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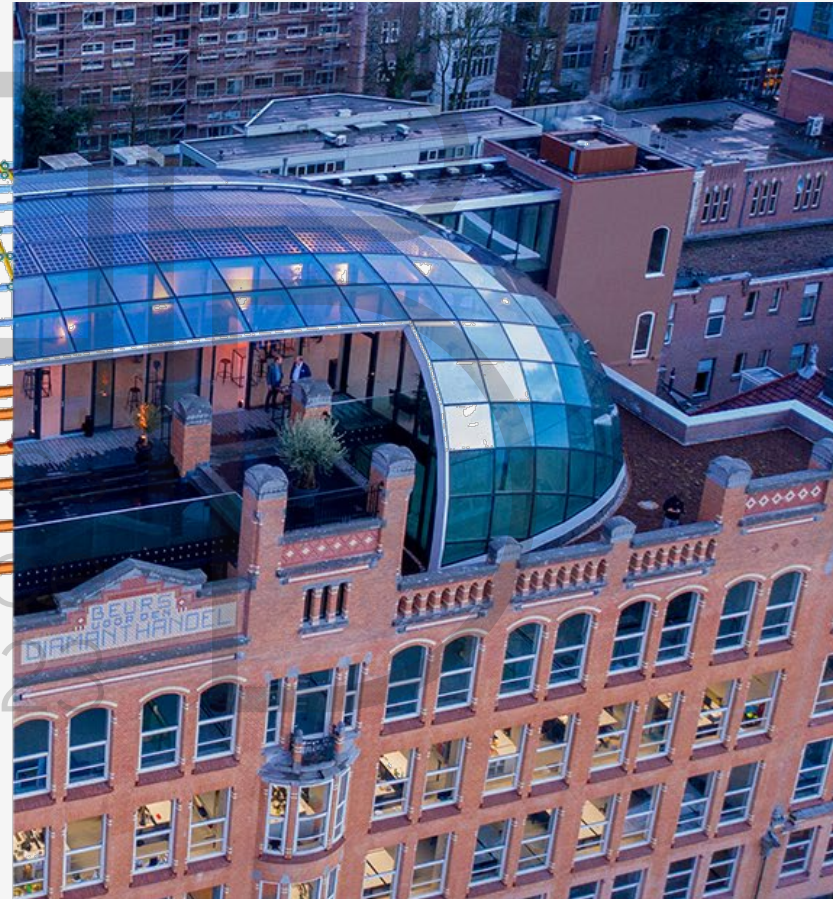
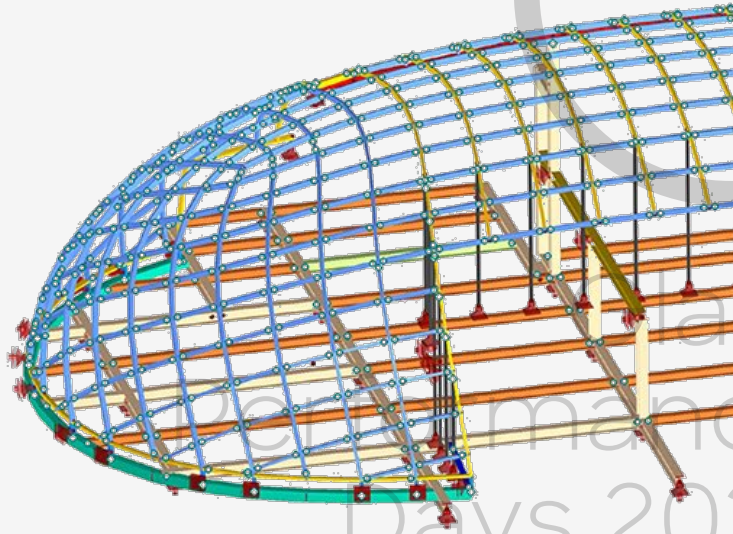
realizing challenging architecture

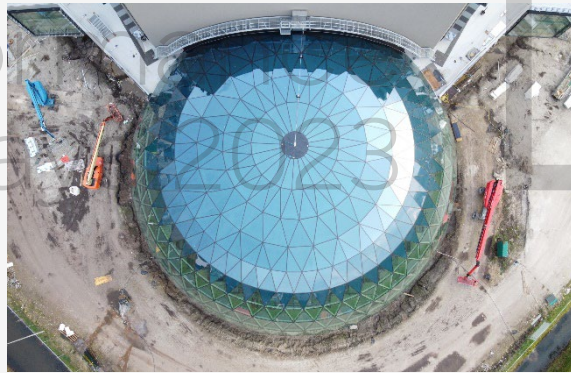
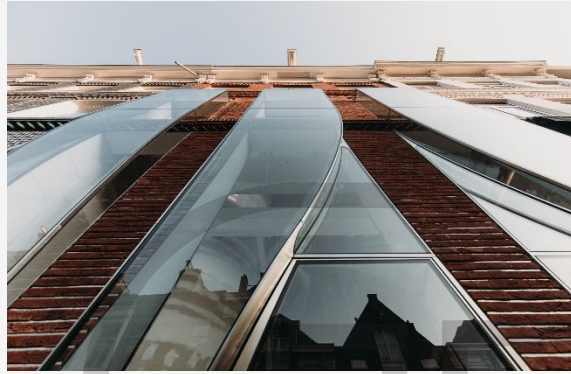
Glass
Performance
Days 2023

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WHAT WE DO

Design & Build





Perfor
Data

THE HAGUE

C30

Dome-shaped gridshell over monumental courtyard

Iris Rombouts
Koos Fritzsche

Glass
Performance
Days 2023

INDEX

C30

1. Introduction
2. Engineering of the geometry
3. Structural design
+ cold twisting of glass
4. Production
5. Installation
6. Conclusion

GPD
Glass
Performance
Days 2023



INDEX

C30

1. Introduction
2. Engineering of the geometry
3. Structural design
+ cold twisting of glass
4. Production
5. Installation
6. Conclusion

GPD
Glass
Performance
Days 2023



PROJECT INFO

C30

Client: Shell & De Vries en Verburg
Contractor: De Vries en Verburg Bouw
Architect: Jacobs
Scope: Gridshell
Total m²: 956

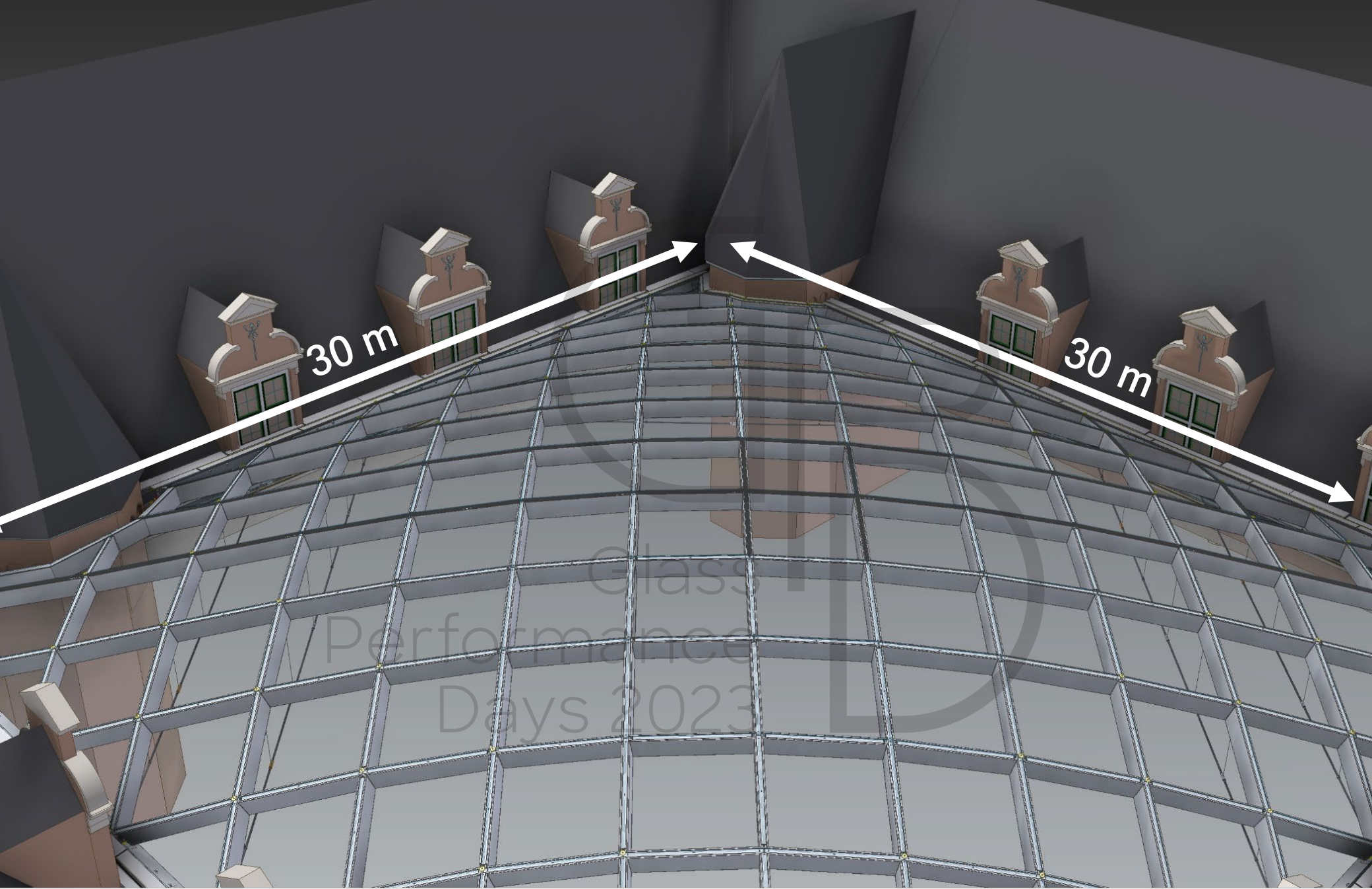
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Performance
Days 2023





