MAXIMUM VIEW

Innovation + Craftsmanship

MADE IN LUXEMBOURG

since 1980

By Dr.-Ing. Werner Jager und die gesamte KELLER minimal windows Mannschaft

#Set-Up

KELLER – part of VALFIDUS Group

Driven by Entrepreneurship

Keller is since 2021 part of the Luxembourg City based VALFIDUS Group.

16 YEARS OF EXPERIENCE
KELLER minimal windows

> 80 Partners in
> 45 countries

50 employees


#Inspiration

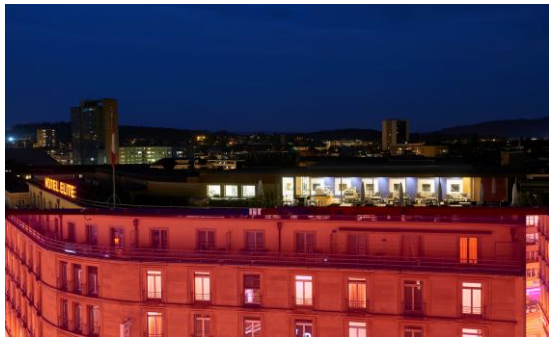
#Inspiration














#Inspiration













#Inspiration









...Details matter

#KELLER … Details matter

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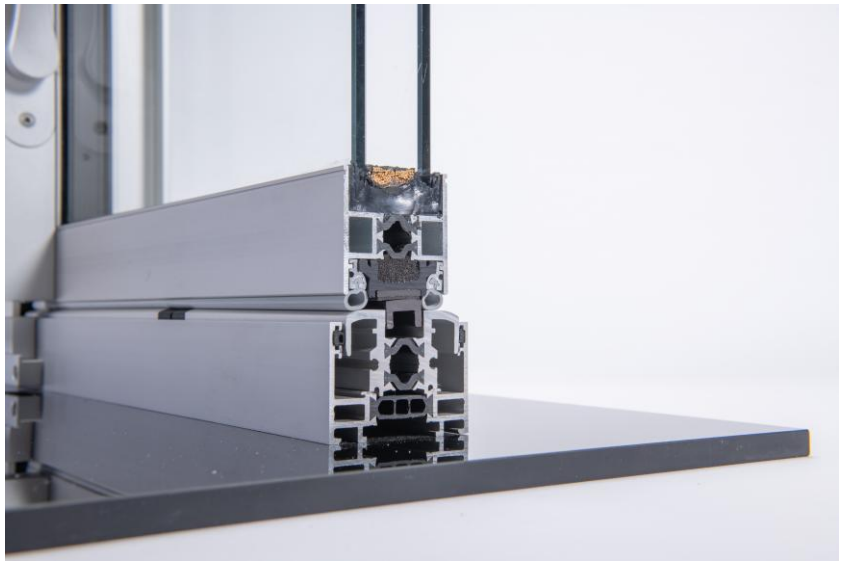

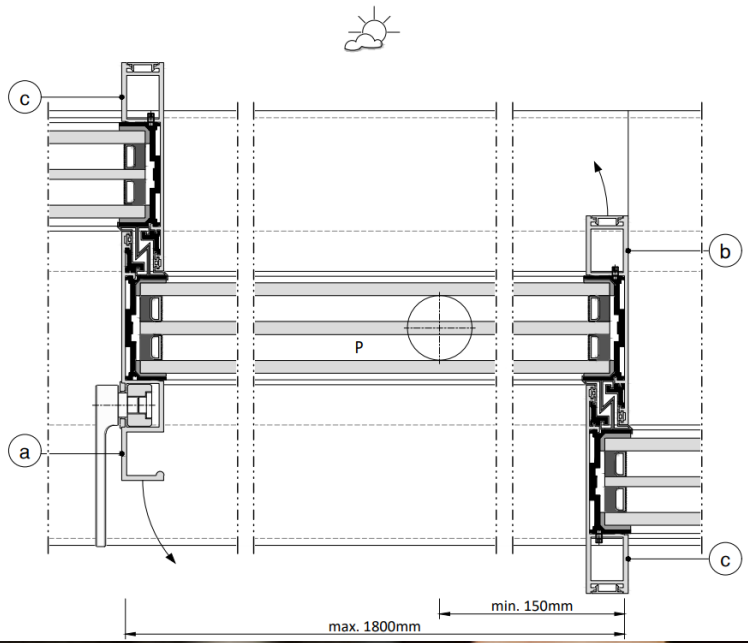

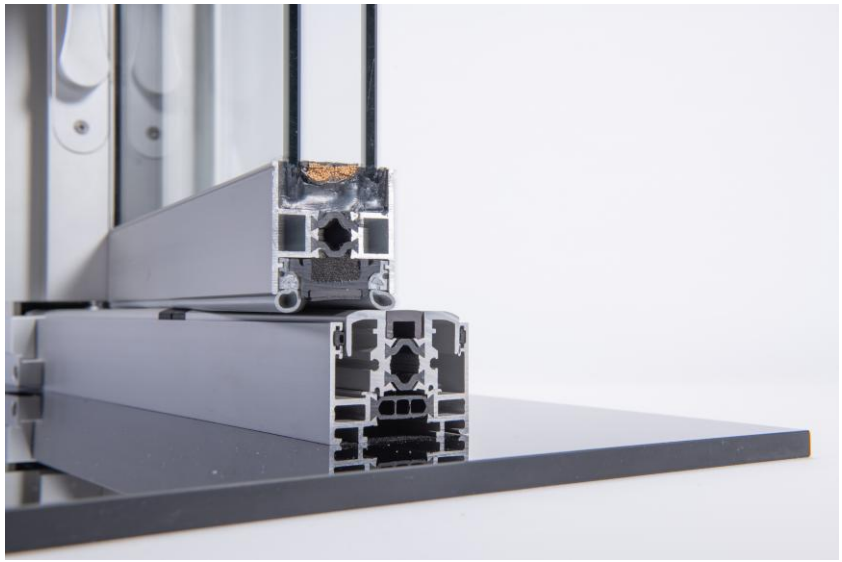

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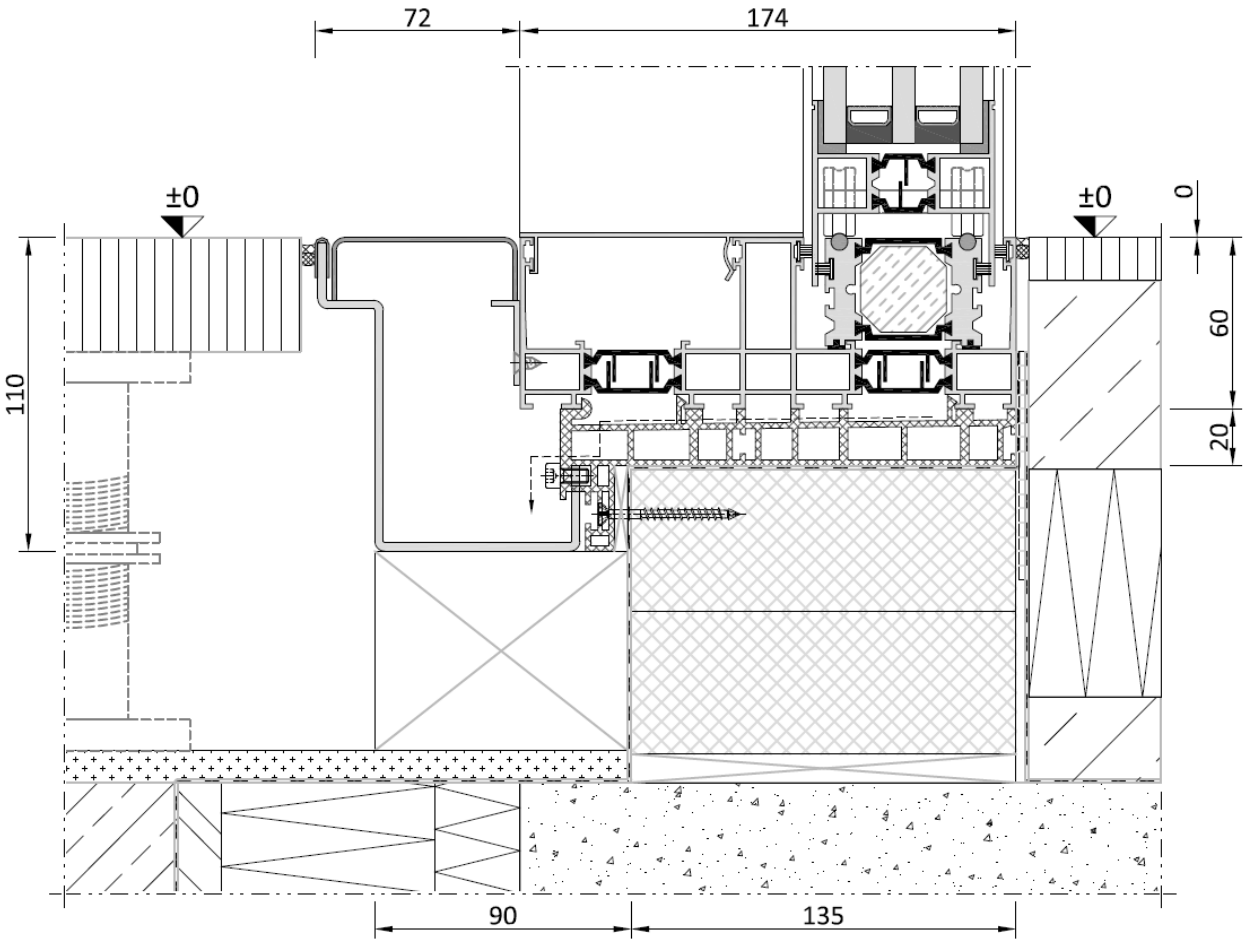

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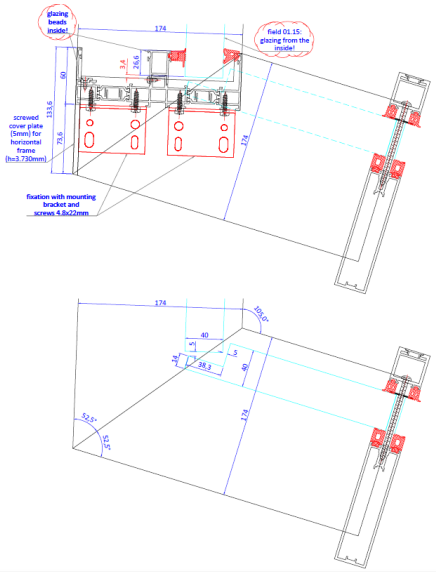

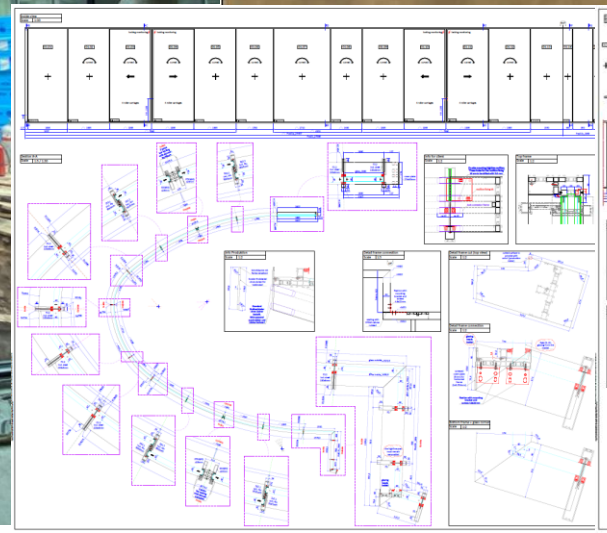

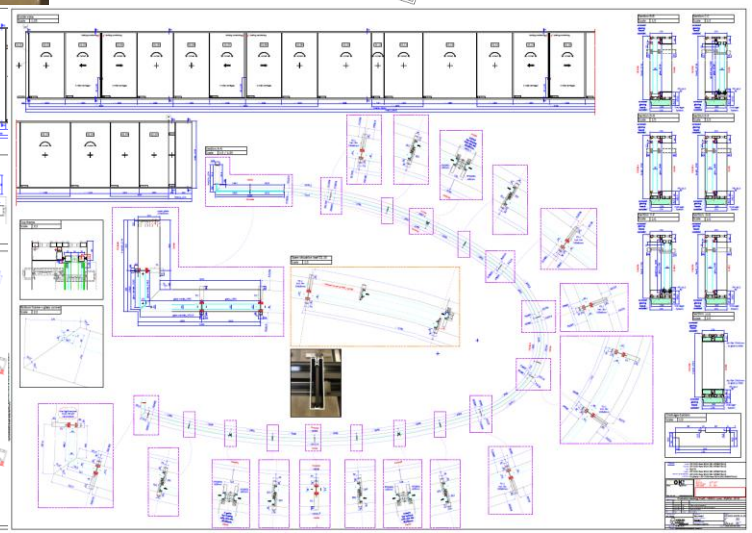

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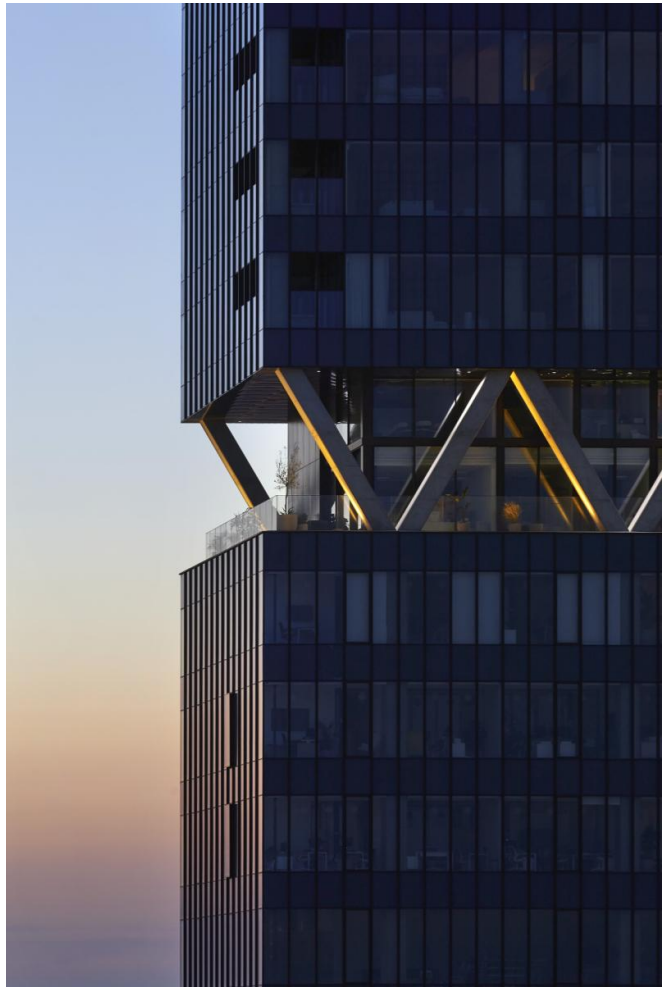





