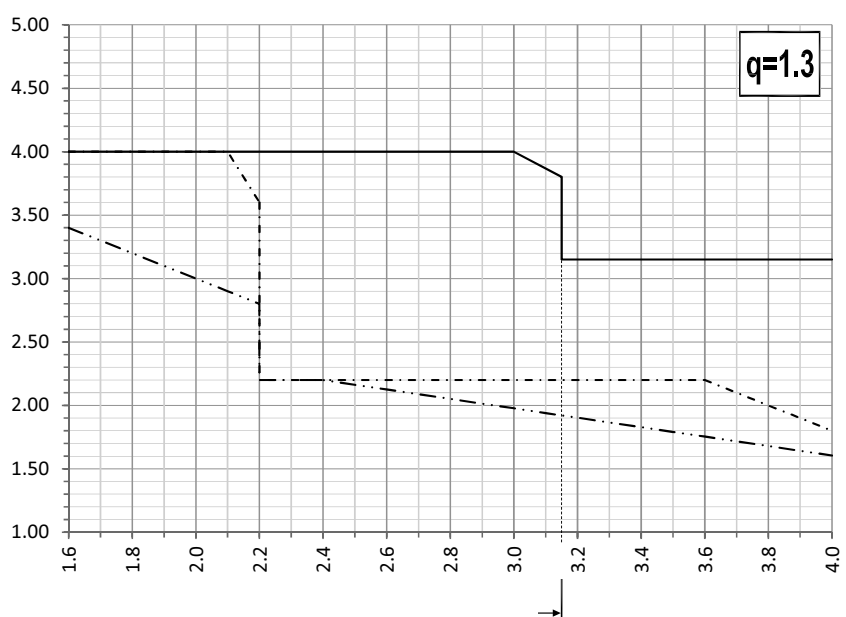
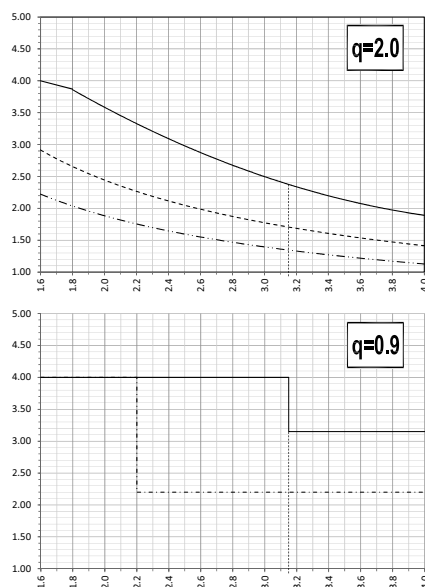
Statics

Single glazing (LSG)



STATICS table Single glass (LSG)

Single glass with $U_g \geq 5.5 \text{ W/m}^2\text{K}$ for elements without heat or sun protection coating.

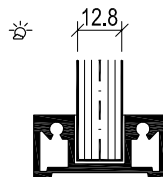


SG-76
5.5
86
74

Typ A

VSG-F 12-2P
[30 kg/m²]

$R_{w,P,Glas} = 39 \text{ dB}$
 $R_{w,P} = 37 \text{ (-1; -2) dB}$



Note:

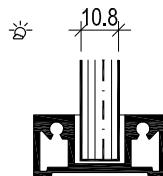
The sound insulation values $R_{w,P}$ have been determined on a two-track system (slide-fix).

SG-75
5.6
87
76

Typ B

VSG-F 10-2P
[25 kg/m²]

$R_{w,P,Glas} = 38 \text{ dB}$

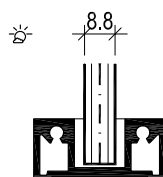


SG-74
5.6
88
77

Typ C

VSG-F 8-2P
[20 kg/m²]

$R_{w,P,Glas} = 37 \text{ dB}$



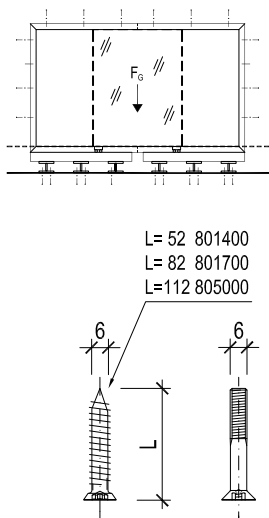
VSG-F Laminated safety glass made from 2x float glass
12-2P P stands for special sound insulation laminated film

Sky-Frame 1

Statics

Frame mounting and supports

Frame mounting



The Sky-Frame frames are prefabricated with drill holes at the top and sides.