Glass
Performance
Days 02

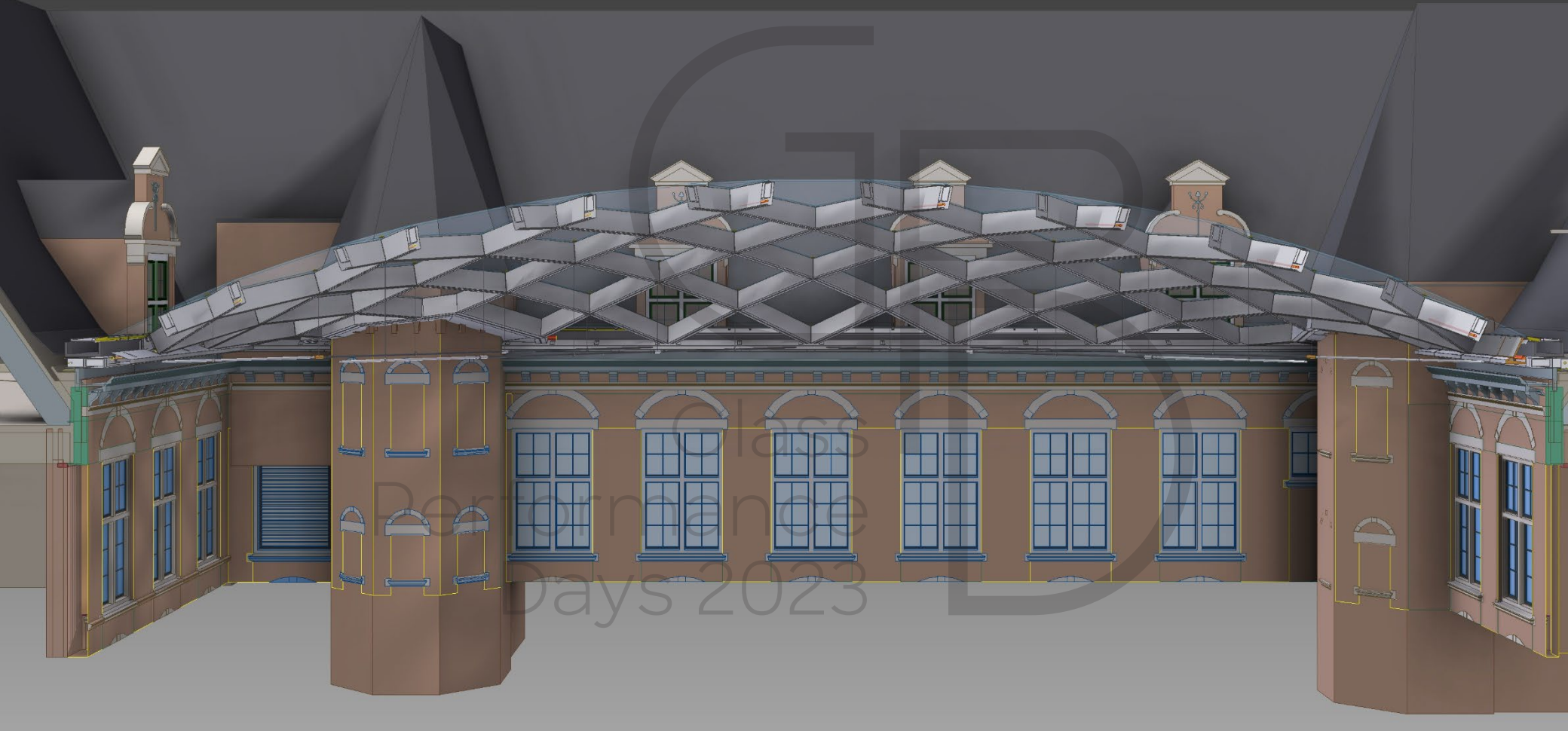




30 m

30 m

Glass
Performance
Days 2023



INDEX

C30

1. Introduction
2. **Engineering of the geometry**
3. Structural design
+ cold twisting of glass
4. Production
5. Installation
6. Conclusion

Glass
Performance
Days 2023



GRIDSHELL

**SUSPENDED STRUCTURE
(IN TWO DIRECTIONS)
+ GLASS FINIS**

**SUSPENDED STRUCTURE
(IN ONE DIRECTION)
+ GLASS FINIS**

1A

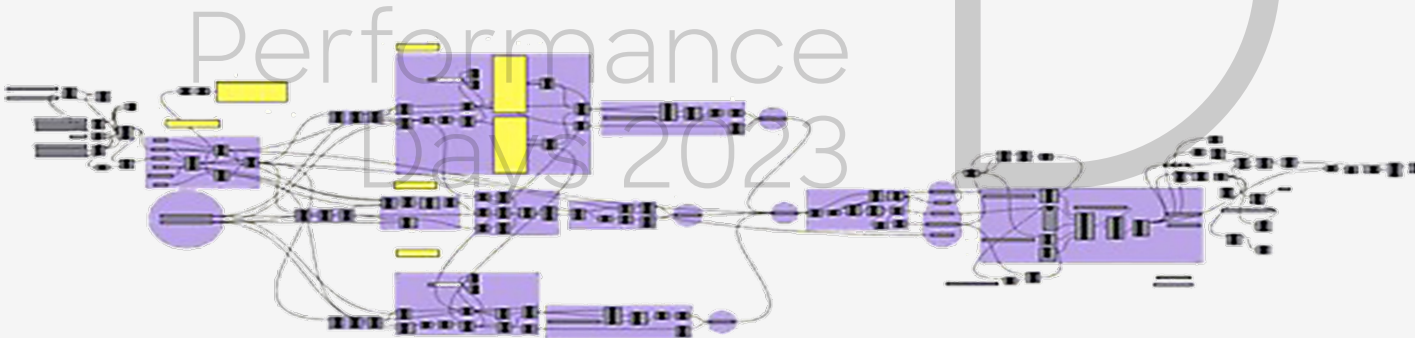
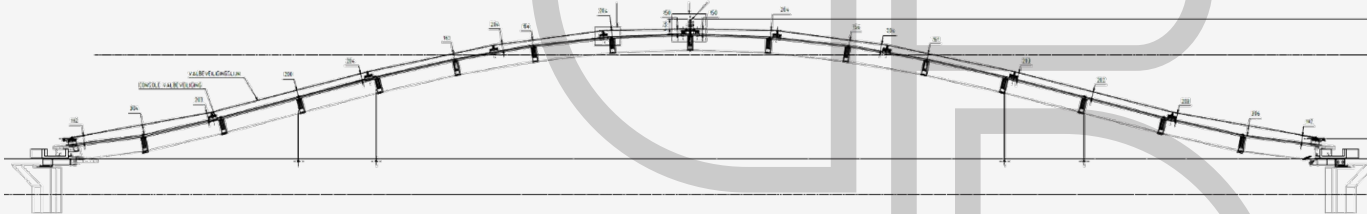
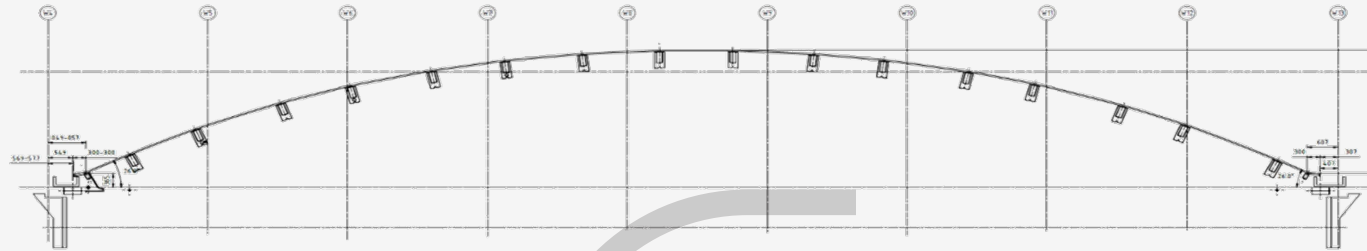
2

3A

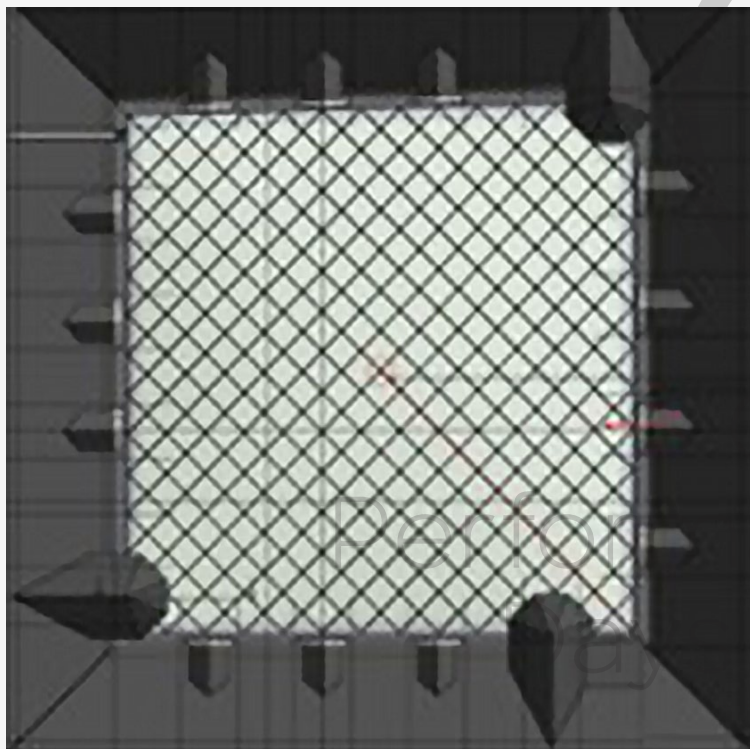
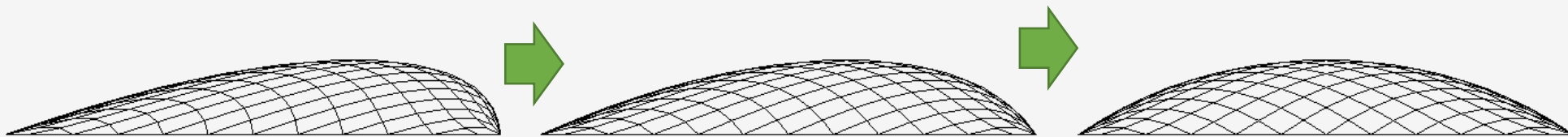
1B

3B

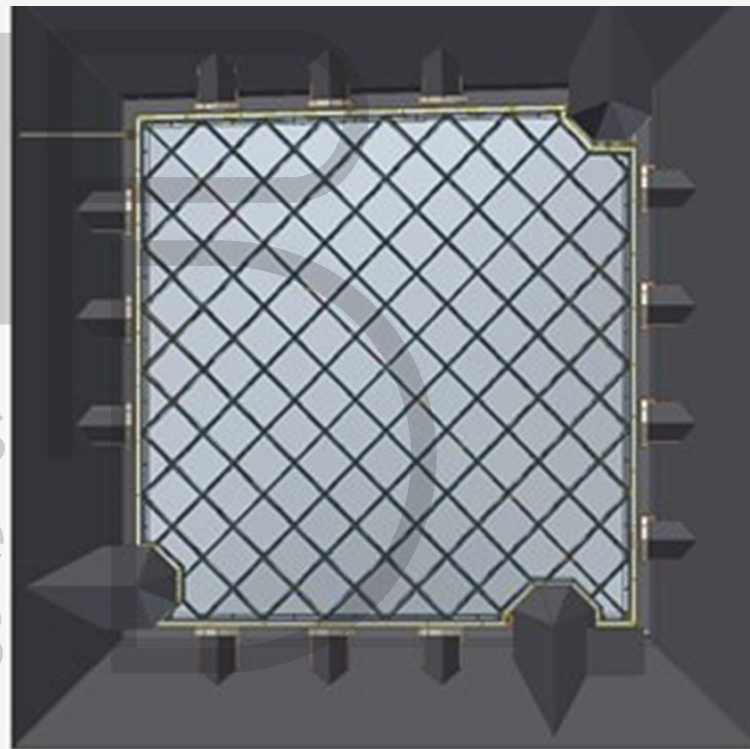
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Days 2023