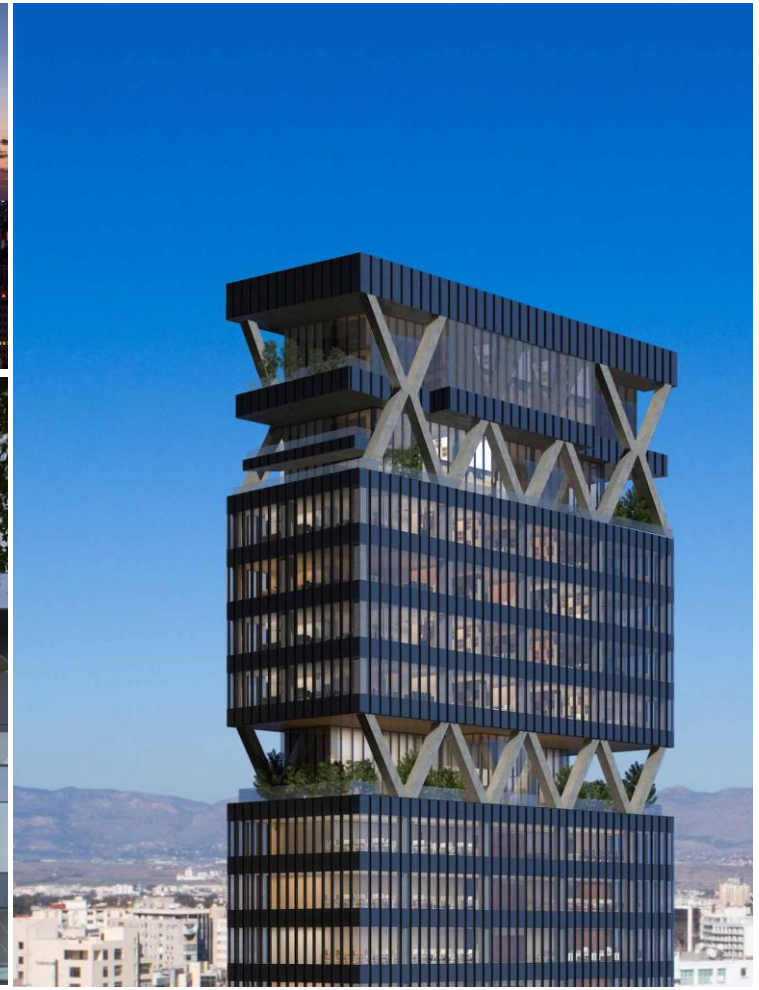

Source: papachristou.org/ lapstower.cy/

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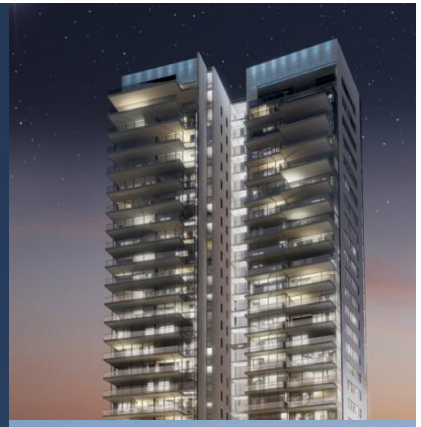

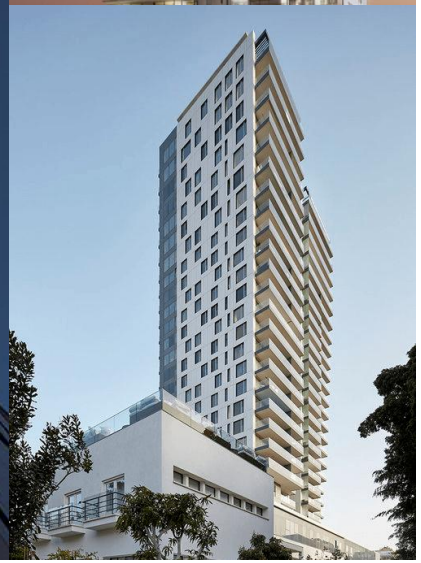

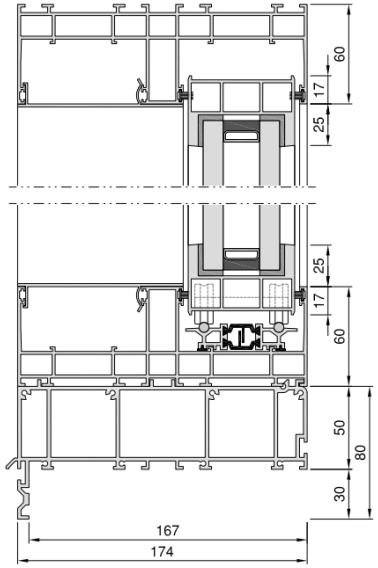

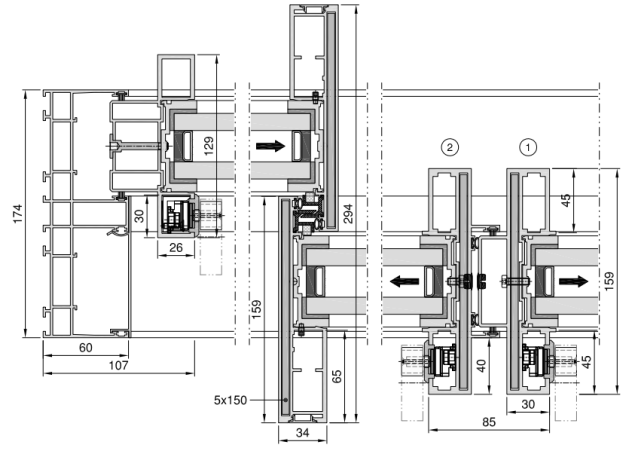

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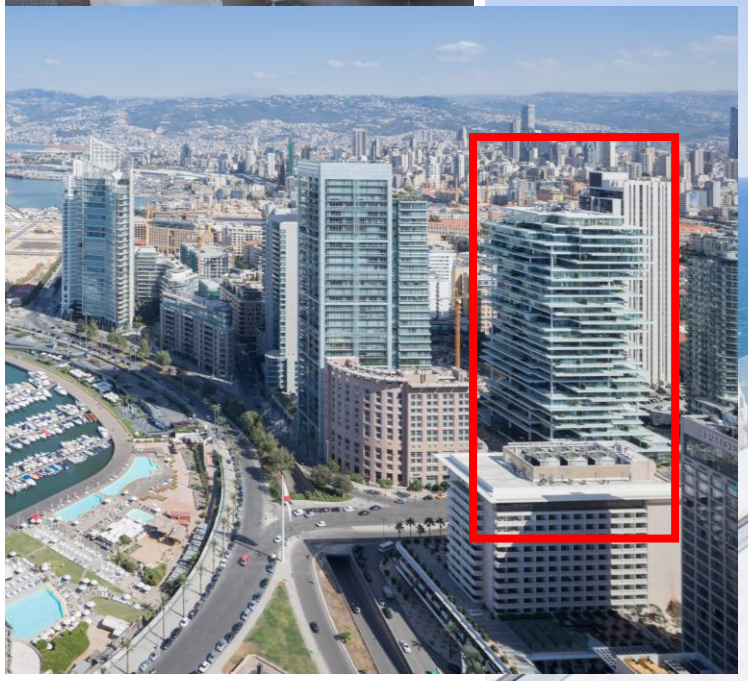
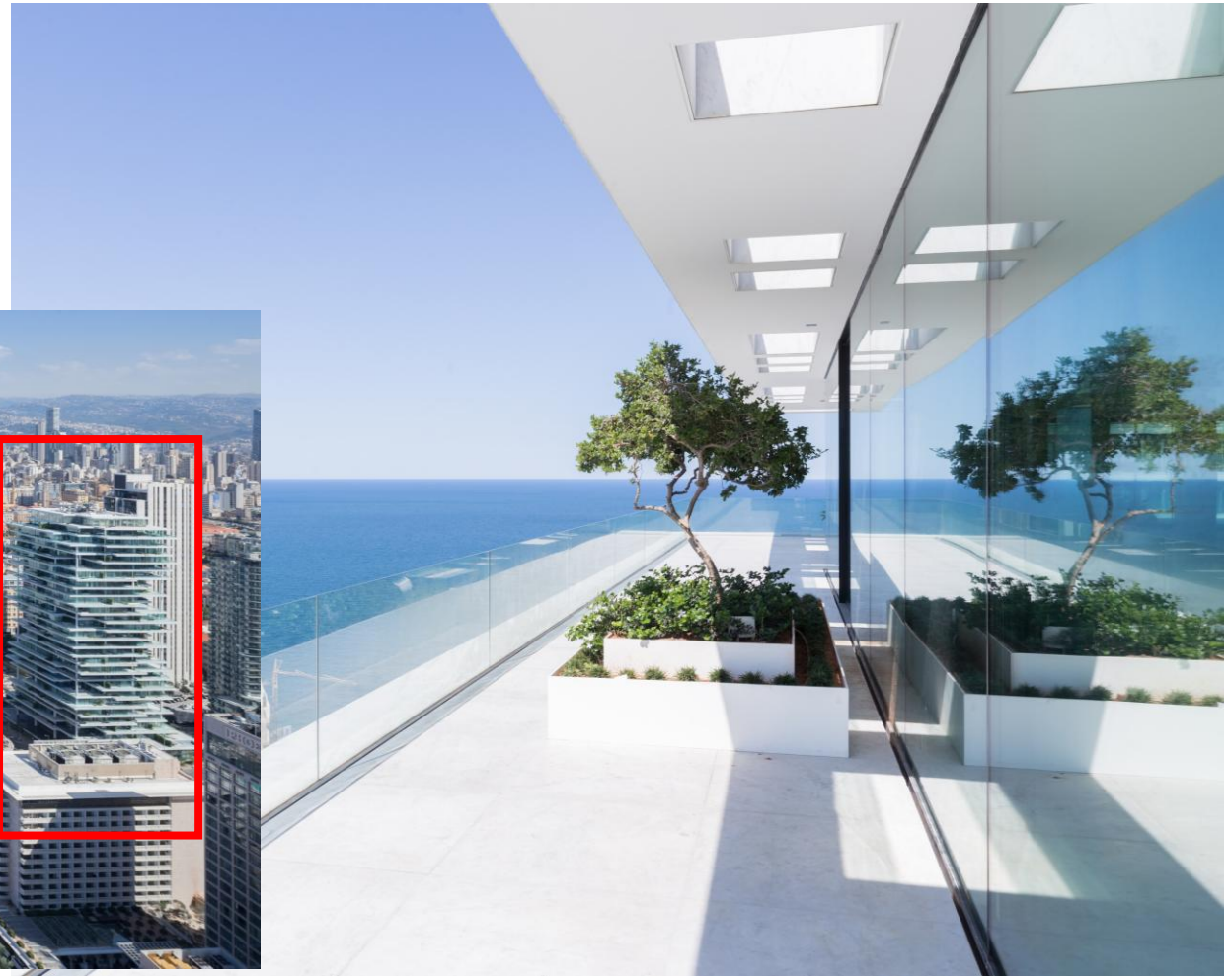
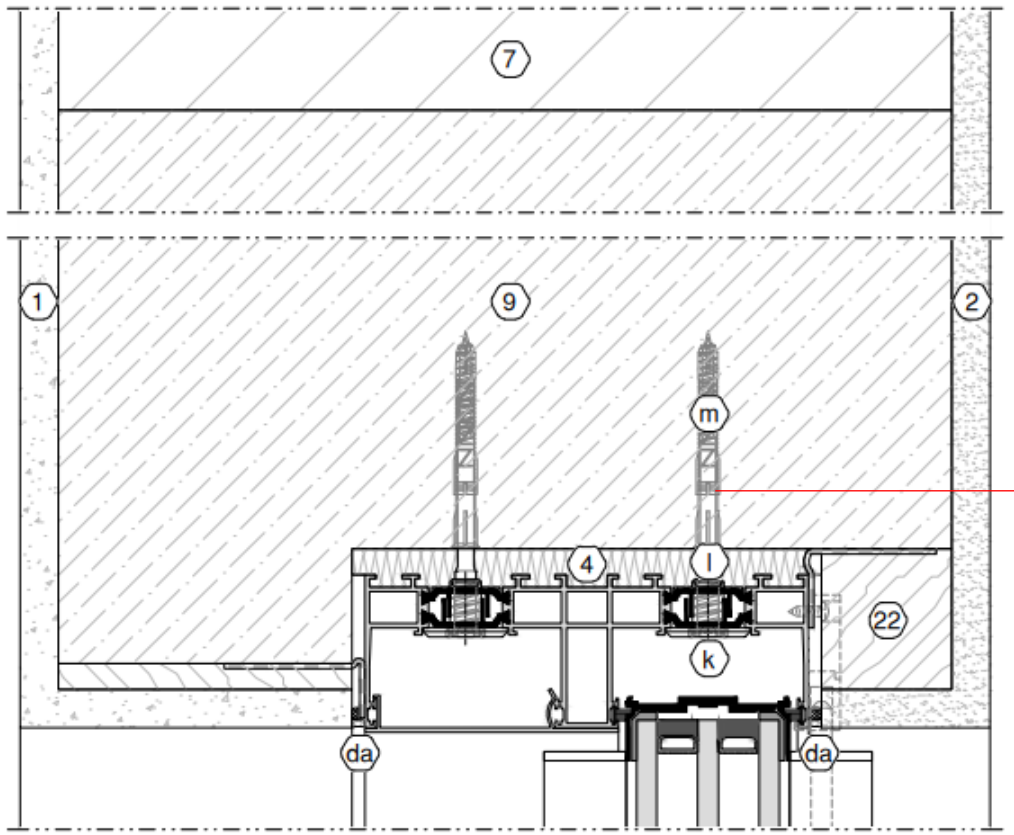




Source: herzodemeuron.com/

#Inspiration … Deflection



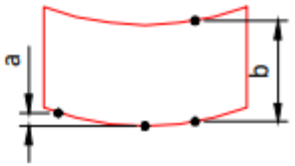
Zulässige Durchbiegung des Blendrahmens

Bei Montage

a	:	± 0.5	mm / m
b	:	± 1	mm

Bei Betriebsbelastung

a	:	± 1	mm / m
b	:	+ 2 / - 5	mm

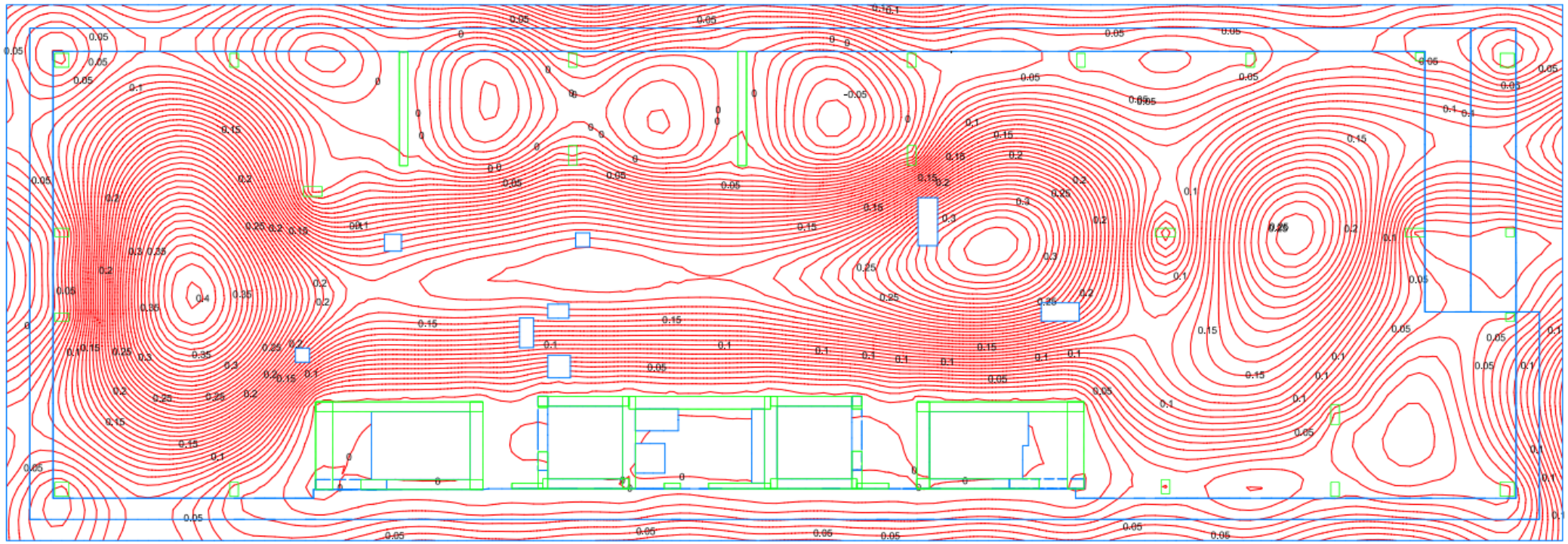


Baukörperbewegungen z.B. Decken-Durchbiegungen sind in der Planung des Bauanschlusses und der Fuge zu berücksichtigen.
Es dürfen keine Kräfte in die Schiebelösung hierdurch eingeleitet werden.