ATTENTION: Sky-Frame 1 / 2 and Sky-Frame 3 do not have the same edge distances!

The maximum screw axis distances are:

Soffit profile (top) = max. 600 mm

Lateral frame profile = up to 3 m in height = 3 pcs.

Lateral frame profile = from 3 m in height = 4 pcs.

In order to take up the wind loads, screws with a core diameter = 6 mm / M6 thread must be used.

Profiles that are longer than 6.4 m must be joint. The joint is located at least 1 m from the corner of the frame.

The base plates are distributed according to glass weight and number of tracks (base plate distance X).

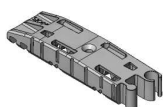
Glass supports

The glass supports depend on the weight of the glass. A distinction is made between the supports for sliding elements and fixed elements:

Sliding elements

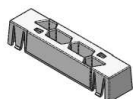
The running gears must be placed 20 mm from the edge of the glass (the felt head is flush with the glass frame).

Two running gears must be connected together for glass weights greater than 200 kg.



Fixed elements

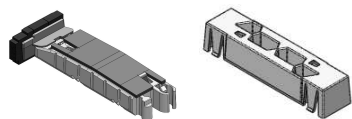
The fixed element supports must be distributed with block axis dimension «K» depending on the width of the glass. Two blocks are placed side by side for very heavy glass (over 500 kg).



Sealing inserts

Sealing inserts are used on every edge of fixed elements and prevent any drafts.

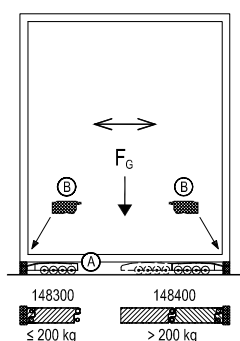
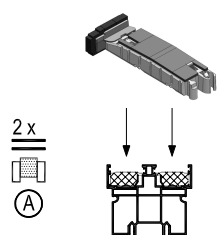
3.8.2.1



Statics

Running gears, glass supports, seal inserts

inner and
outer trac



The number of running gears depends on **glass weight F_G**.
Two running gears must be connected together for heavy
glass weights (see table).

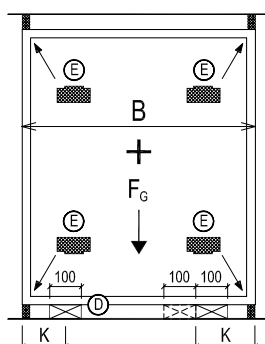
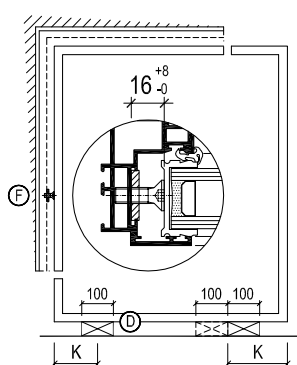
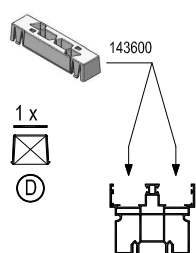
Position the running gears (left and right) **GRP-flush.**

glass weight F_G =	running gears amount:	package number:
0 – 200 kg	2 run.gears / glass	148300/148500
200 – 500 kg	4 run.gears / glass	148400/148600

Two rubber pads each are located above each other as a standard on the **running gears [A] with felt head [B]**.

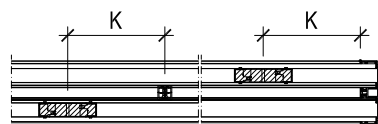
Additional rubber pads can be attached or removed to adjust the element height.

inner and
outer trac



The number of glass supports depends on the **glass weight F_G** . Two glass supports must be positioned side by side at high glass weights (see table).

glass width B =	fixed glass supports axis K =	glass weight F _G =	fixed glass supports amount:
1.0 m	150 mm	0 – 500 kg	2 pce. / glass
1.5 m	200 mm	500 – 900 kg	4 pce. / glass
2.0 m	250 mm		
2.5 m	300 mm		
3.0 m	350 mm		
3.5 m	400 mm		
4.0 m	450 mm		



The **fixed element supports** [D] are equipped with a rubber pad on top.

All fixed elements need additional **sealing inserts** [E]
in every corner (4 pcs. / glass).

Fixed elements at the end of the frame are secured laterally via the **lateral adjusting screw** [F] against shifting.