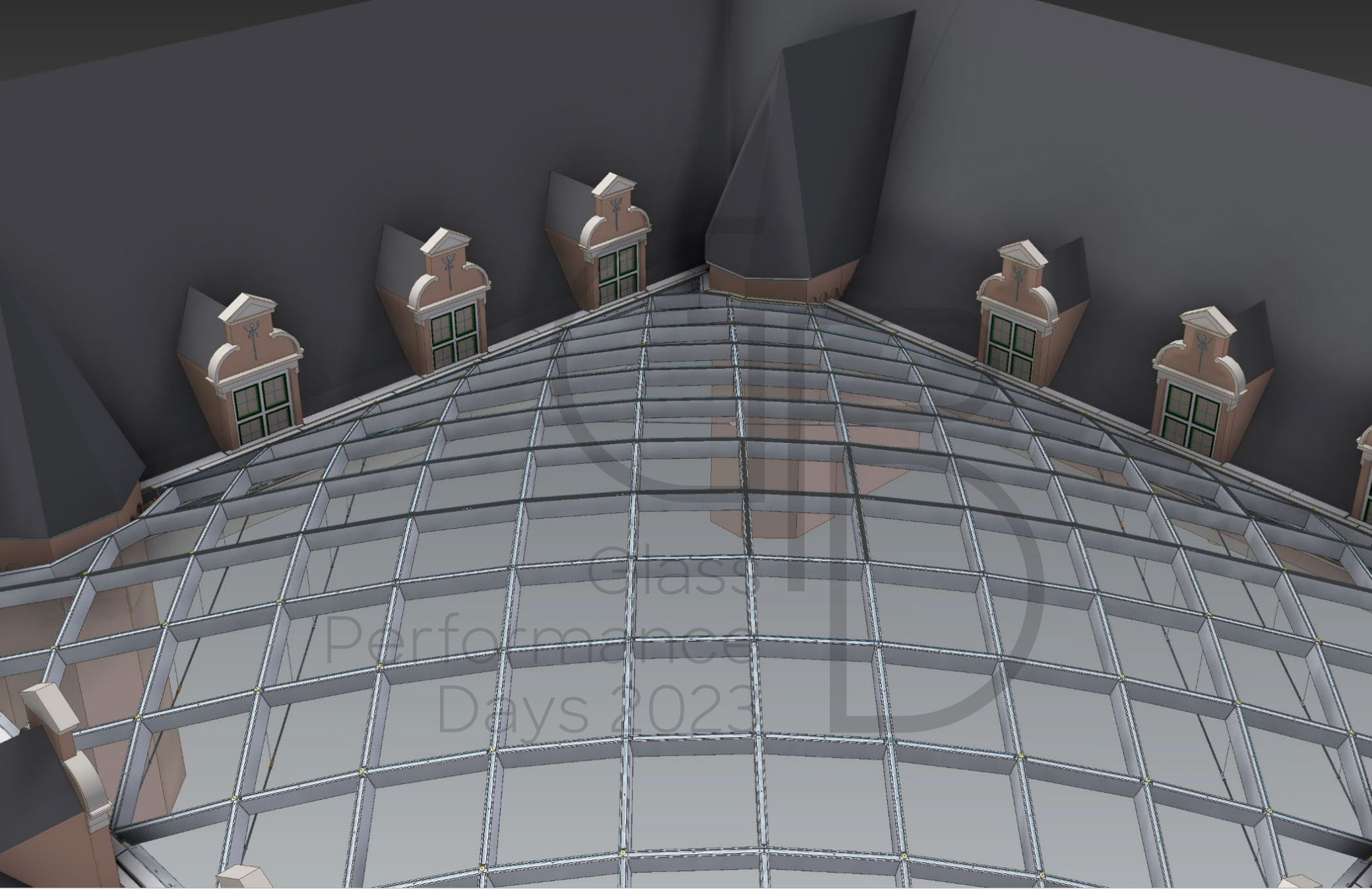


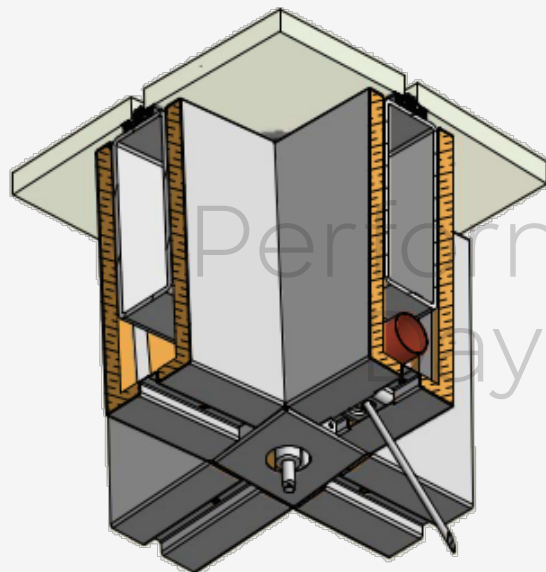
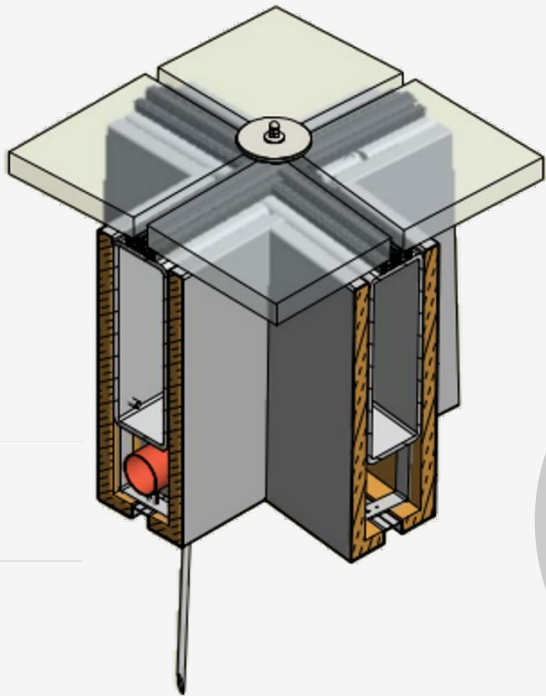
1.6 x 1.6m



2.6 x 2.6m

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ance
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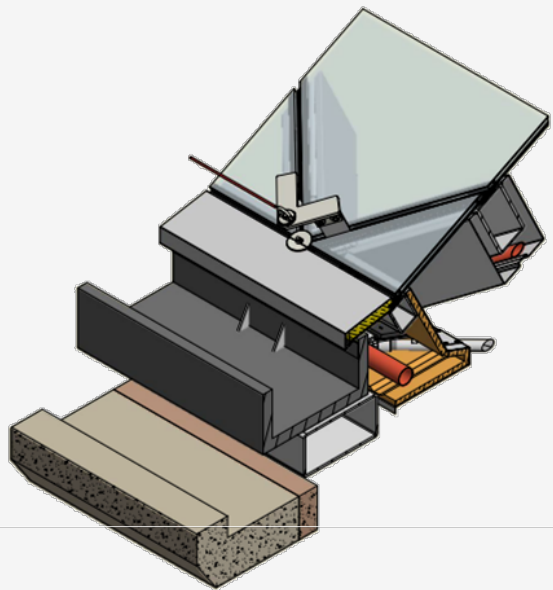