e.g., TopStar Screw

#Inspiration … Deflection

Element: Wall Elements Above; Wall Elements Below; Wall Element Outline Only; Column Elements Above; Column Elements Below; Slab Elements; Slab Element Outline Only; Wall Element Groups Above; Wall Element Groups Below;
Scale = 1:125
Long Term Deflection - Vertical Deflection Plot (Maximum Values)
One Contour = 0.01 inches
Min Value = -0.06435 inches @ (-13.43,-7.678) Max Value = 0.4024 inches @ (-89.69,-29.18)



DEFLECTION PLAN TYPICAL LEVELS

KMW-Interpretation of official deflection plan:
According to Plan major deflection in Slider level is 0.05 inch = 0,13 mm
max. deflection is 0.1 inch = 0,254 mm

#Inspiration … Deflection

Bottom Movement after Installation
More than defined below

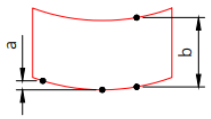
Max. allowable bending of outer frame

During assembly

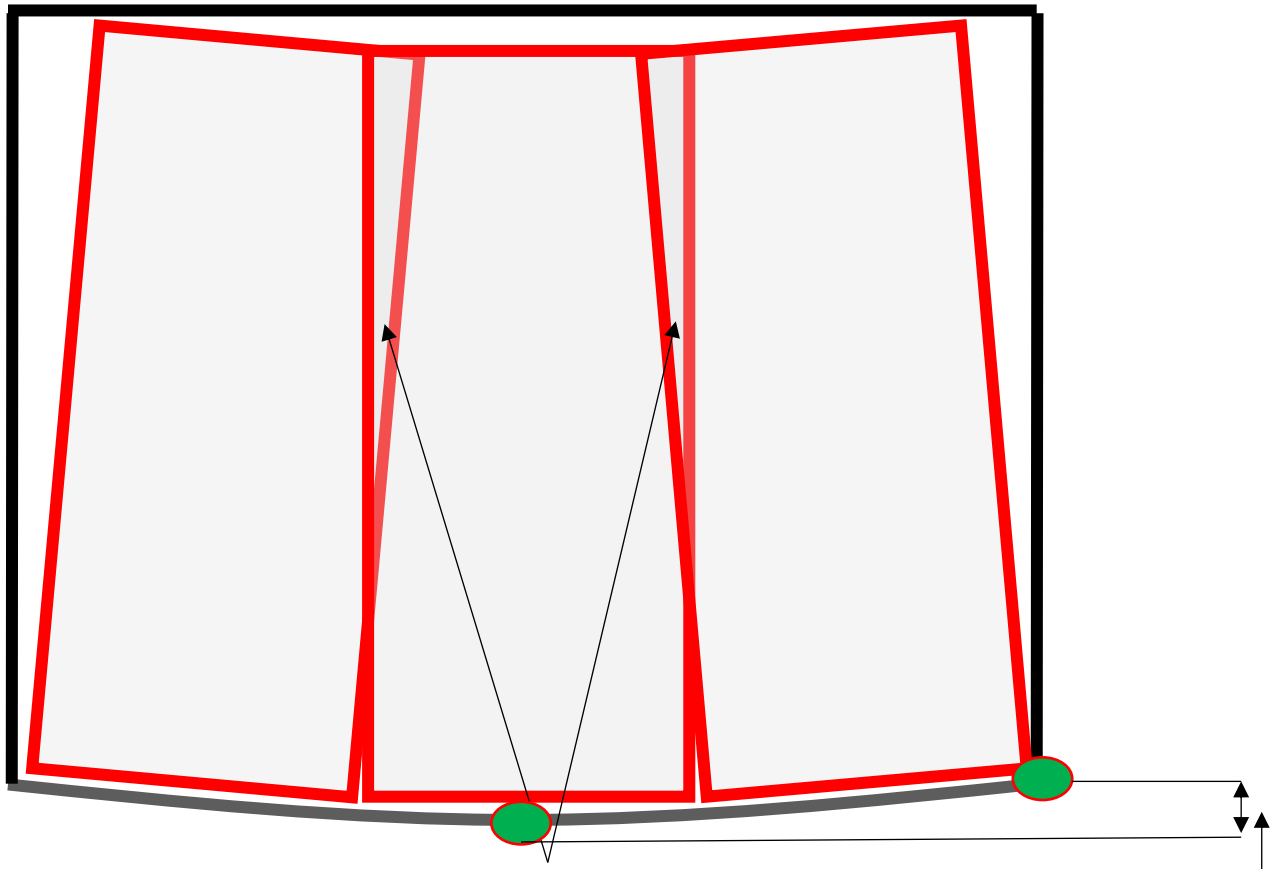
a	:	± 0.5	mm / m
b	:	± 1	mm

During operation

a	:	± 1	mm / m
b	:	+ 2 / - 5	mm



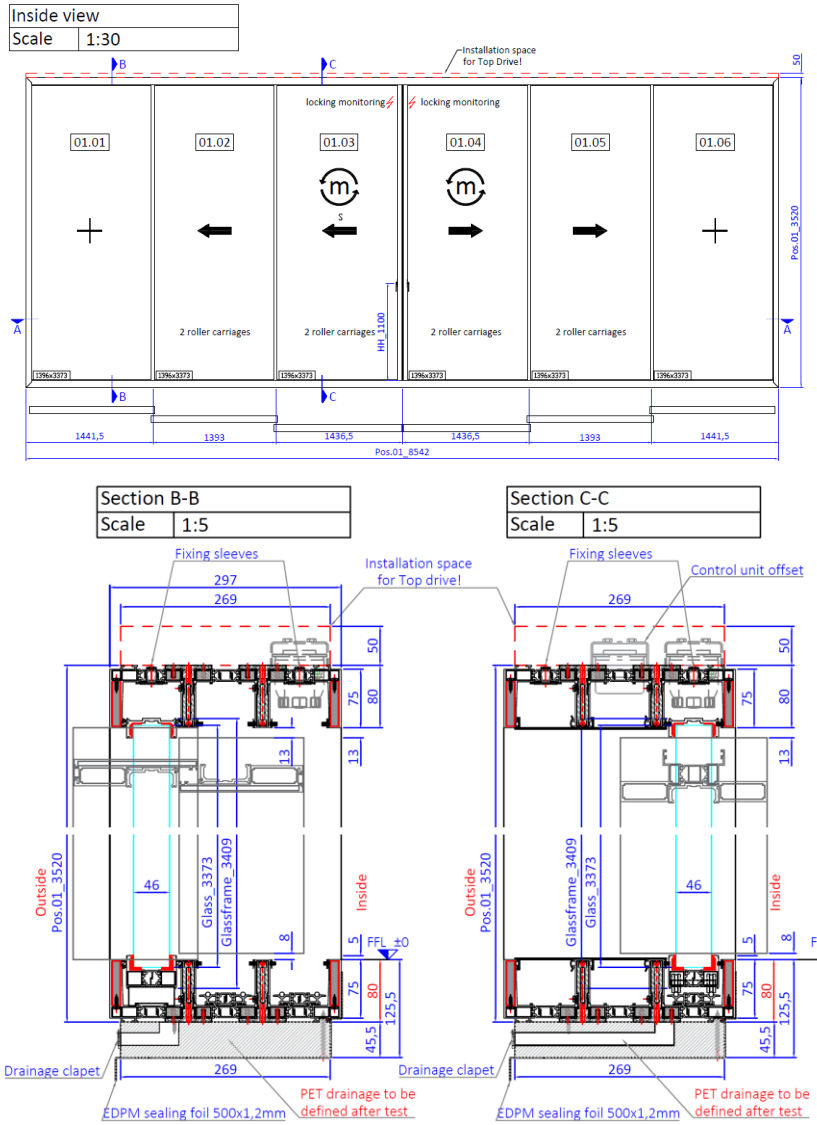
Architect's Manual - 07-2023



Interlocks can not close any more = high air infiltration

6000 mm width: During operation **a** is max. 3 mm deflection from corner to center
9000 mm width: During operation **a** is max. 4.5 mm deflection from corner to center

#Inspiration *bespoke*



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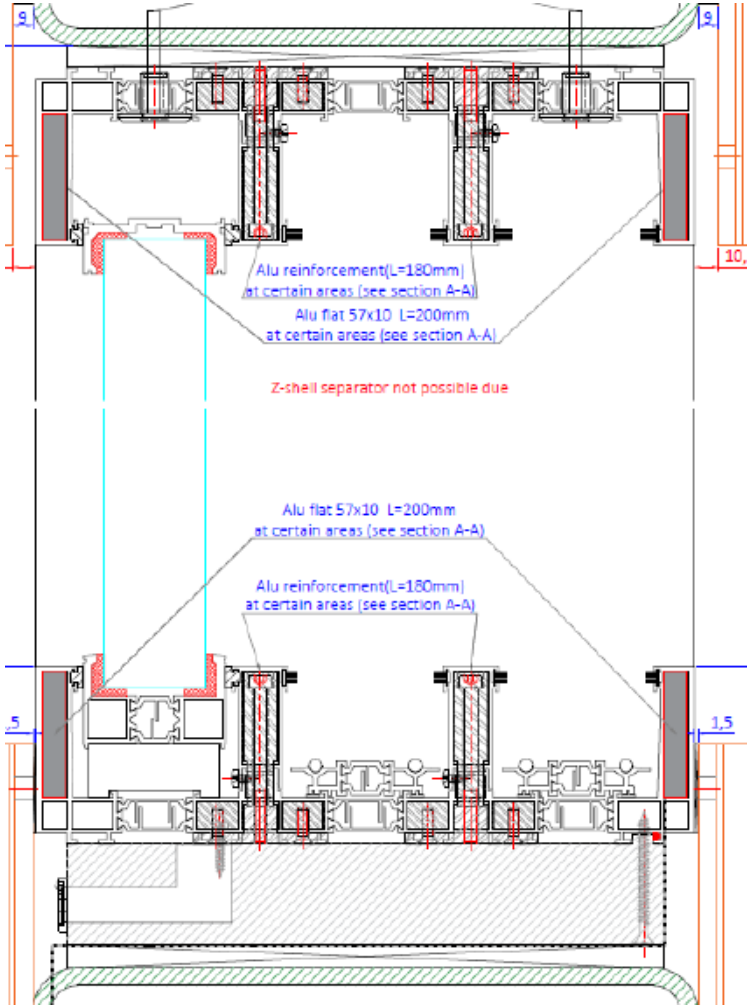
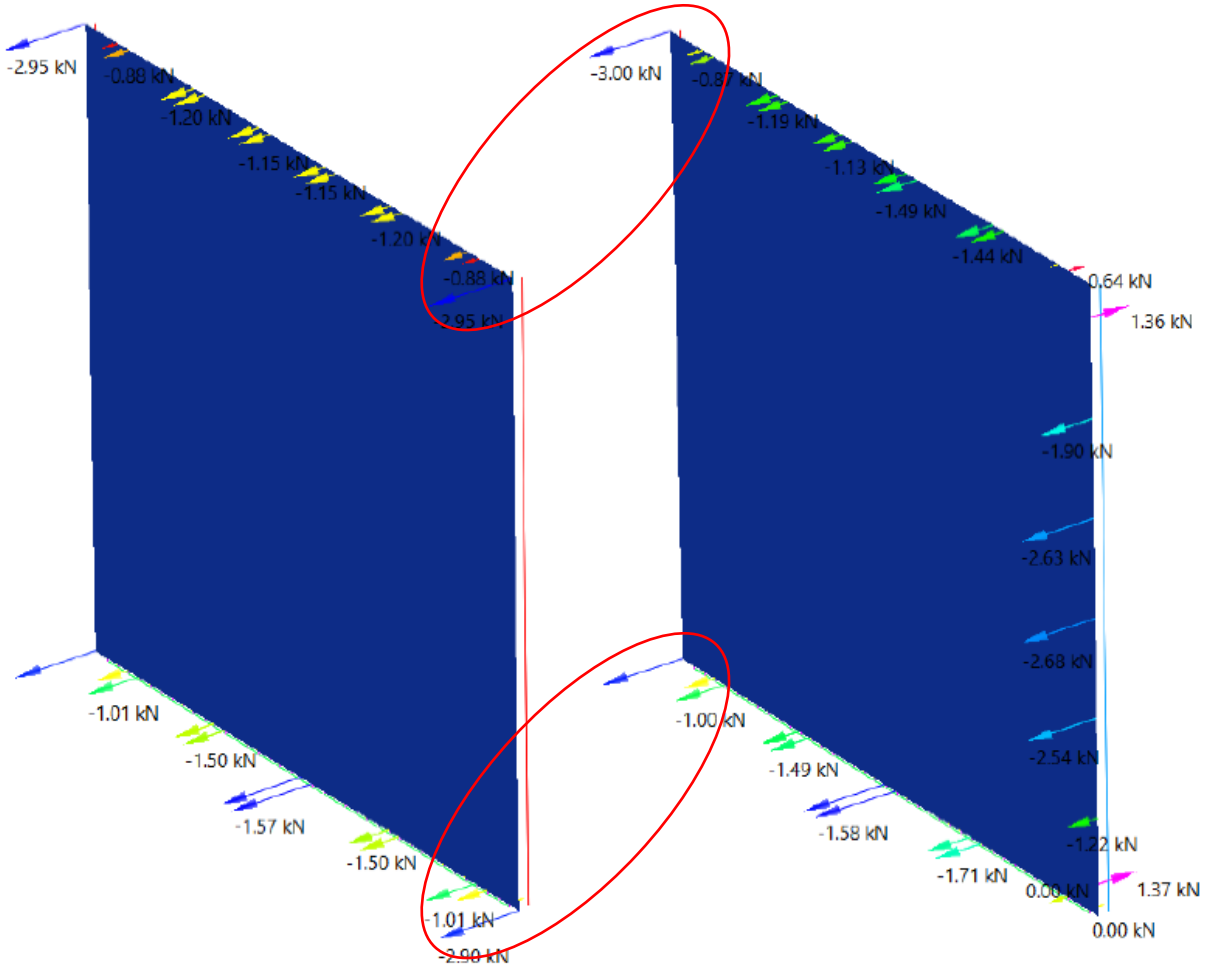
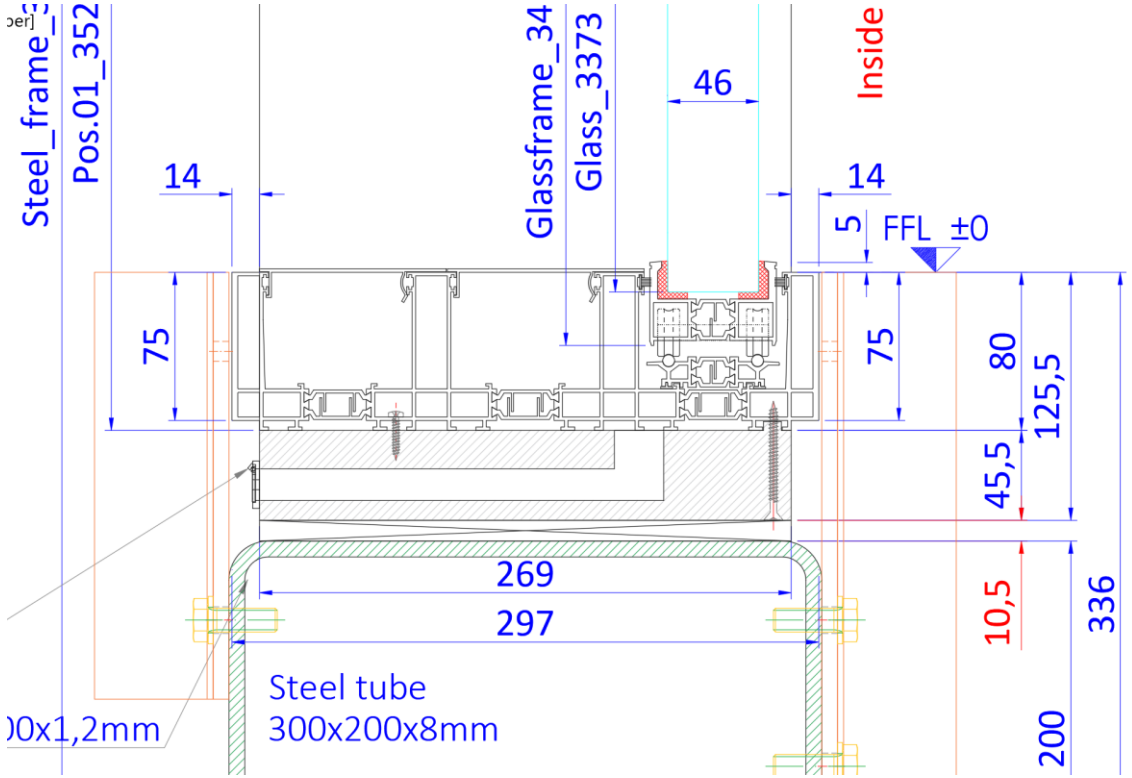