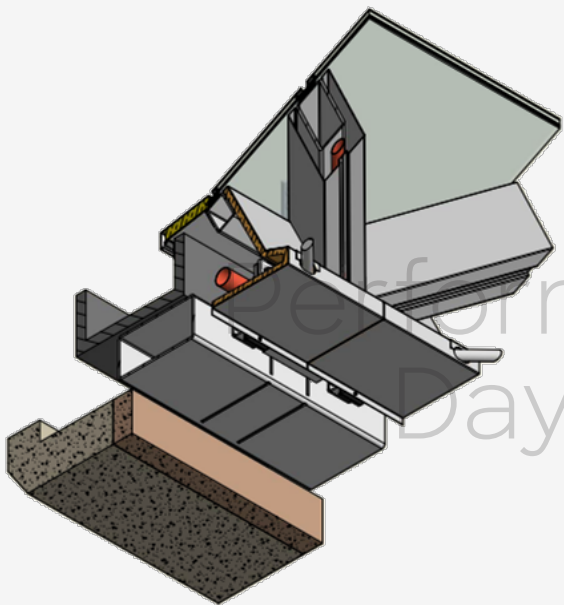
G

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Performance
Days 2023

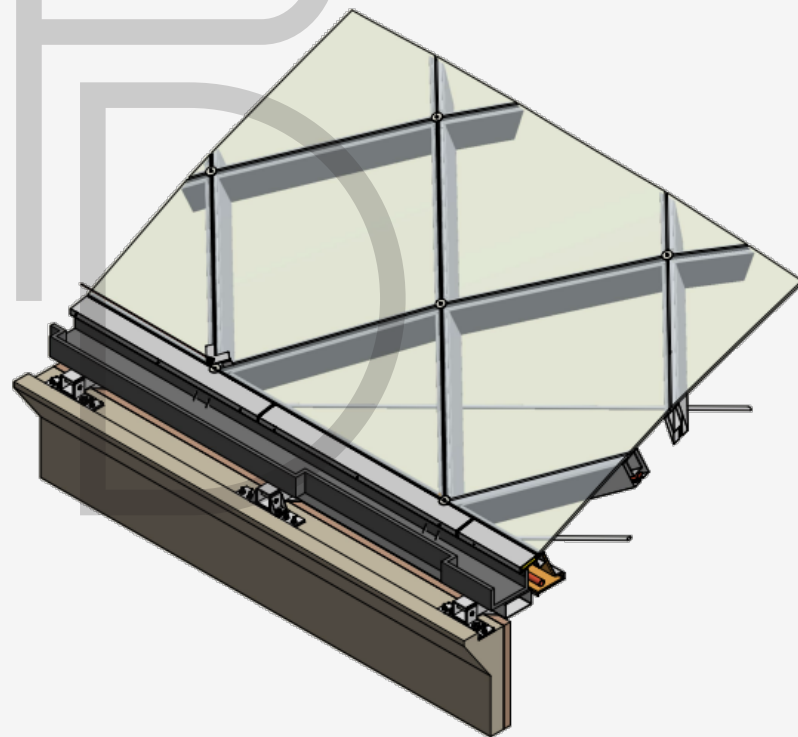




ISOMETRIE VANAF BUITEN



ISOMETRIE VANUIT BINNEN



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Performance
Days 2023

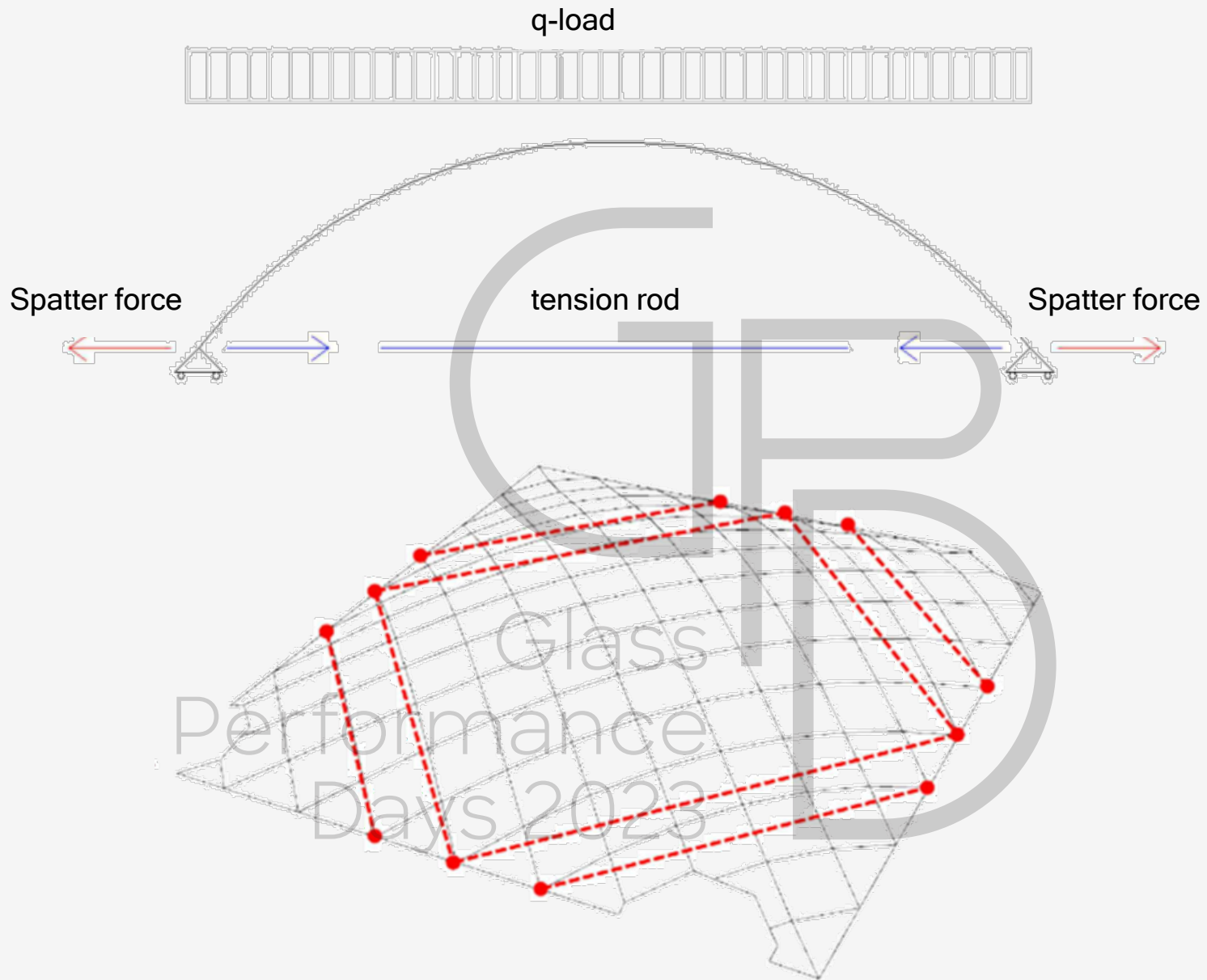
INDEX

C30

1. Introduction
2. Engineering of the geometry
3. **Structural design**
+ cold twisting of glass
4. Production
5. Installation
6. Conclusion

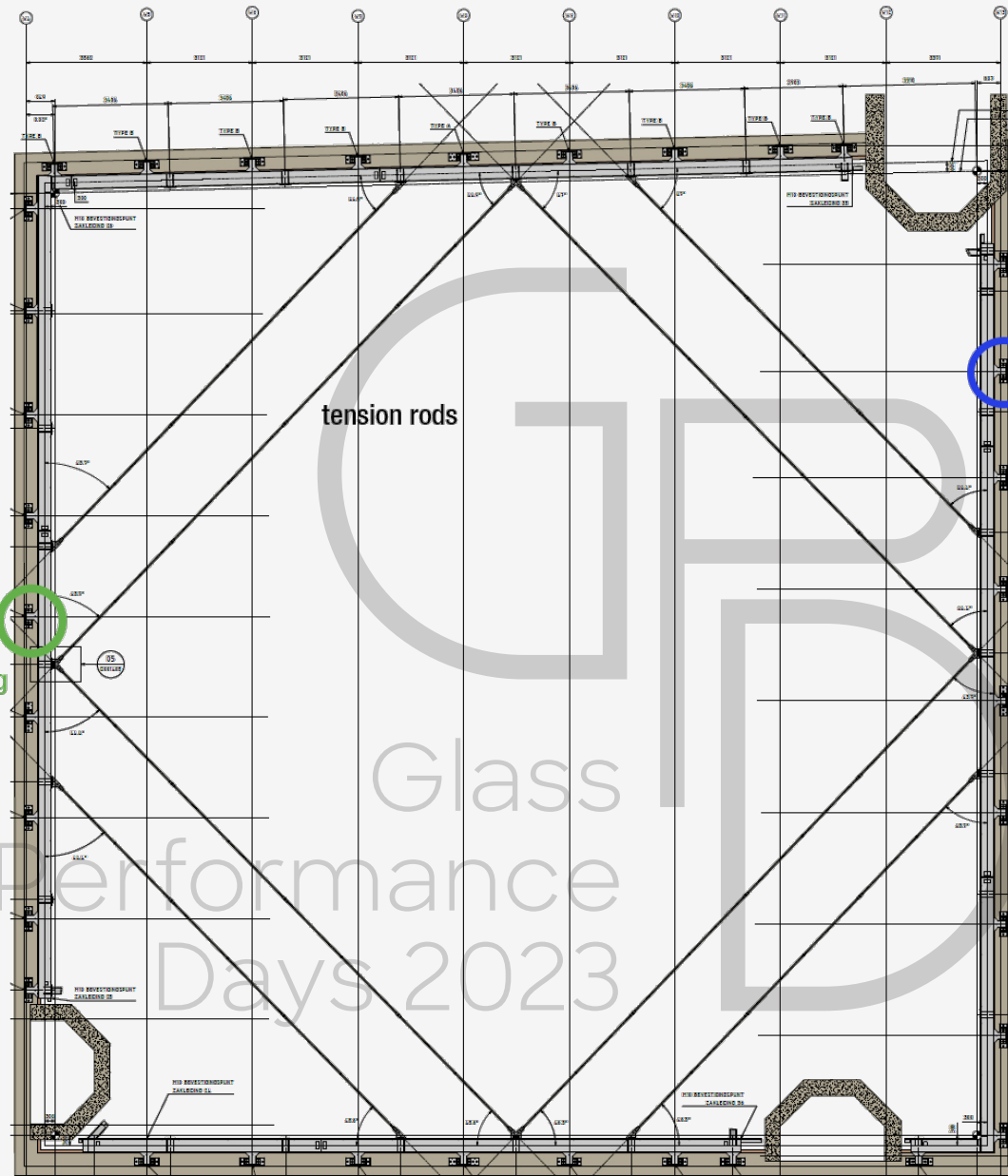
Glass
Performance
Days 2023



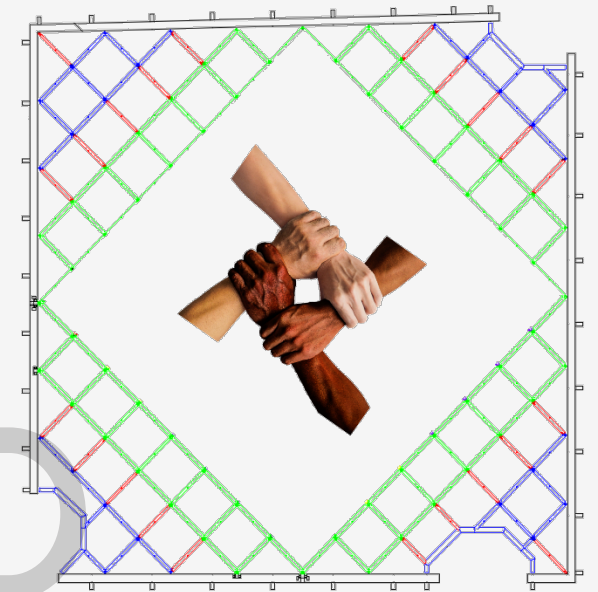
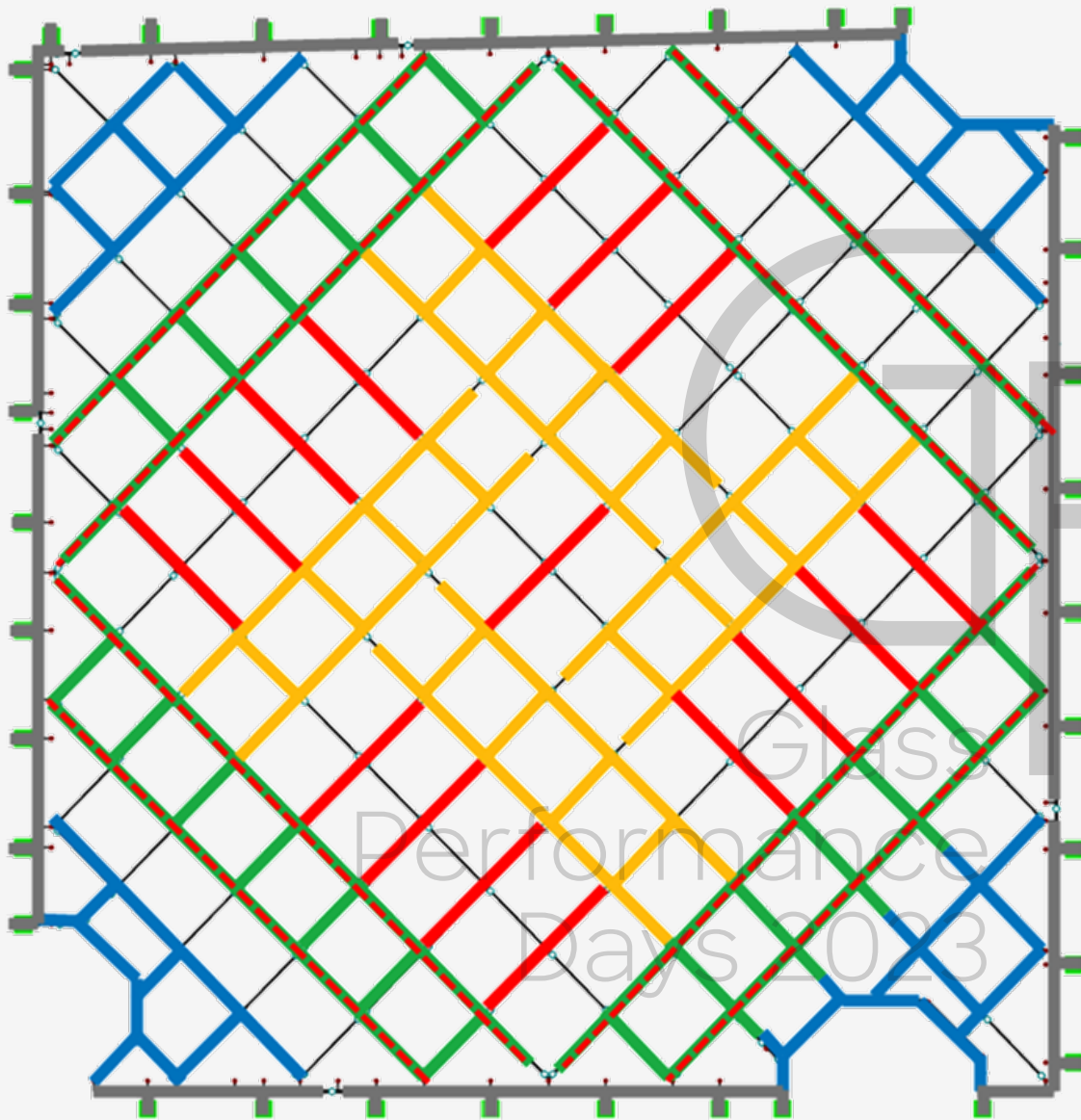