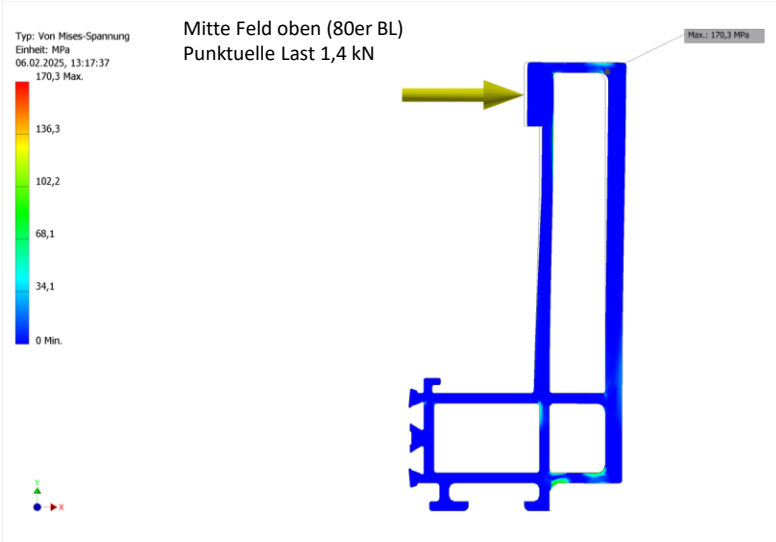
Re-Inforcements acc. to inhouse structural analysis

Load superimposition in the area of leaf junction

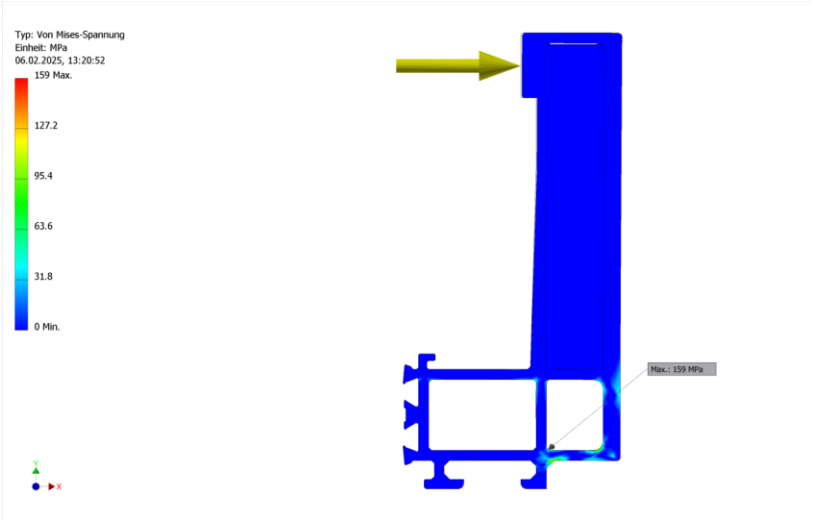
#Inspiration *bespoke*



Mitte Feld oben (80er BL)
Punktuelle Last 1,4 kN

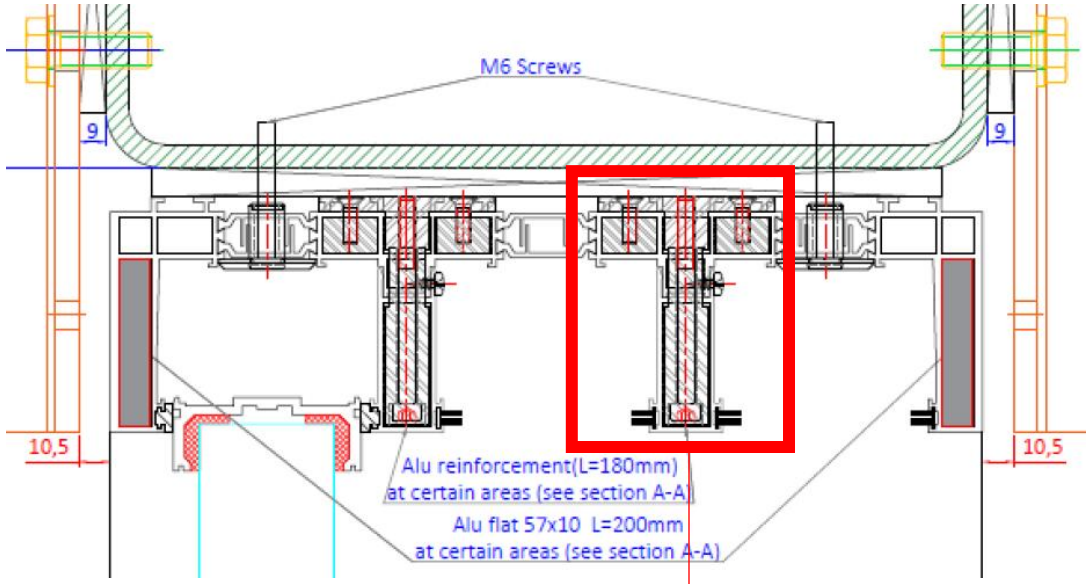


Mitte Feld oben (80er BL)
Punktuelle Last 2,35 kN



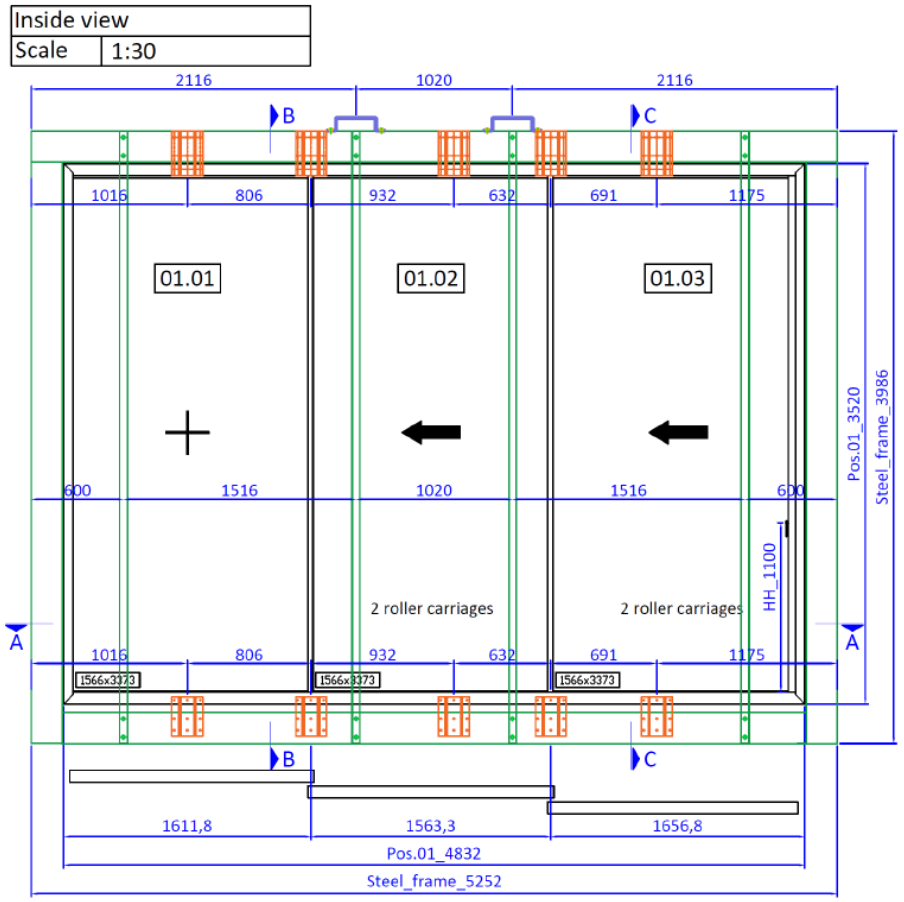
<u>Re-Inforcements acc. to inhouse structural analysis</u>

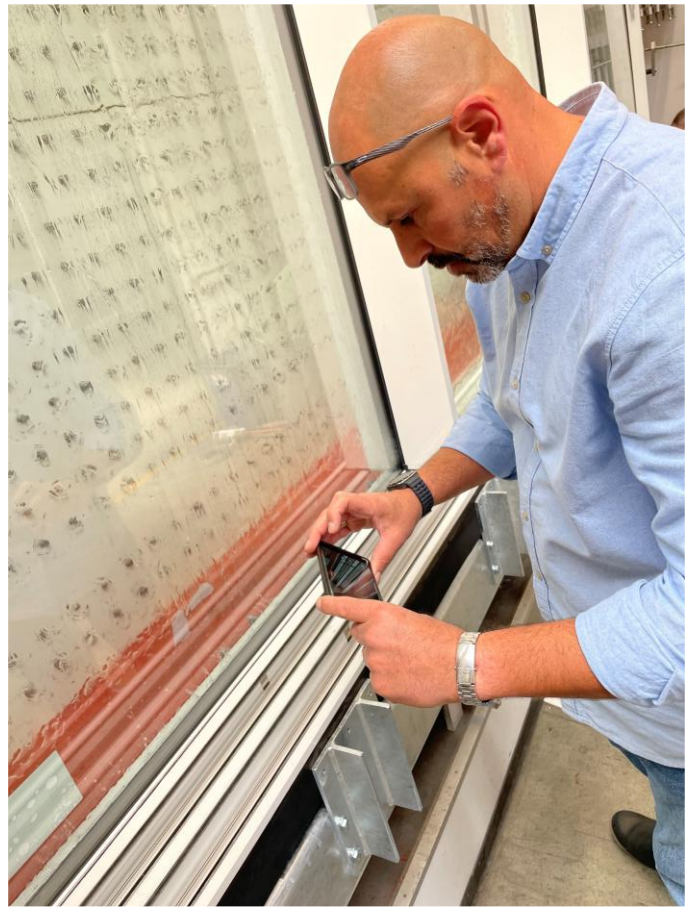
#Inspiration *bespoke*



CRAFTSMANSHIP - Inhouse Workshop Floor to warrant QUALITY

#Inspiration *bespoke*



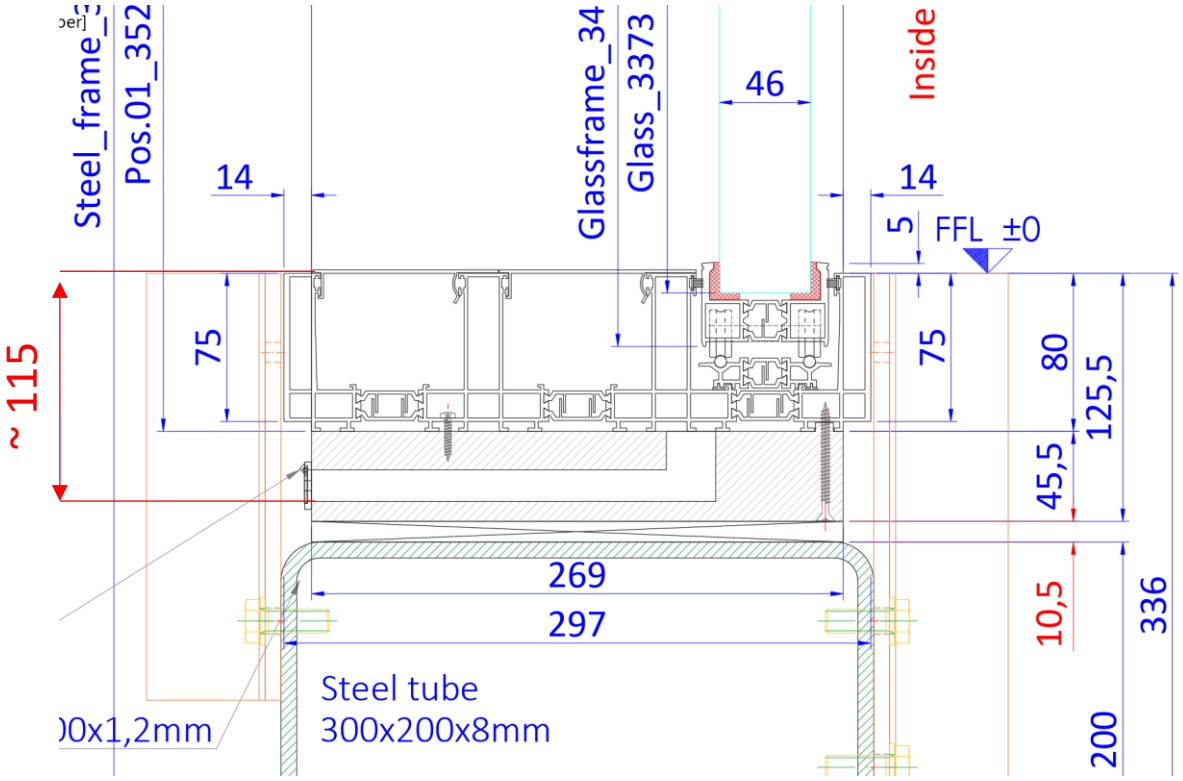


KNOWHOW - Inhouse Air-Water-Wind-Structural Testing

#Inspiration *bespoke*

2. TEST SEQUENCE

No	Test	Procedure	Max. pressure/ requirements
1	Air permeability	EN 1026	+750 Pa
			-750 Pa
2	Water tightness under static pressure	EN 1027	+750 Pa
3	Resistance to wind load	EN 12211	+1750 Pa
			-1500 Pa
4	Repeat air permeability	EN 1026	+750 Pa
			-750 Pa
5	Repeat water tightness under static pressure	EN 1027	+750 Pa
6	Resistance to wind load (safety test)	EN 12211	+2625 Pa
			-2250 Pa



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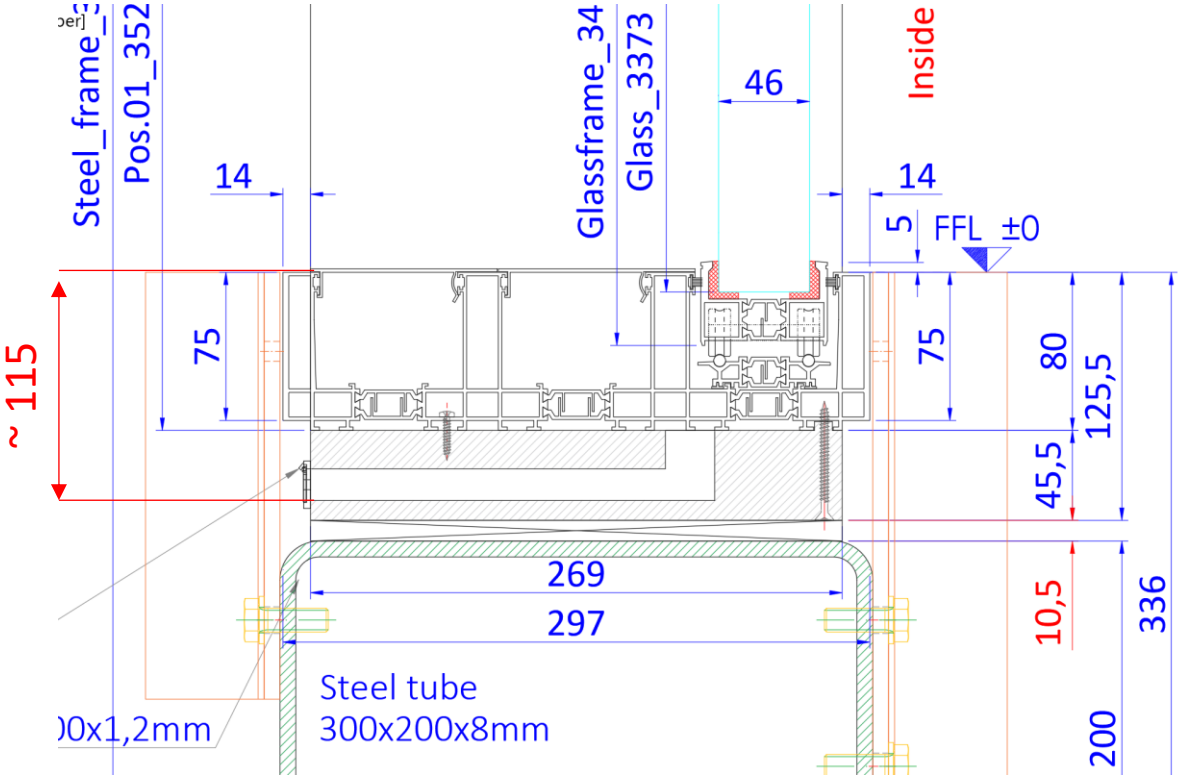


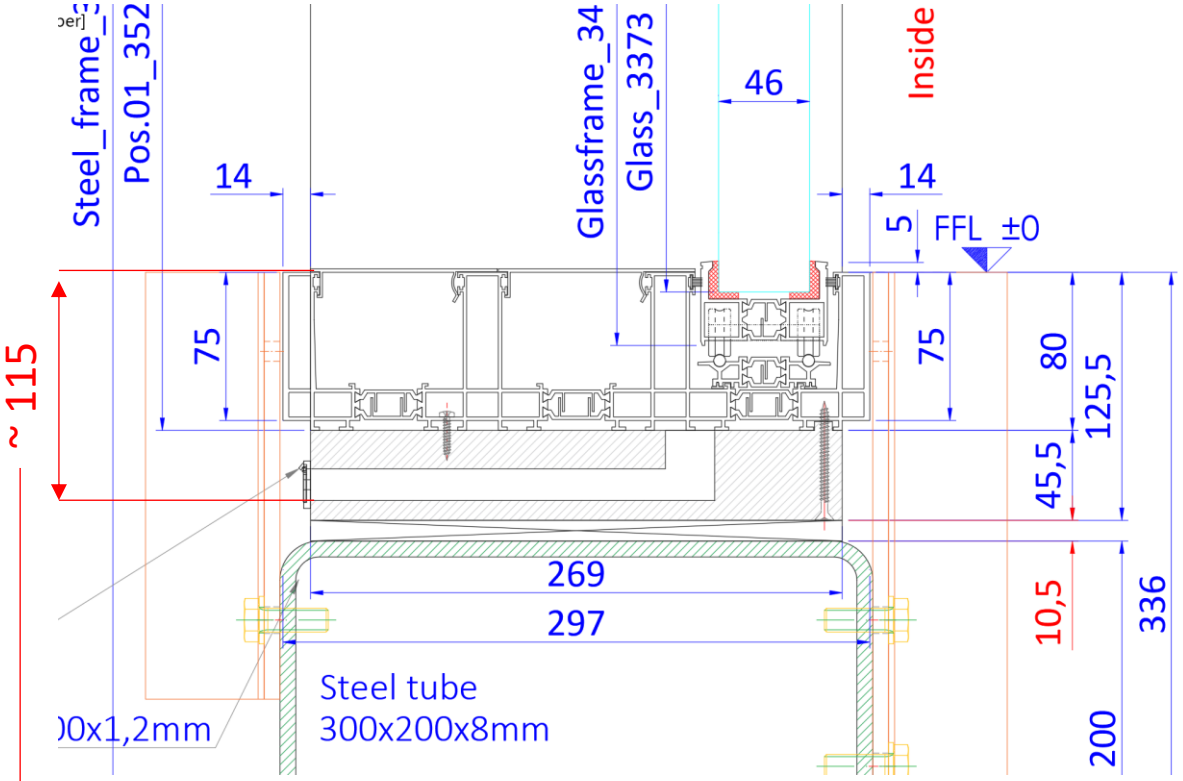
3.2. Water tightness under static pressure

Sequence according to standard

Pressure	Time	Result
0 Pa	15 min	Passed
50 Pa	5 min	Passed
100 Pa	5 min	Passed
150 Pa	5 min	Passed
200 Pa	5 min	Passed
250 Pa	5 min	Passed
300 Pa	5 min	Passed
450 Pa	5 min	Passed
600 Pa	5 min	Passed
750 Pa	5 min	Passed

Project Requirement: 750 Pa

#Inspiration *bespoke*



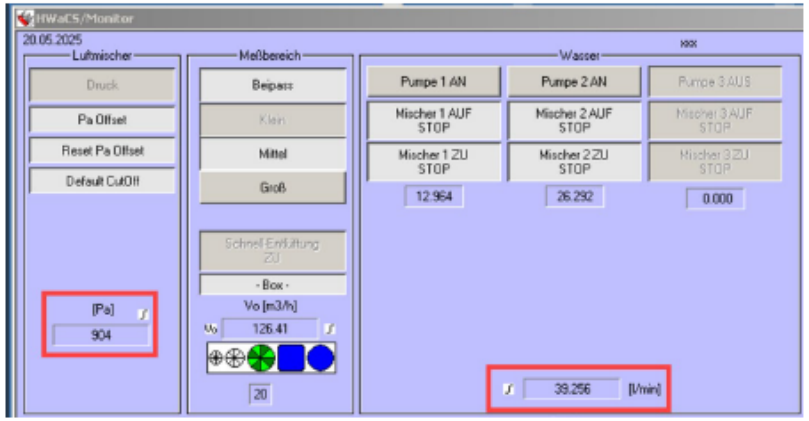
General RoT: 10 mm ~ 100 Pa Watertightness

3.5. Repeat water tightness under static pressure

Sequence according to standard

Pressure	Time	Result
0 Pa	15 min	Passed
50 Pa	5 min	Passed
100 Pa	5 min	Passed
150 Pa	5 min	Passed
200 Pa	5 min	Passed
250 Pa	5 min	Passed
300 Pa	5 min	Passed
450 Pa	5 min	Passed
600 Pa	5 min	Passed
750 Pa	5 min	Passed
900 Pa	5 min	Passed
1050 Pa	5 min	Passed
1200 Pa	5 min	Failed

After 4 of 5 min.

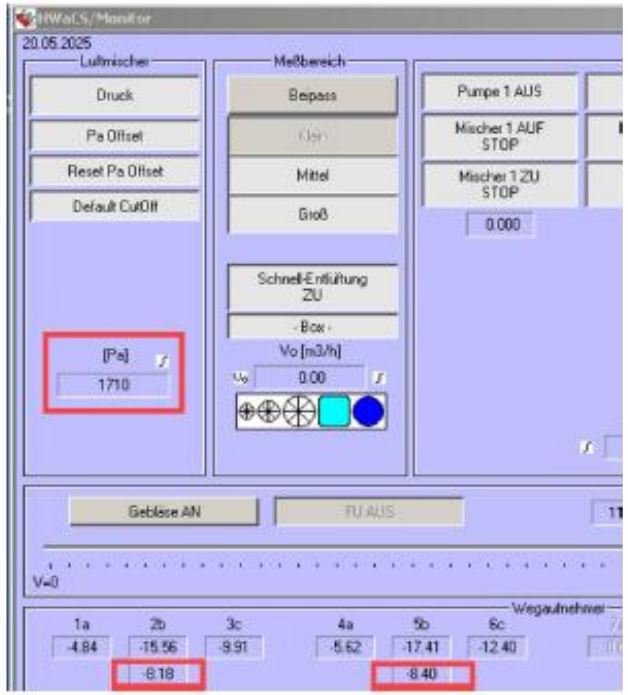


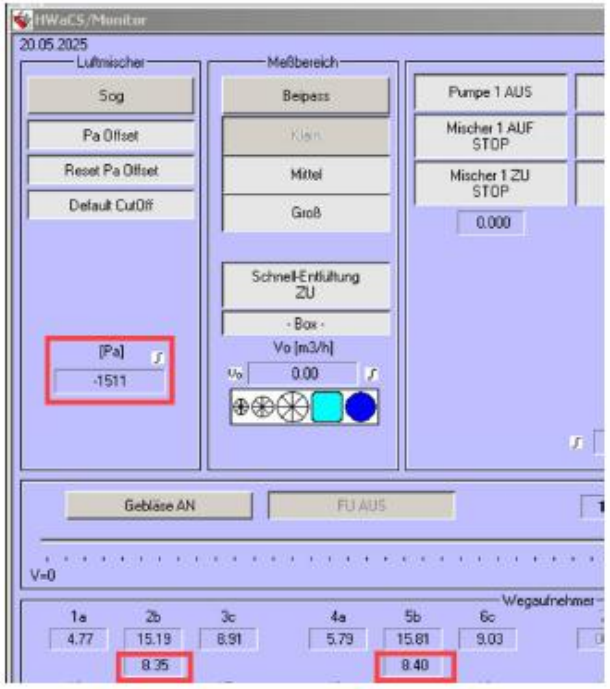
Project Requirement: 750 Pa

#Inspiration *bespoke*

3.3. Resistance to wind load

Allowed deflection for junction profile (L/200) → 3360/200 = 16,8mm



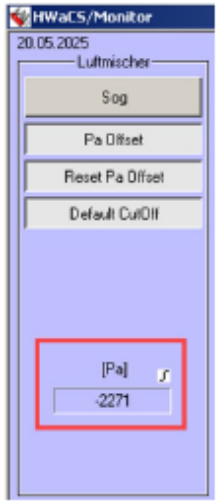


Result: max. 8,4mm which correspond to an **utilization of 50%**

3.6. Resistance to wind load (safety test)

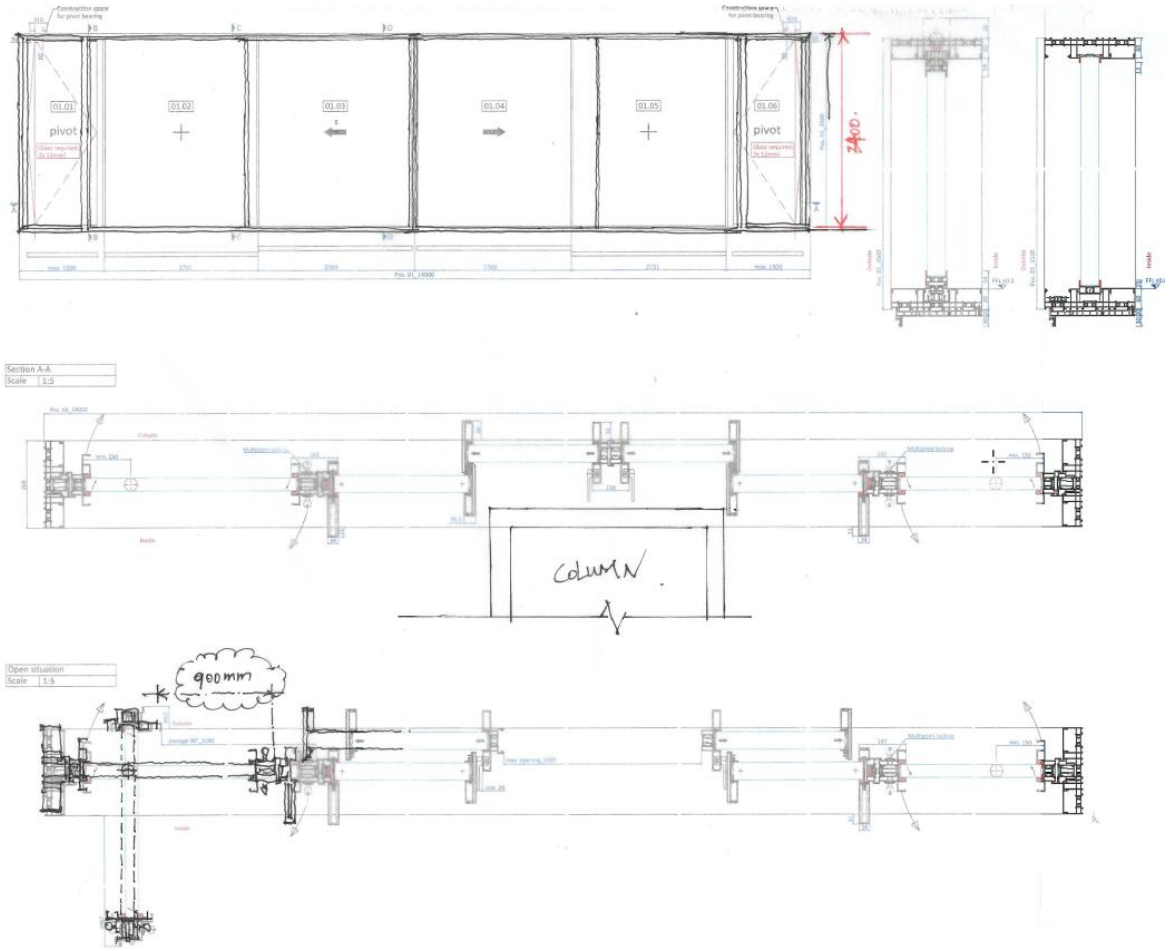
Prior to the safety test, we performed the cycling test (50 cycles) at half design pressure.