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Performance
Days 2023

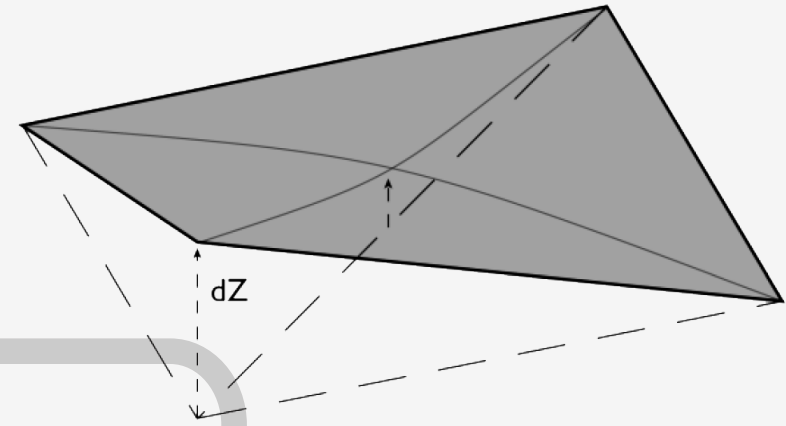
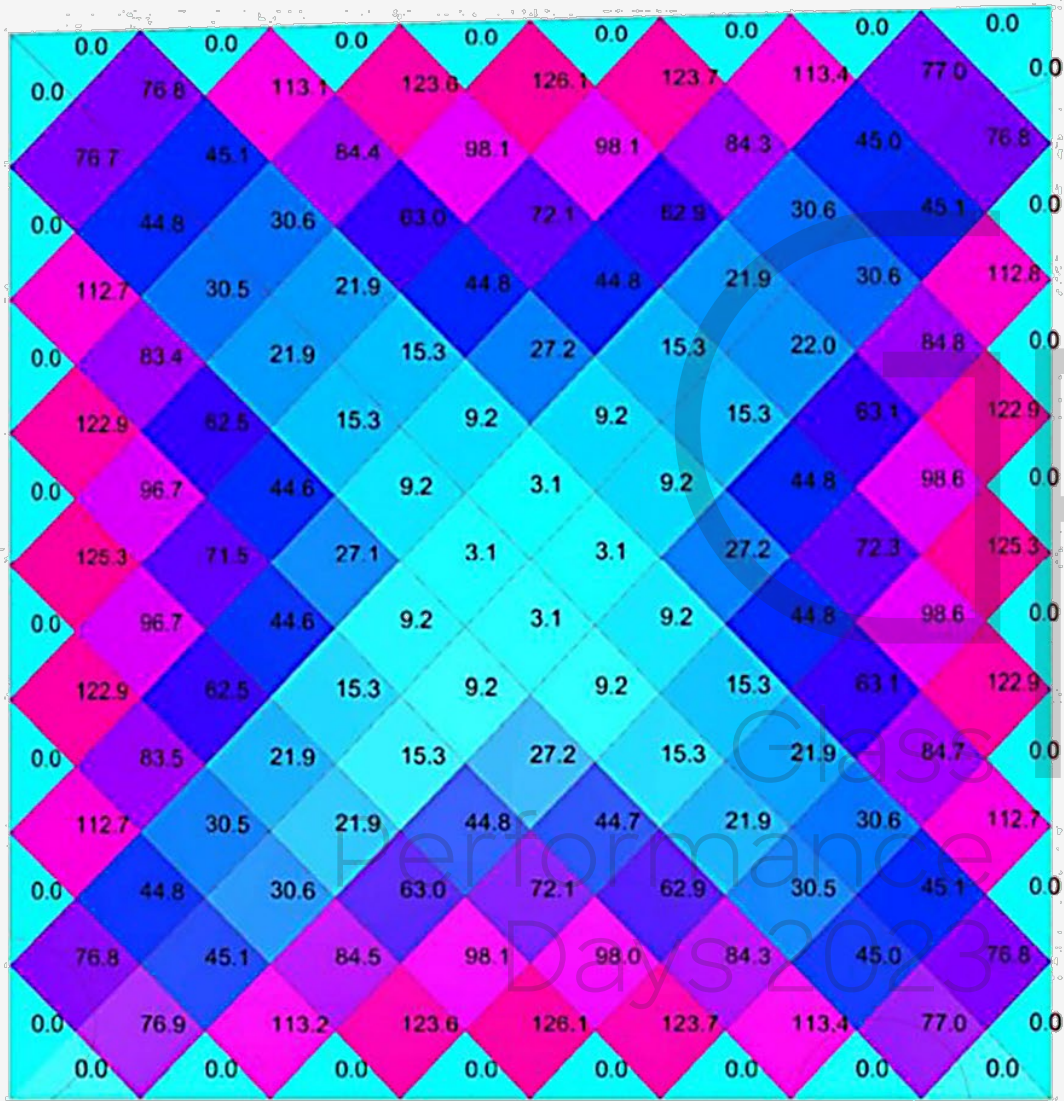
pinned supports,
fixed in line with
the perimeter, sliding
perpendicular to
the perimeter



pinned supports,
sliding horizontally



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$dZ_{\max} = 126\text{ mm}$

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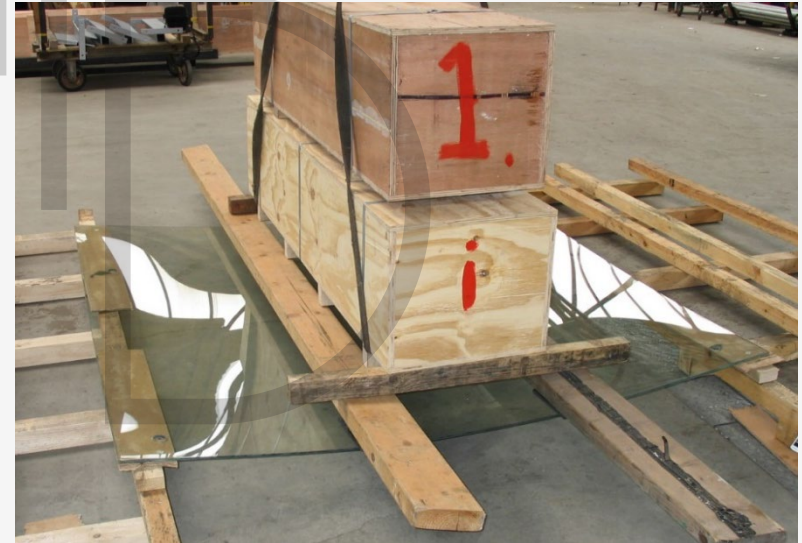
Hot Bent Glass

- ± 600 °C
- Bending, toughening, laminating
- No additional stresses due to bending
- Reduction of allowed stresses
- Large curvatures (small radius)
- Mould determines the shape
- Bending in the factory



Cold bending

- Ambient temperature: 0 °C $\leq T \leq 25$ °C
- Toughening, laminating, bending
- Additional stresses due to bending
- No reduction of allowed stresses
- Smaller curvatures (large radius)
- Permanent structure determines shape
- Bending on site

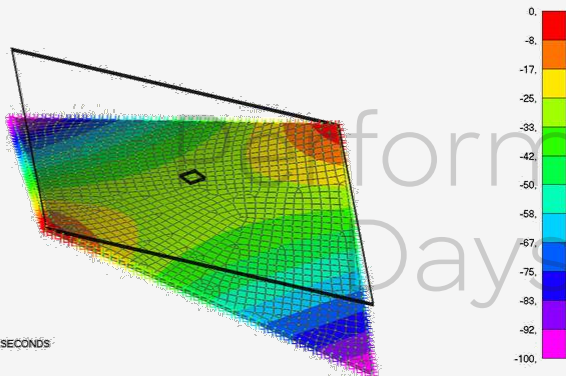
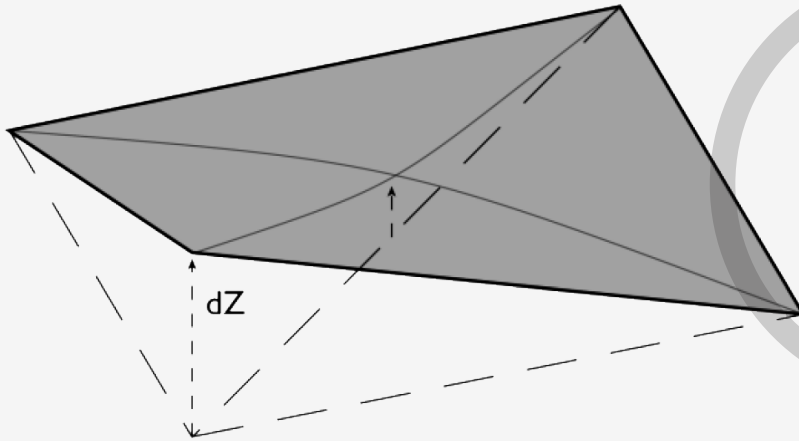


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Twisting

One point out of the surface and straight (glass) edges.