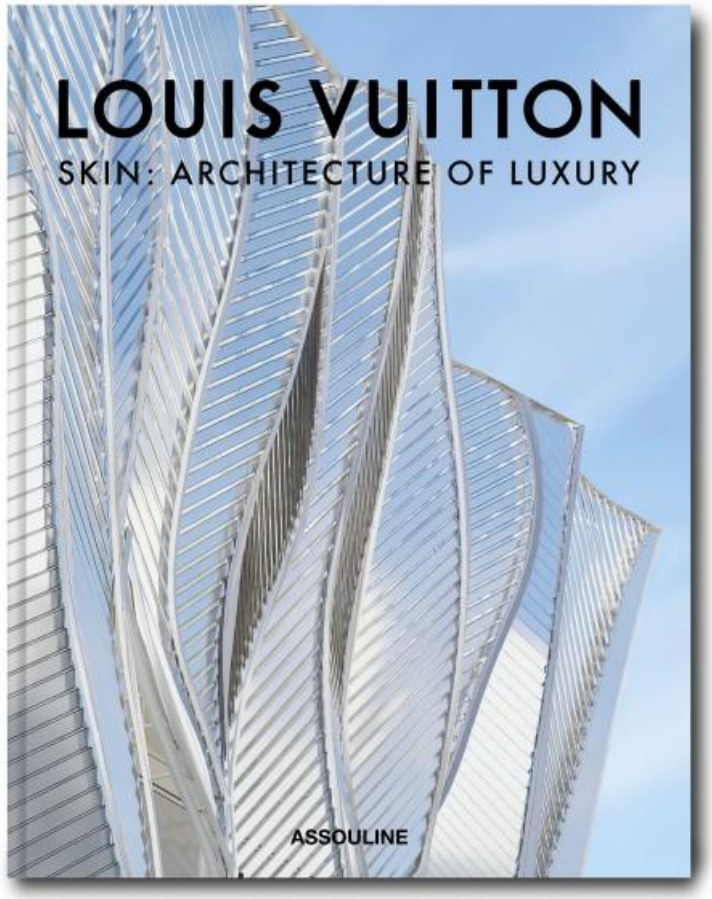
	Druck		Zeit	
Zyklen	Pa Soll	Pa Ist	Stufen	Total
50	875	875	00:00:05	00:21:23
50	-750	-749	00:00:05	00:21:23



The safety test was performed succesfully. No break noted. Sliding leaves still work properly.

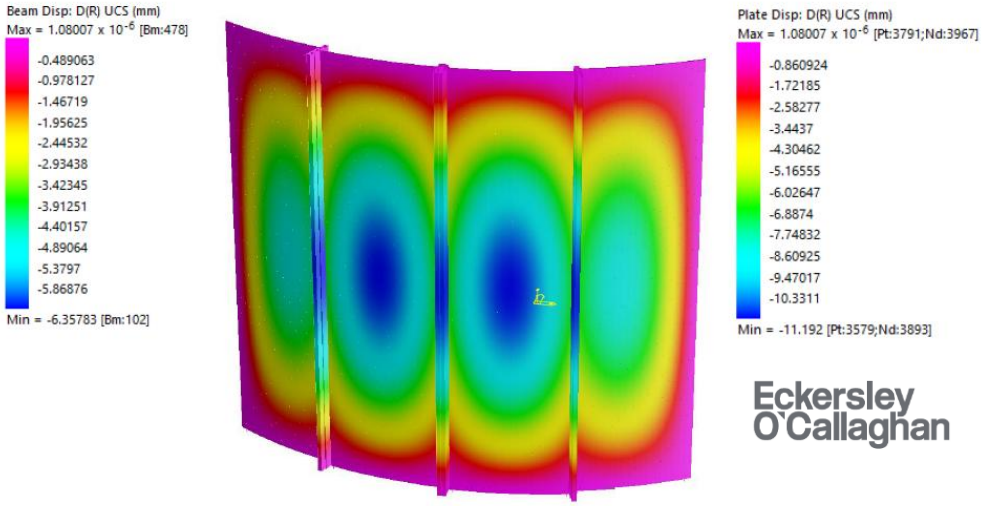
#Louis Vuitton *bespoke*





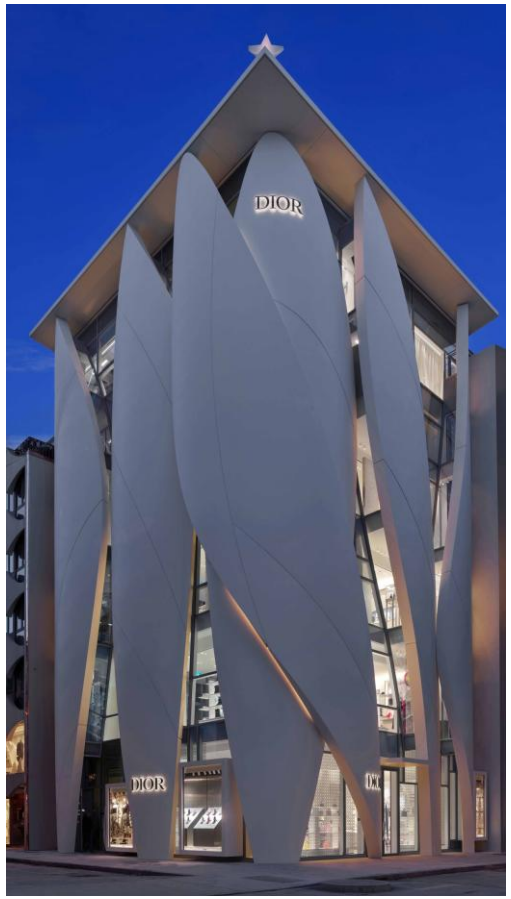
Architect: EIGHTSIXTHREE Architecture

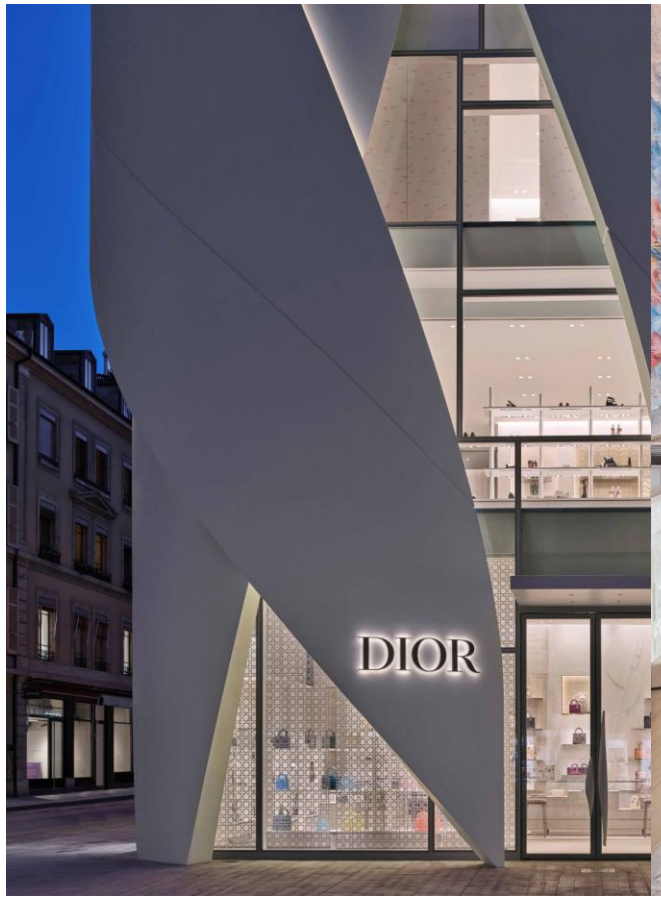
PALM FLOWER U.A.E. - *bespoke*



Architect: Foster Architects

#DIOR Geneva *bespoke*

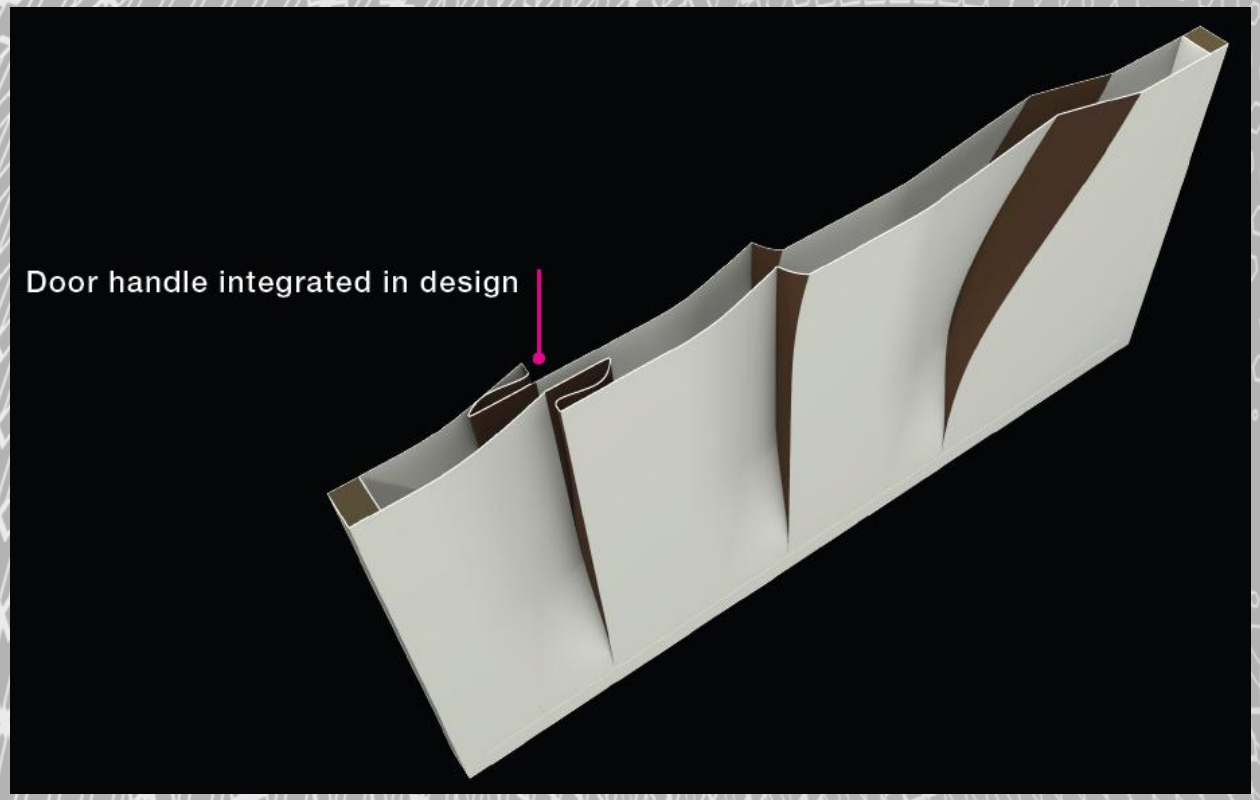


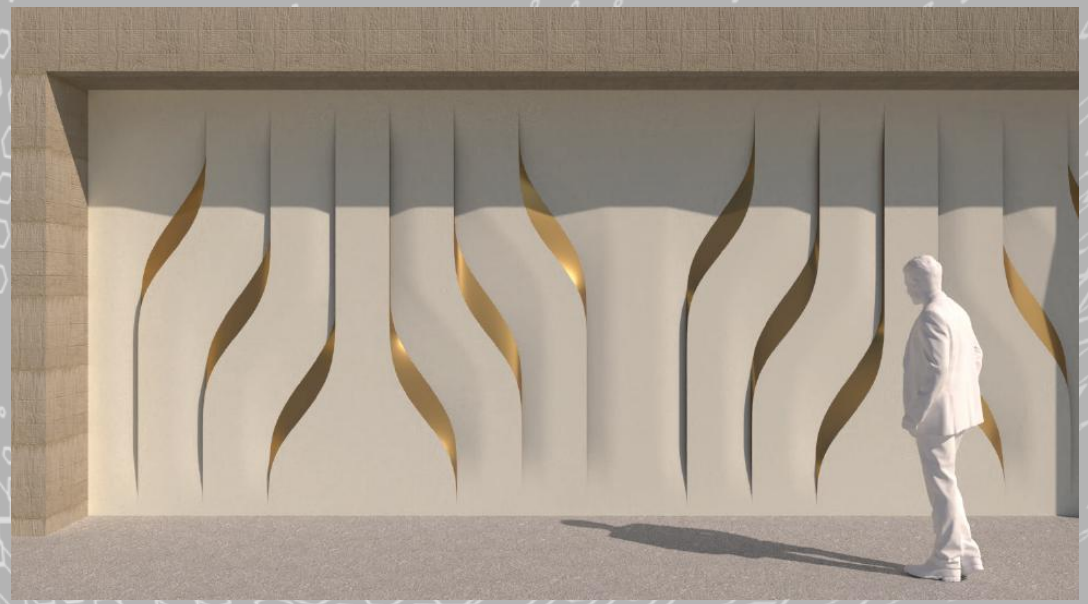


Architect: *Christian de Portzamparc*, the first French architect to receive the prestigious Pritzker Prize.