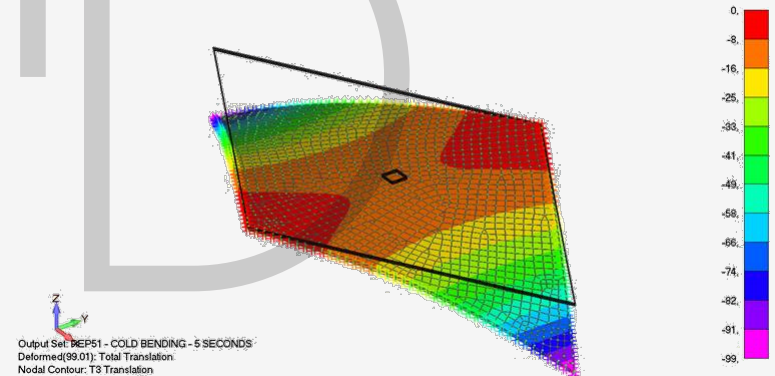
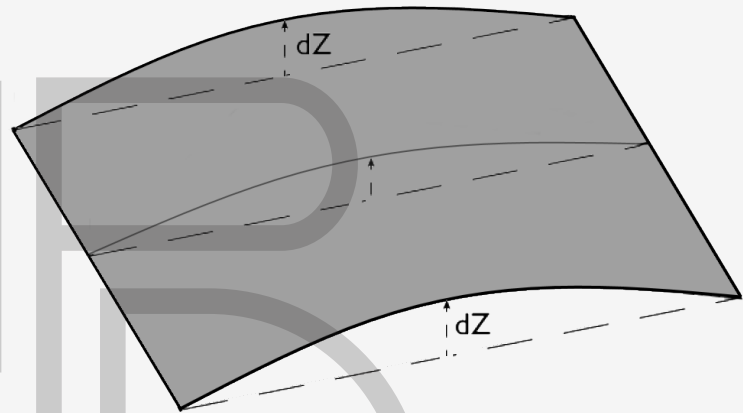
Double curvature in design



Bending

Curved (glass) edges

Single curvature in design

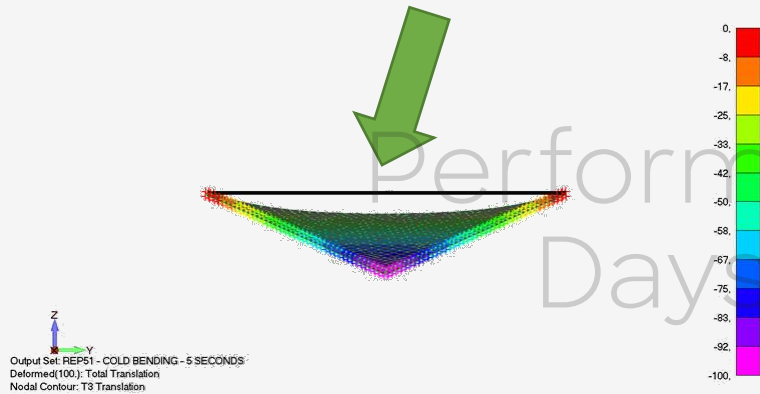
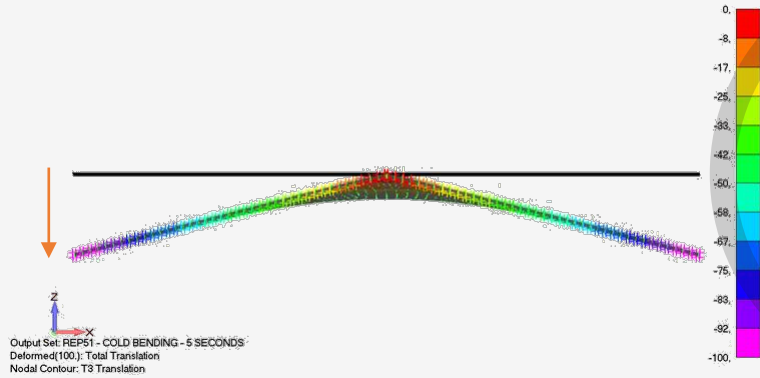


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Twisting

One point out of the surface and straight (glass) edges.

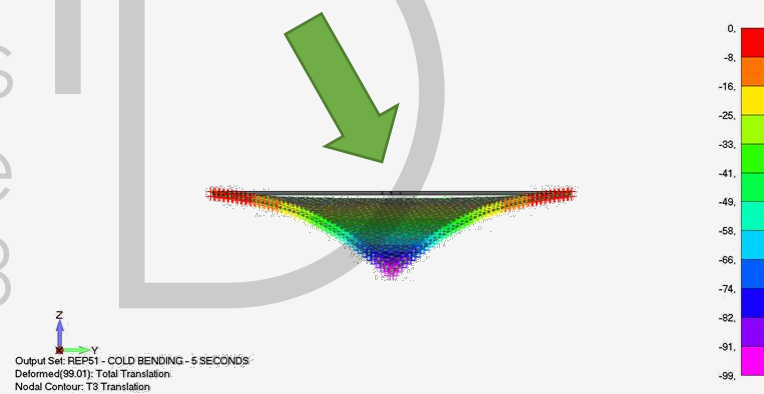
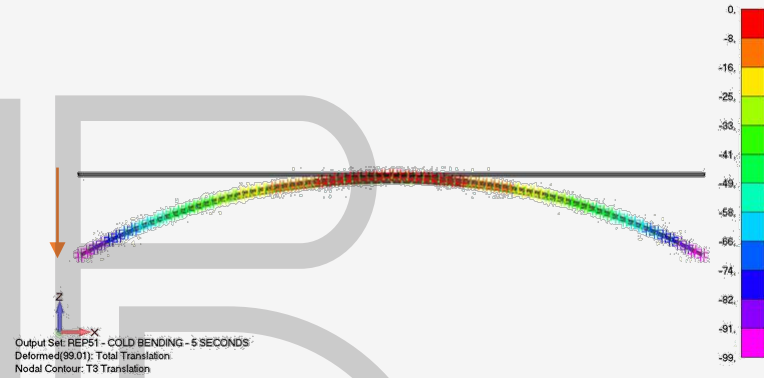
Double curvature in design