Zaha Hadid Architects

KELLER minimal windows

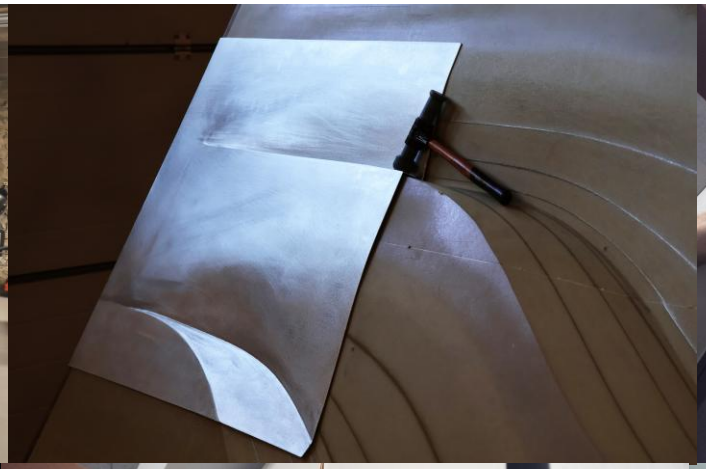


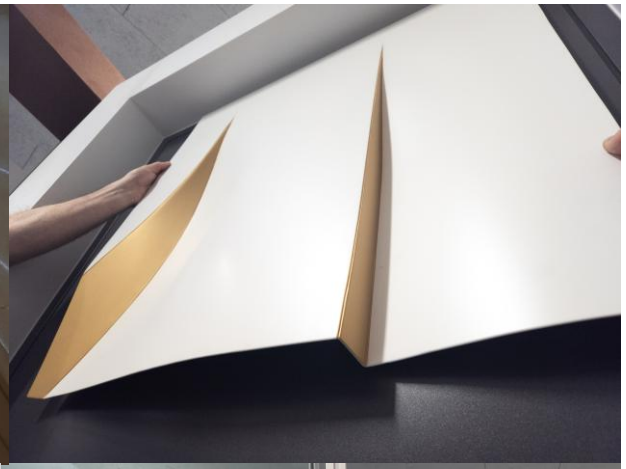


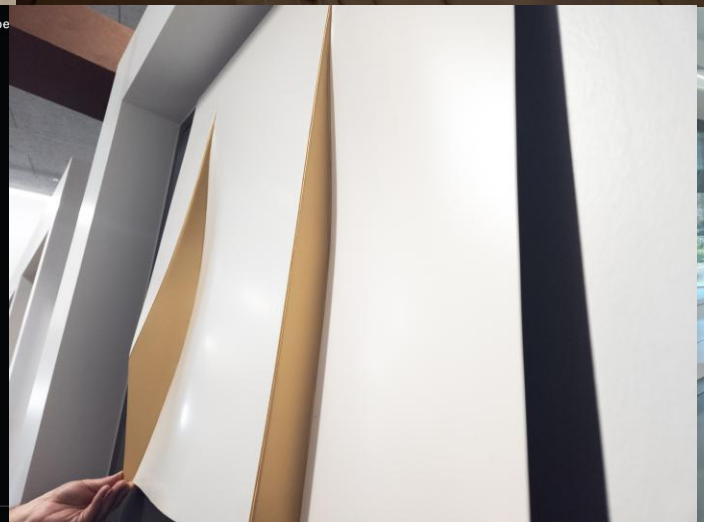
#Bespoke Door – Mold fabrication for body shop works

- Shape of the aluminium sheet covers are made by hand
- Aluminium sheet metal is shaped by a hammer against a negative mold

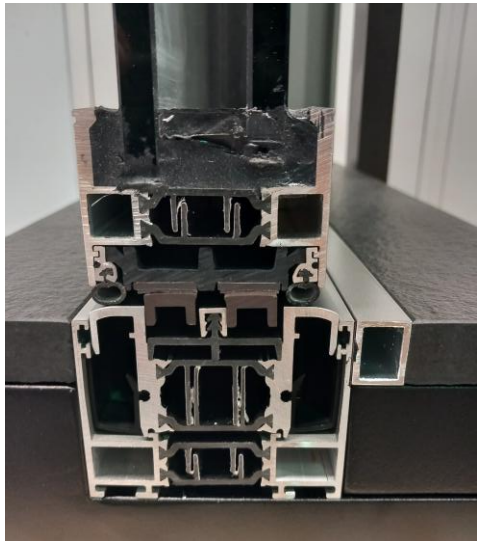
#Bespoke Door – Mold fabrication for body shop works

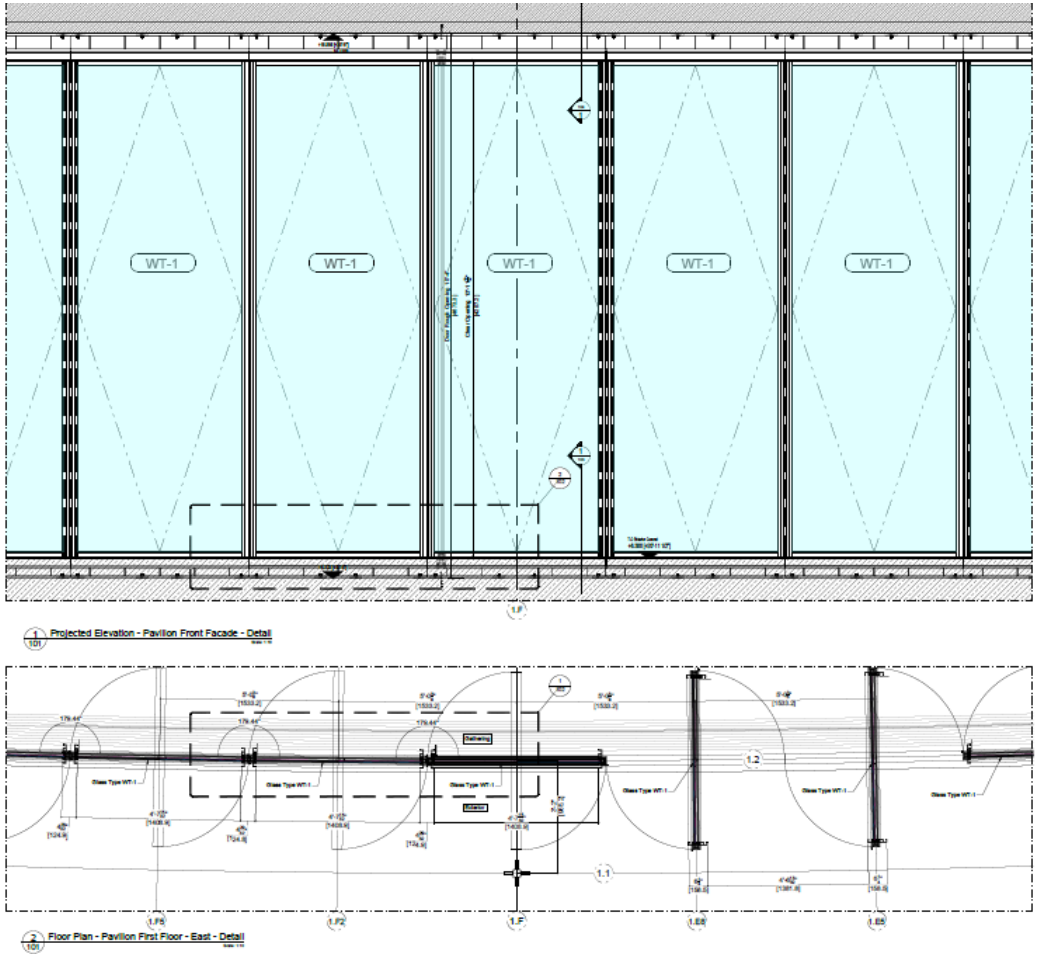






Central Park USA *bespoke*





- Wind:1,22 kPa.
- 23 x pivot door W 1500 x H 4300mm.
- Pivoting points are in the middle of each door.

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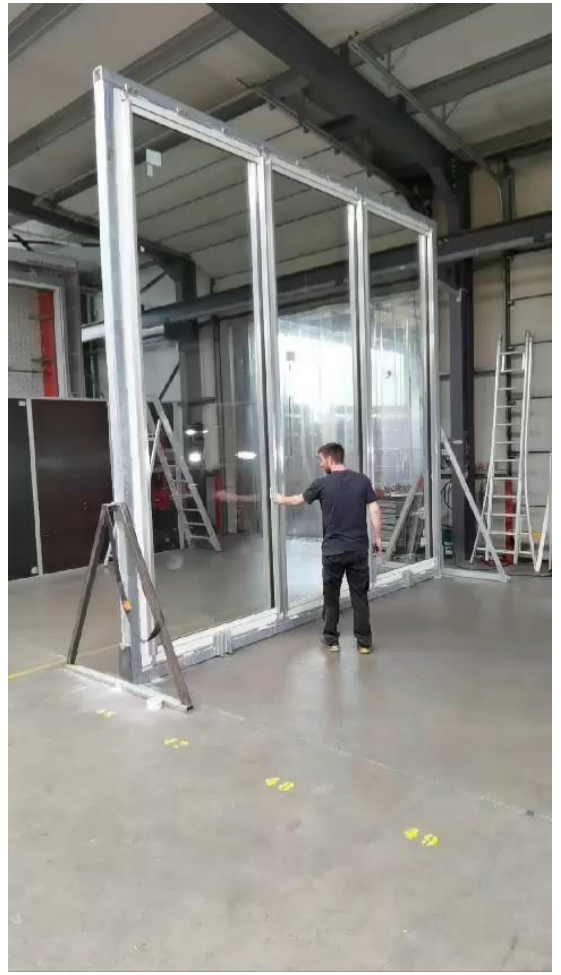
Architect: Mitchell Giurgola Architects

Central Park USA *bespoke*



Architect: Mitchell Giurgola Architects

- Wind:1,22 kPa.
- 23 x pivot door W 1500 x H 4300mm.
- Pivoting points are in the middle of each door.

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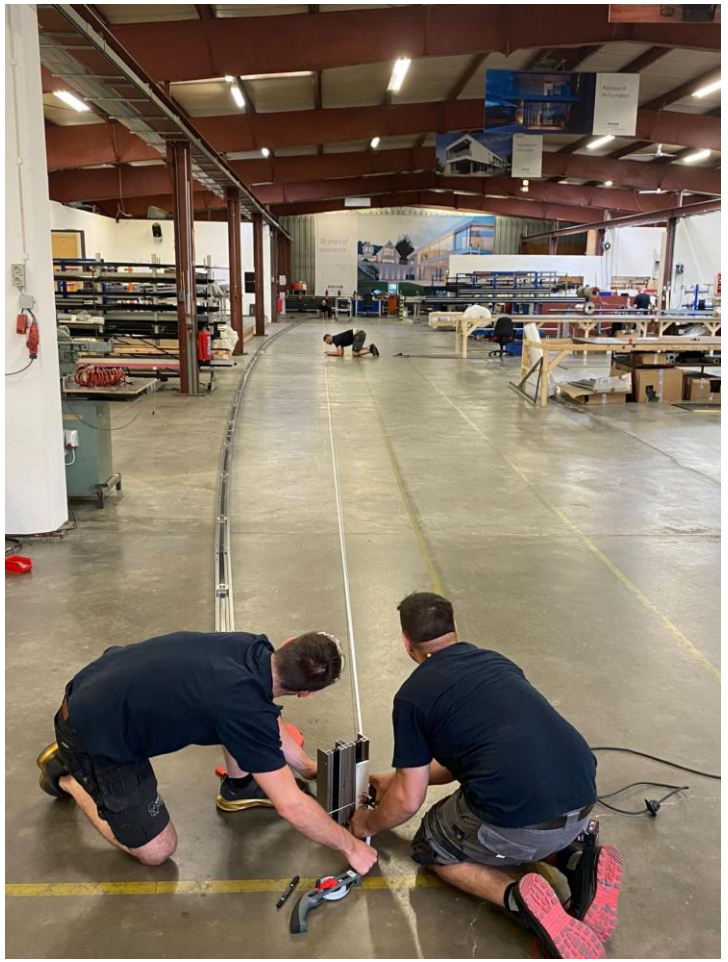
Central Park USA *bespoke*



Architect: Mitchell Giurgola Architects

- Wind:1,22 kPa.
- 23 x pivot door W 1500 x H 4300mm.
- Pivoting points are in the middle of each door.

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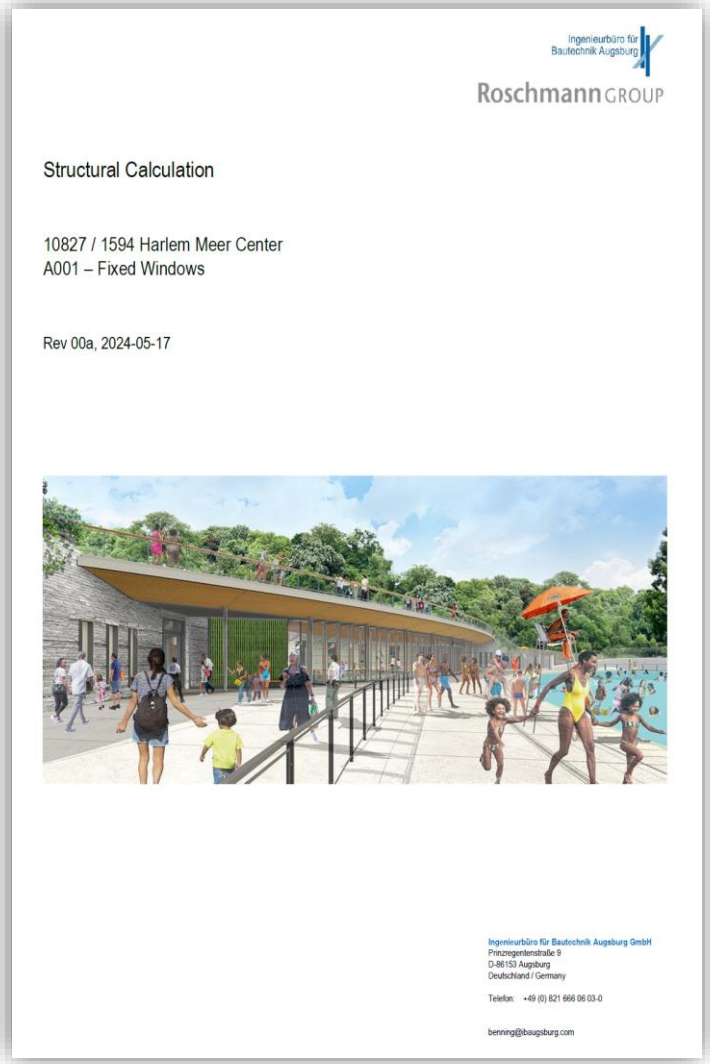
Central Park USA *bespoke*



Ingenieurbüro für Bautechnik Augsburg

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Structural Calculation

10827 / 1594 Harlem Meer Center
A001 – Fixed Windows

Rev 00a, 2024-05-17

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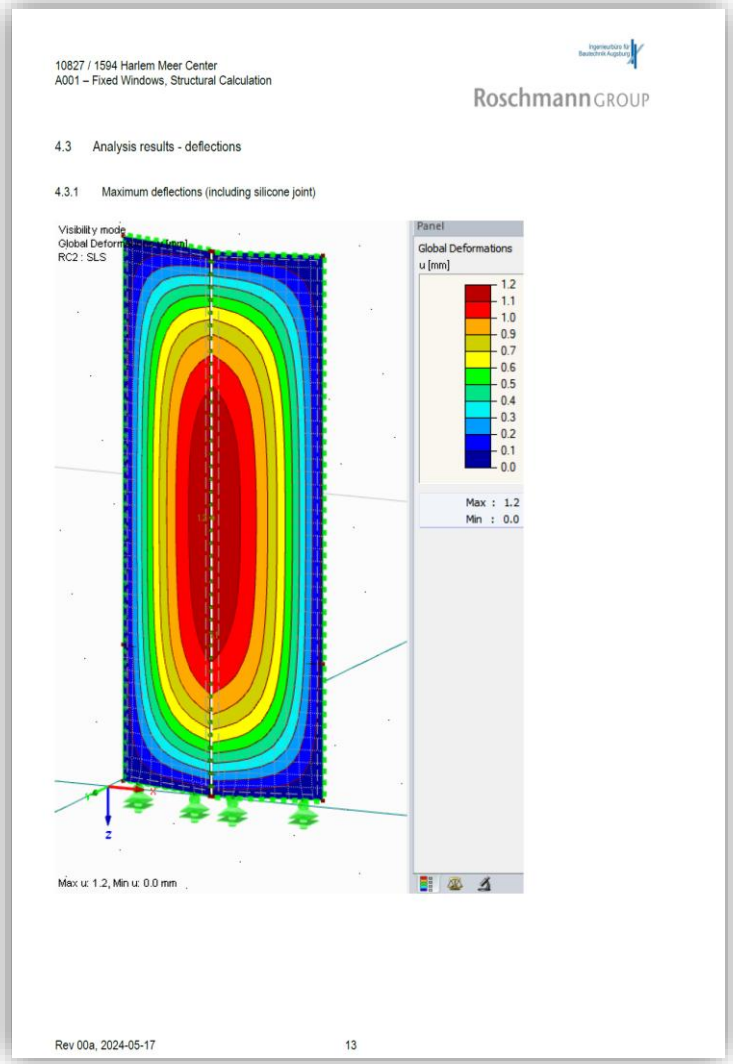