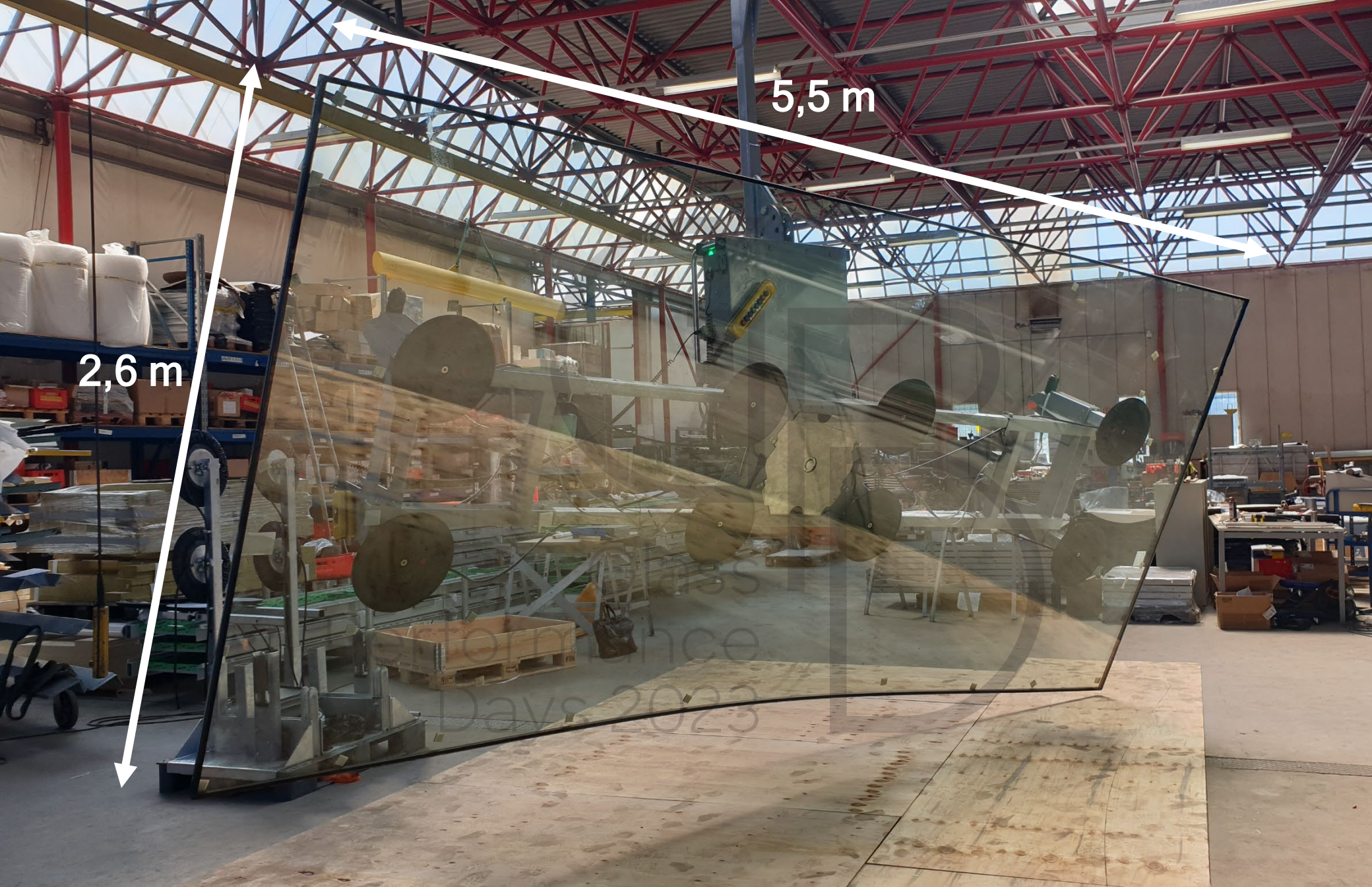
Bending

Curved (glass) edges

Single curvature in design



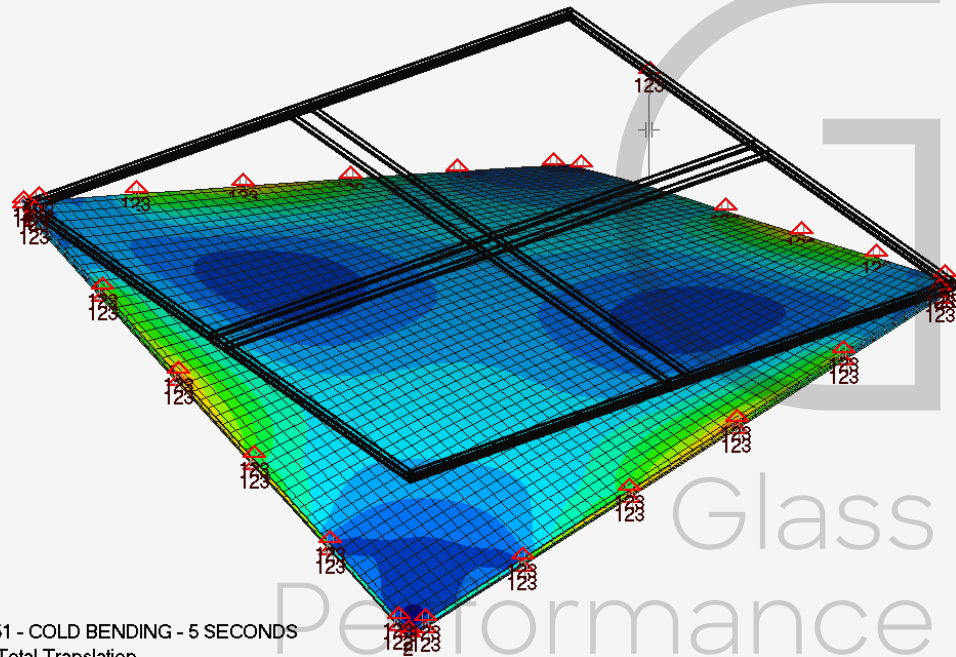
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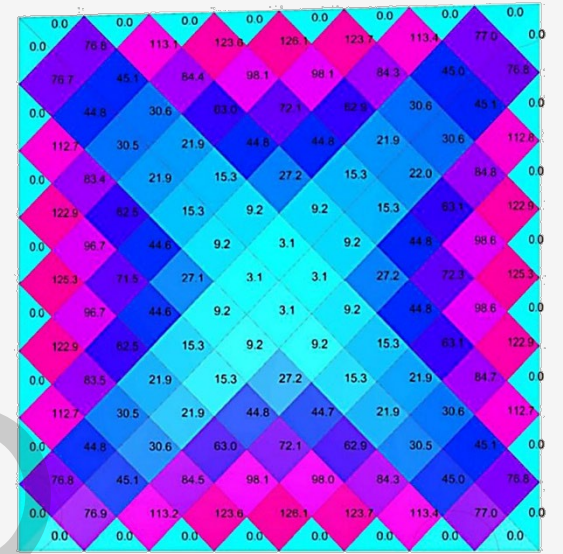
2,6 m

5,5 m

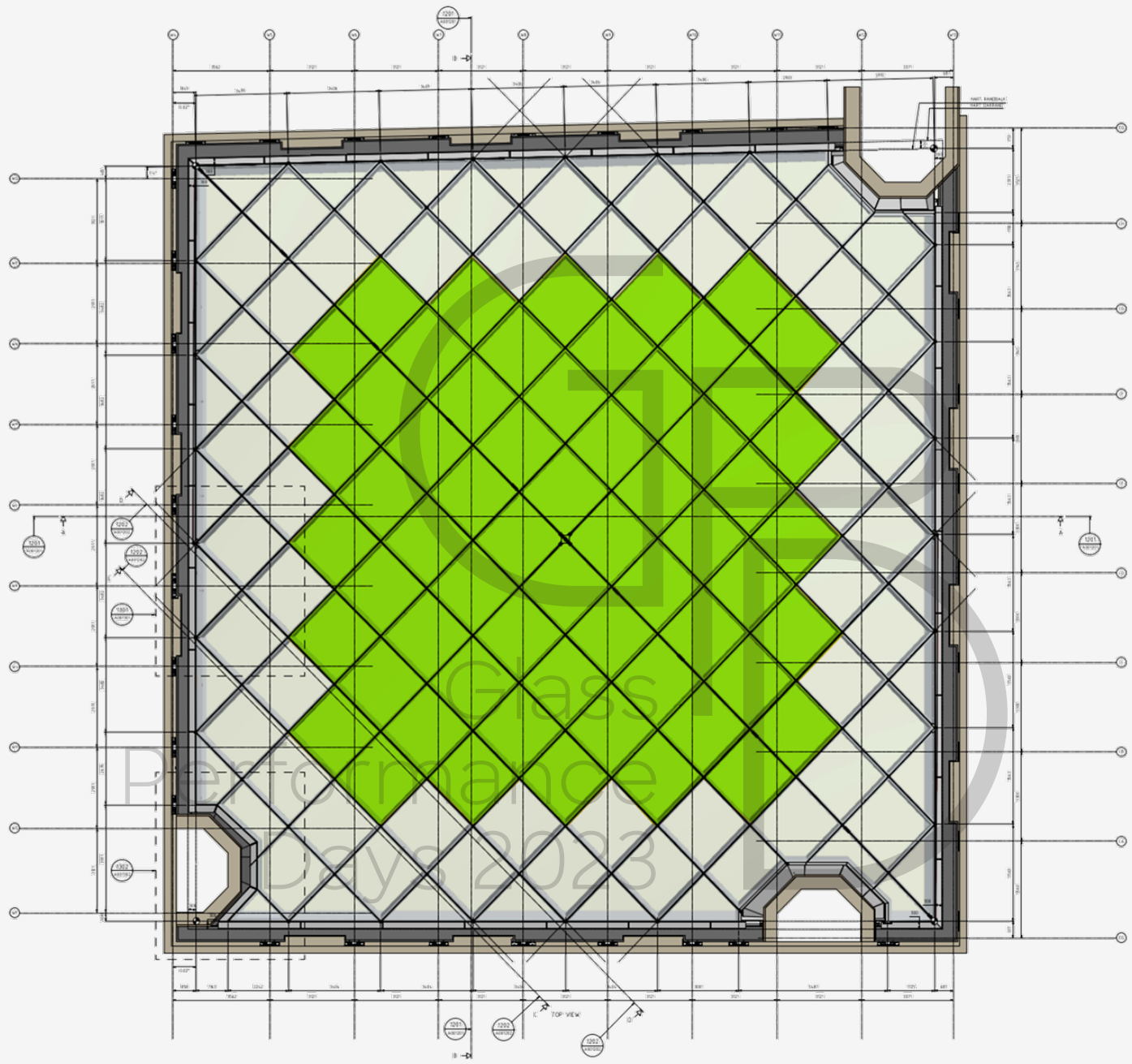




Output Set: REP51 - COLD BENDING - 5 SECONDS
 Deformed(64.7): Total Translation
 Elemental Contour: Nonlinear Solid Max Prin Stress



Glass
 Performance
 Days 2023



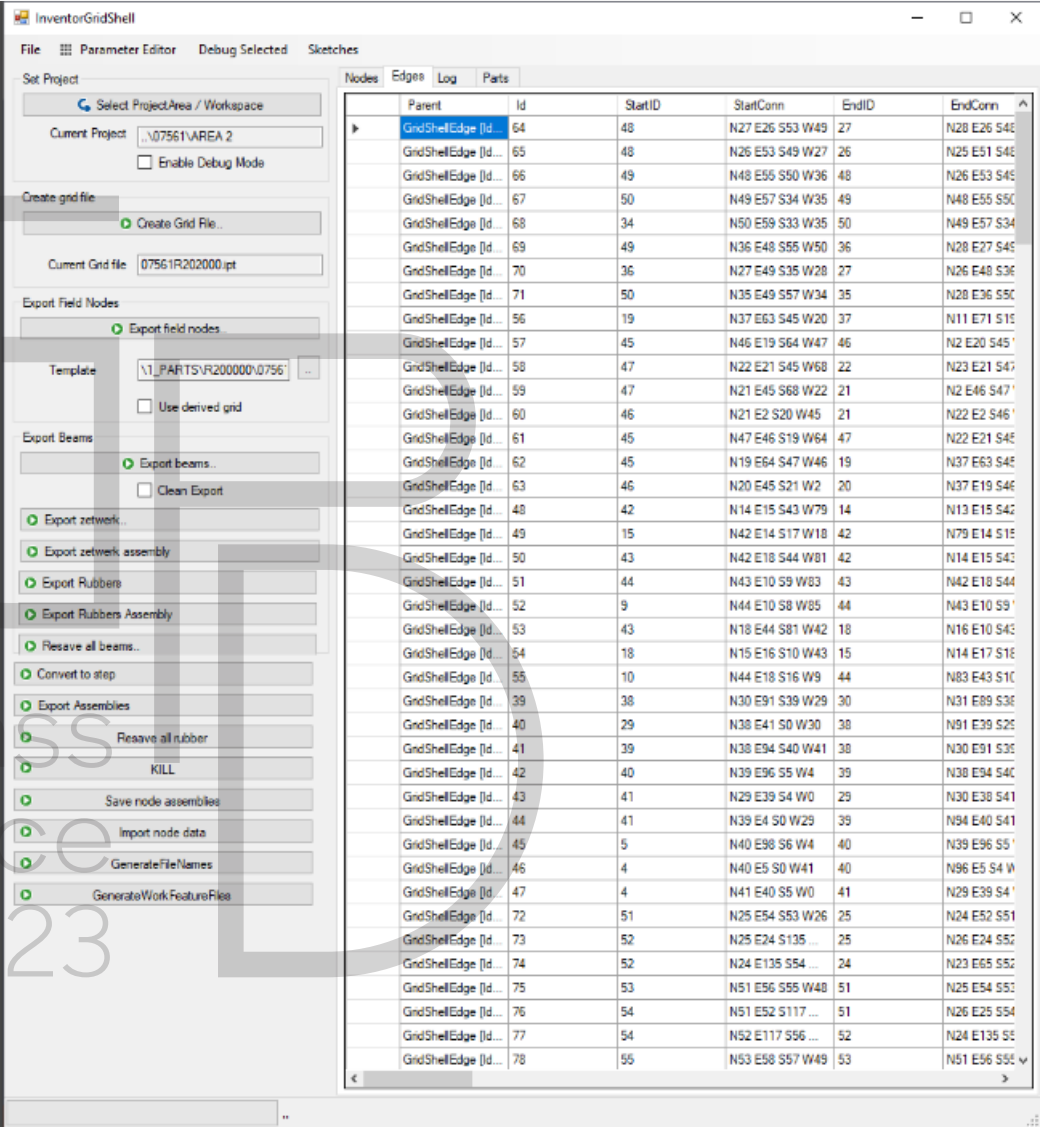
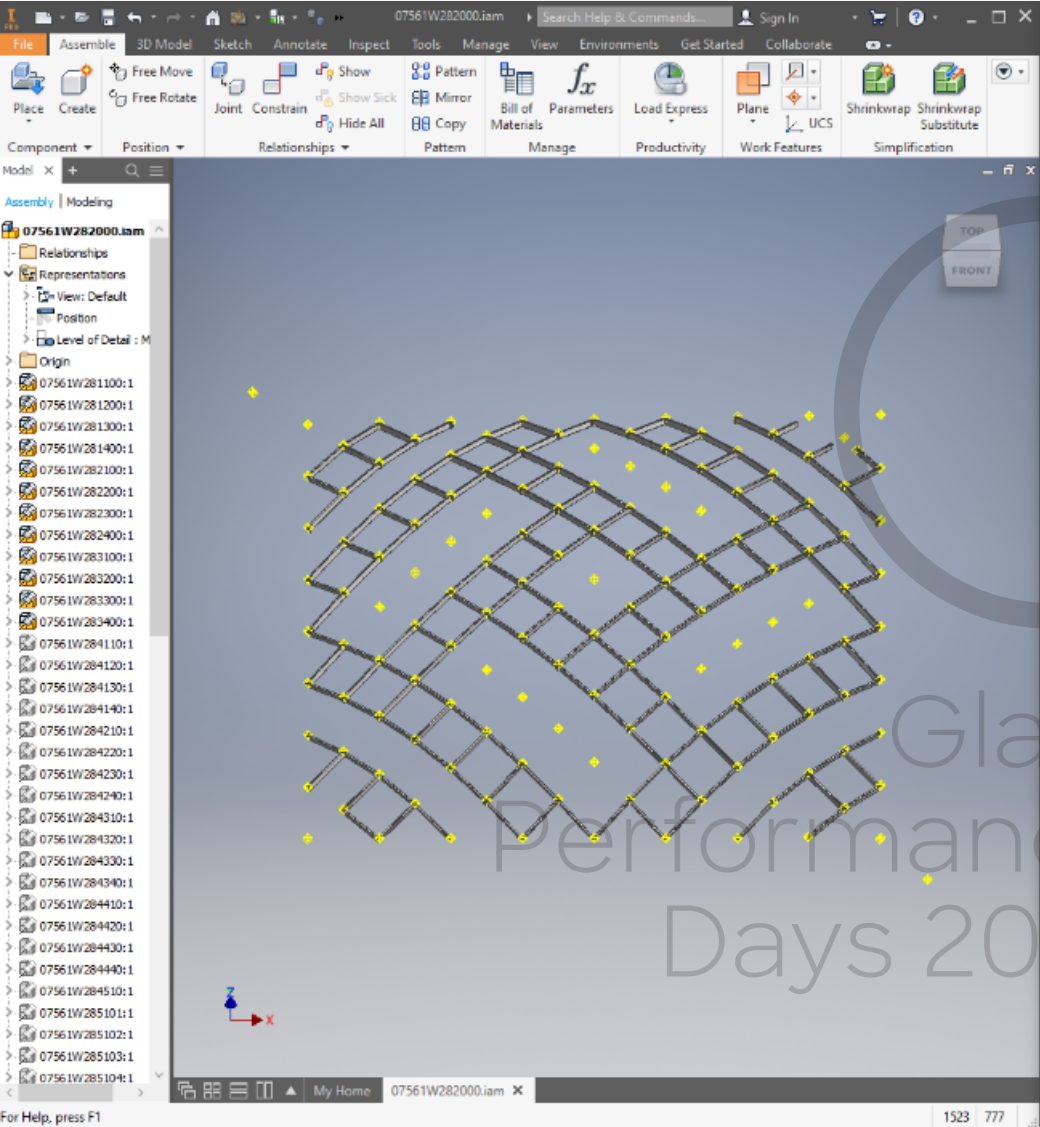
INDEX