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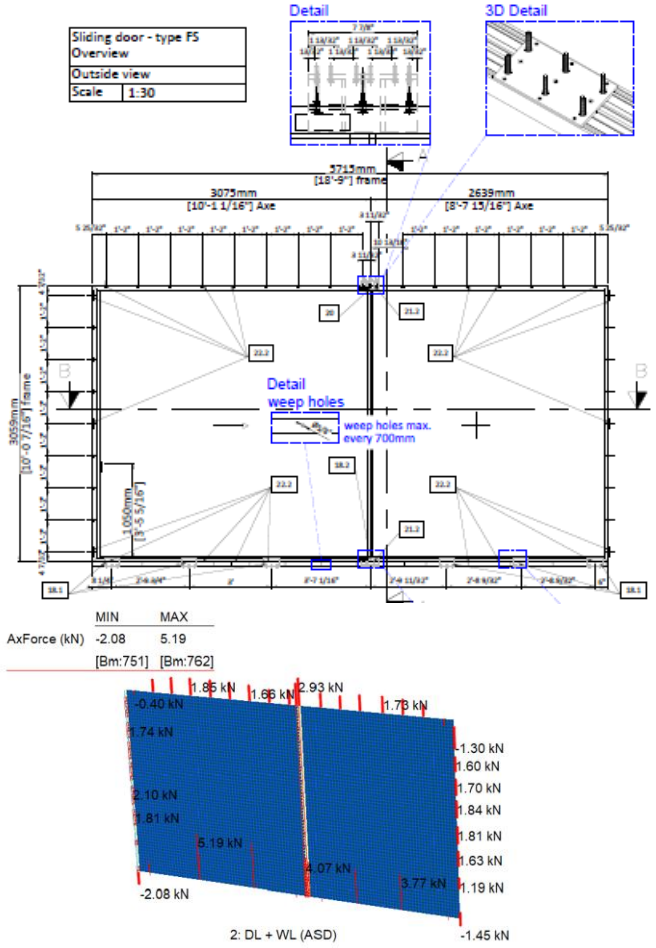
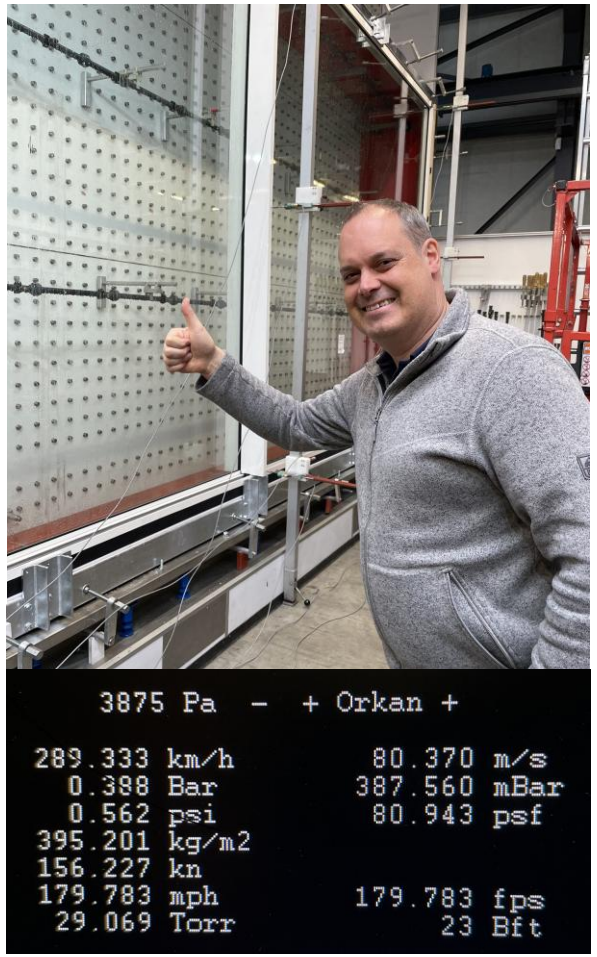
4.3 Analysis results - deflections

4.3.1 Maximum deflections (including silicone joint)

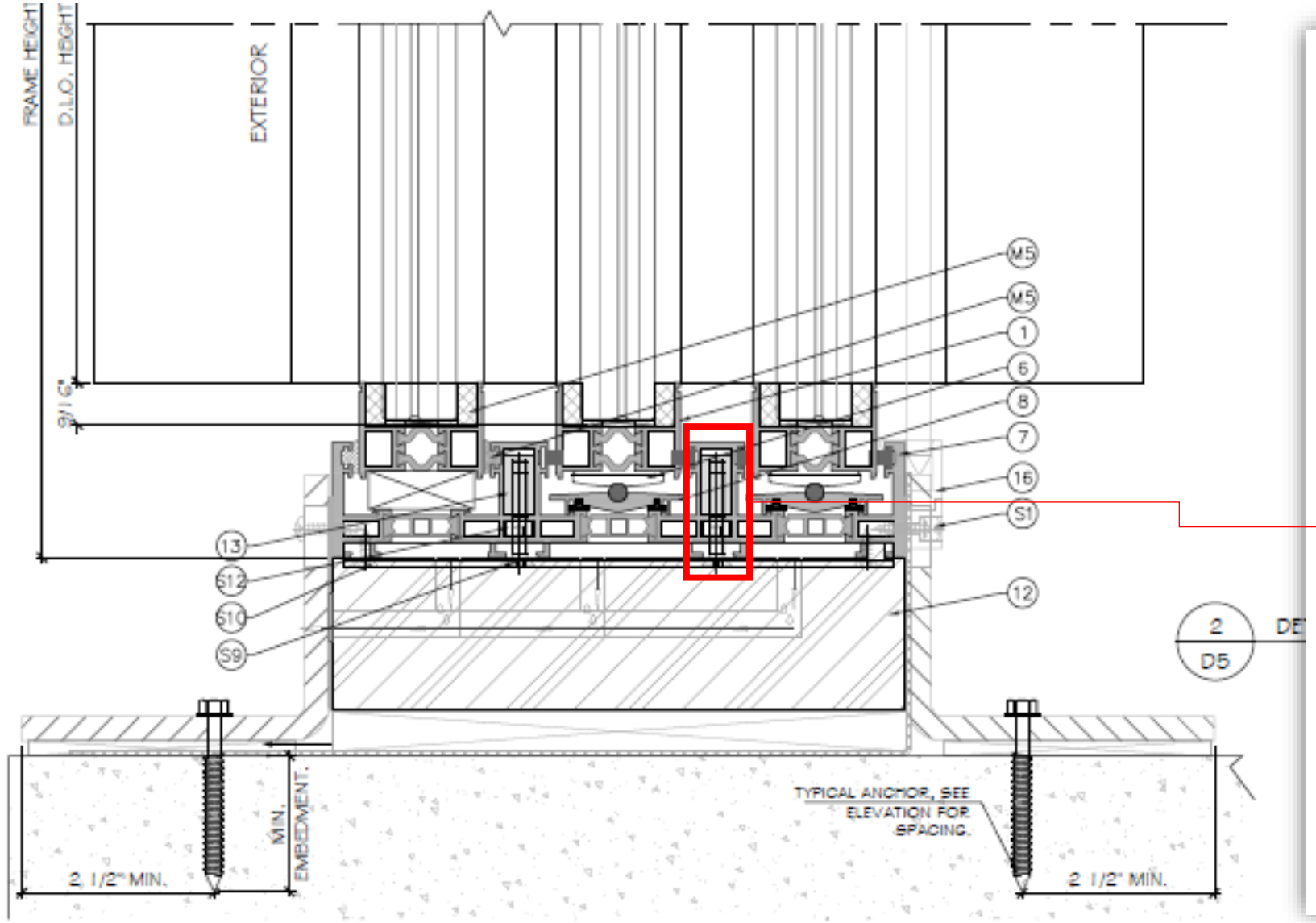
Surfhouse FL - *bespoke*

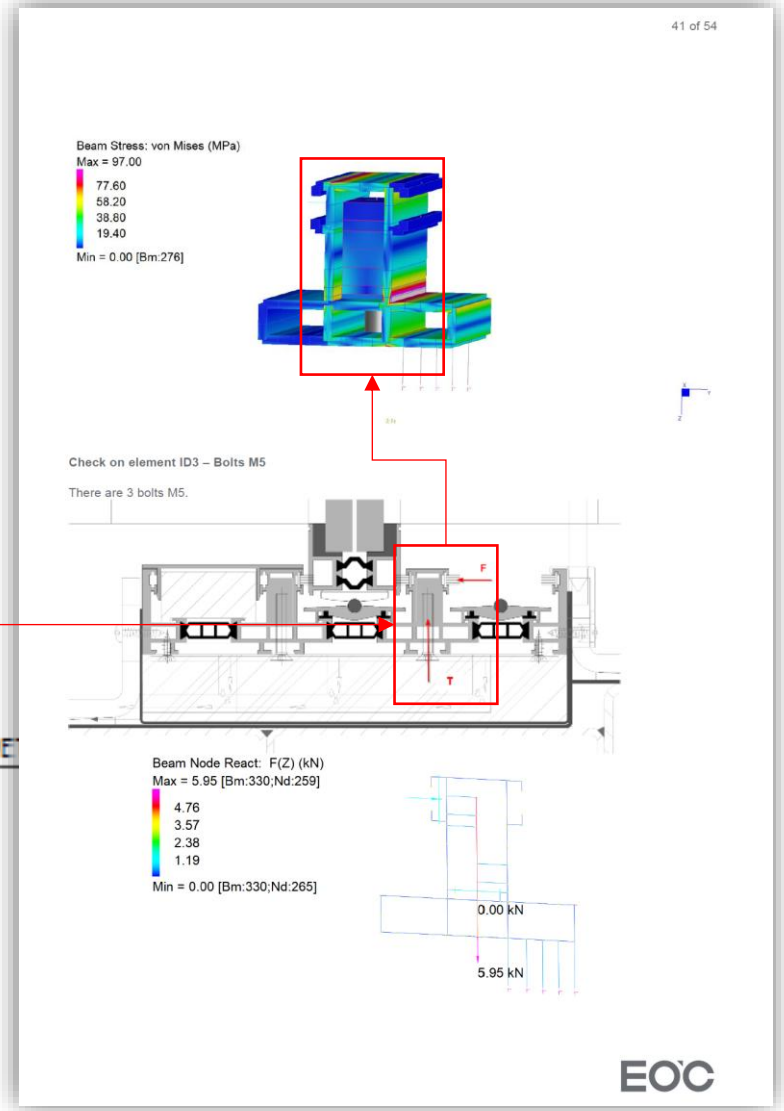




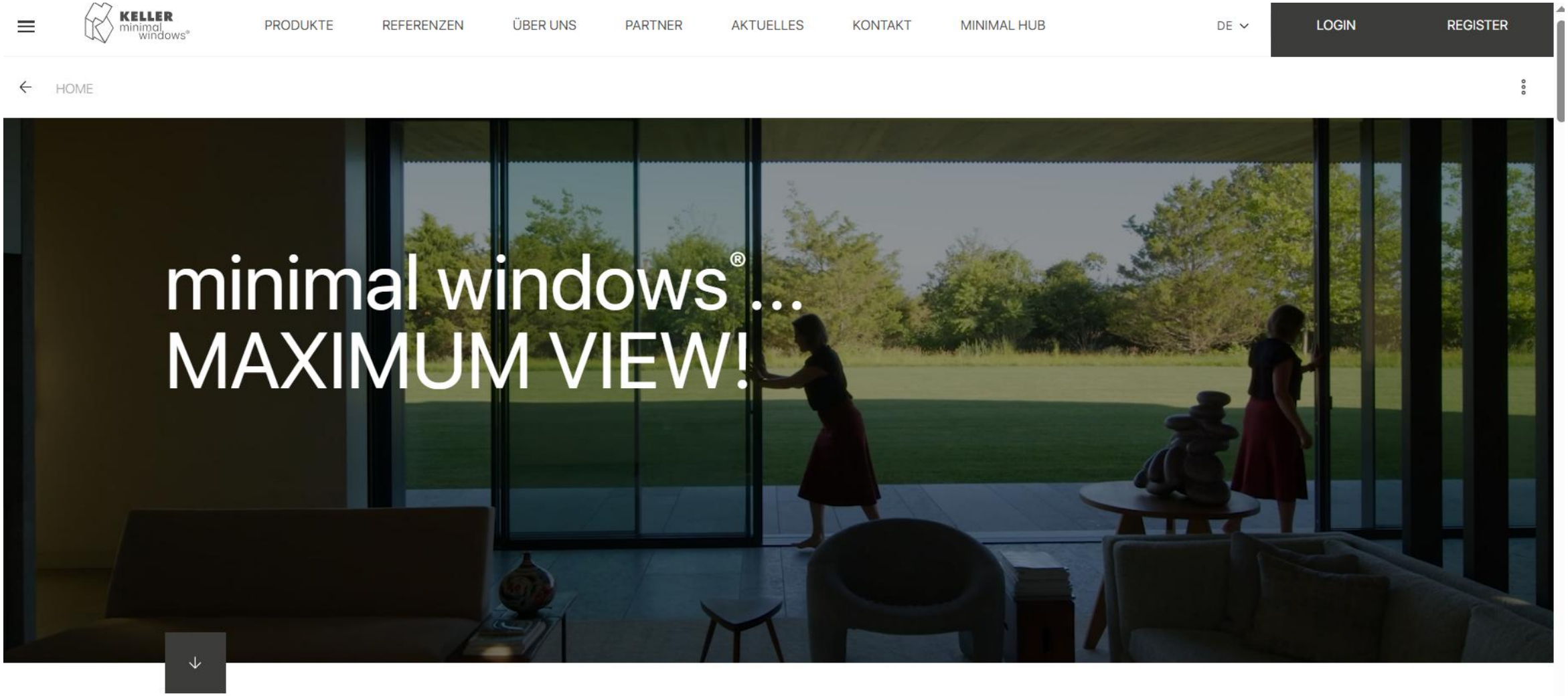
Architect: Kobi Karp Architecture & Interior Design, FL-Miami
Owner: FORT Partners, FL-Miami

Surfhouse FL - *bespoke*





Inspiration



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