C30

1. Introduction
2. Engineering of the geometry
3. Structural design
+ cold twisting of glass
- 4. Production**
5. Installation
6. Conclusion

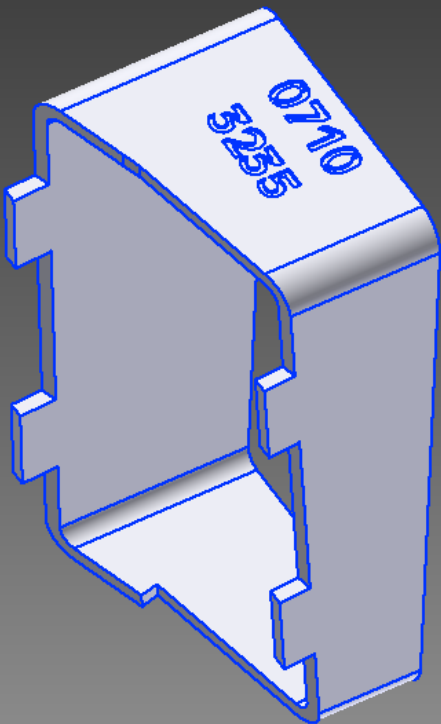
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Performance
Days 2023







Glass
Performance
Days 2023



07436W220710.ipt iProperties

General Summary Project Status Custom Save Physical

Name: Add

Type: Delete

Value:

Name	Value	Type
AANTAL	1	Number
ADDITIONS	0	Text
AREA TO...	0,04 m ²	Text
BR		Text
BREEDTE	100	Text
Box Size	82 x 100 x 200 mm	Text
BoxSize_A	82	Text
BoxSize_B	100	Text
BoxSize_C	200	Text
COLOUR	As Material	Text
DIKTE	5	Text
Documen...	W	Text
HOOGTE	200	Text
LEADER	KOKER 200x100x5 mm (...)	Text
LEADER_...	KOKER 200x100x5 mm	Text
LEADER_...	KOKER 200x100x5 mm (...)	Text
LEADER_...	NL	Text
LENGTE_...	82	Text
Latest Ed...	2019.06.27-15:27:21	Text
MASS	1,25 kg	Text
Material_NL	S355JR	Text
NXTdimP...	Model data	Text

Close Cancel Apply

07436W220710 - Article Report

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Pos.	Qty.	Description	Dimensions	Material	Net Mass	Net Surface Area
220710		RHS-CF 200x100x5 mm	200 x 100 x 82 mm	S355JR	1.25	0.03

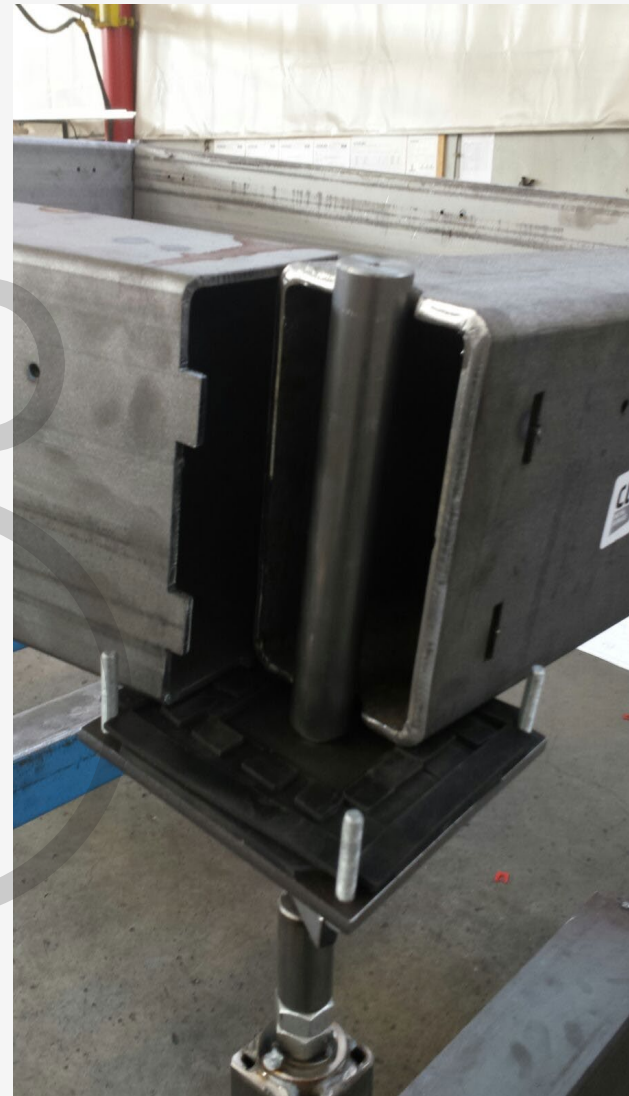
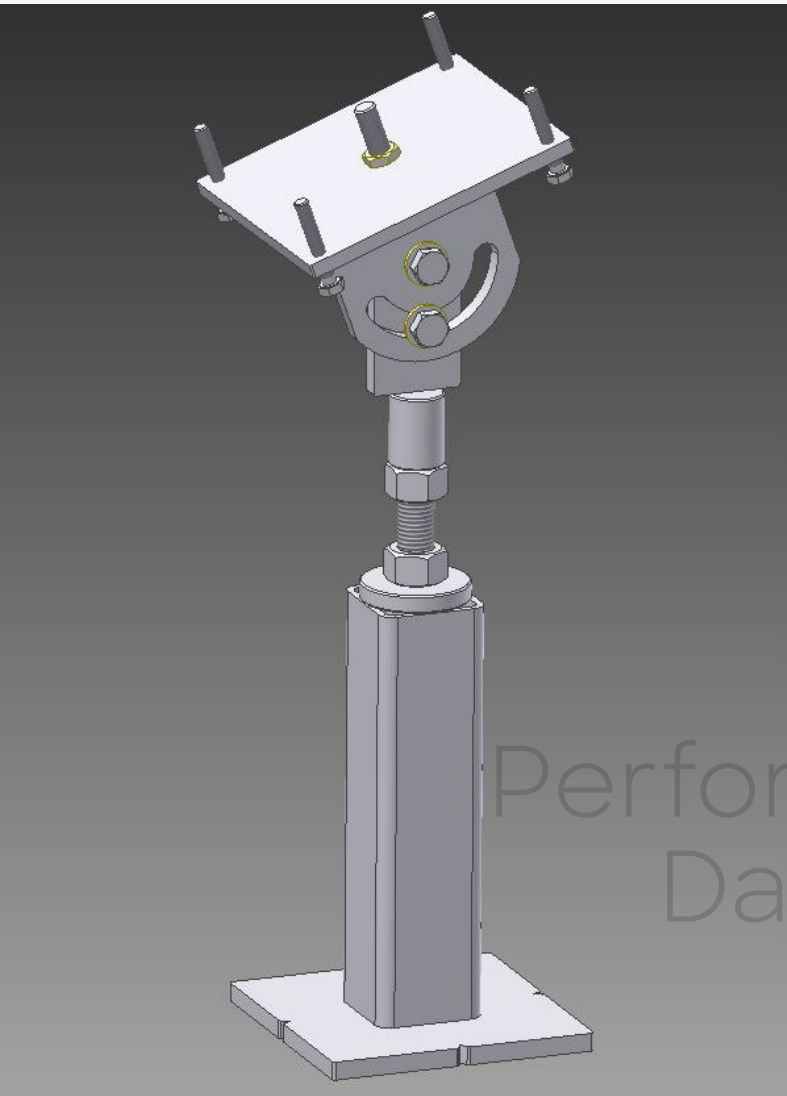
Profile View

Notes: Dimensions are not to scale (NTS)

Project	Description	Location	Document State	Rev.	Rev. Date
07436	Beurs voor den Diamanhandel	Amsterdam	FINAL FOR PRODUCTION	A	2018.01.26



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Performance
Days 2023



Glass
Performance
Days 2023



GPD 2023 - C30

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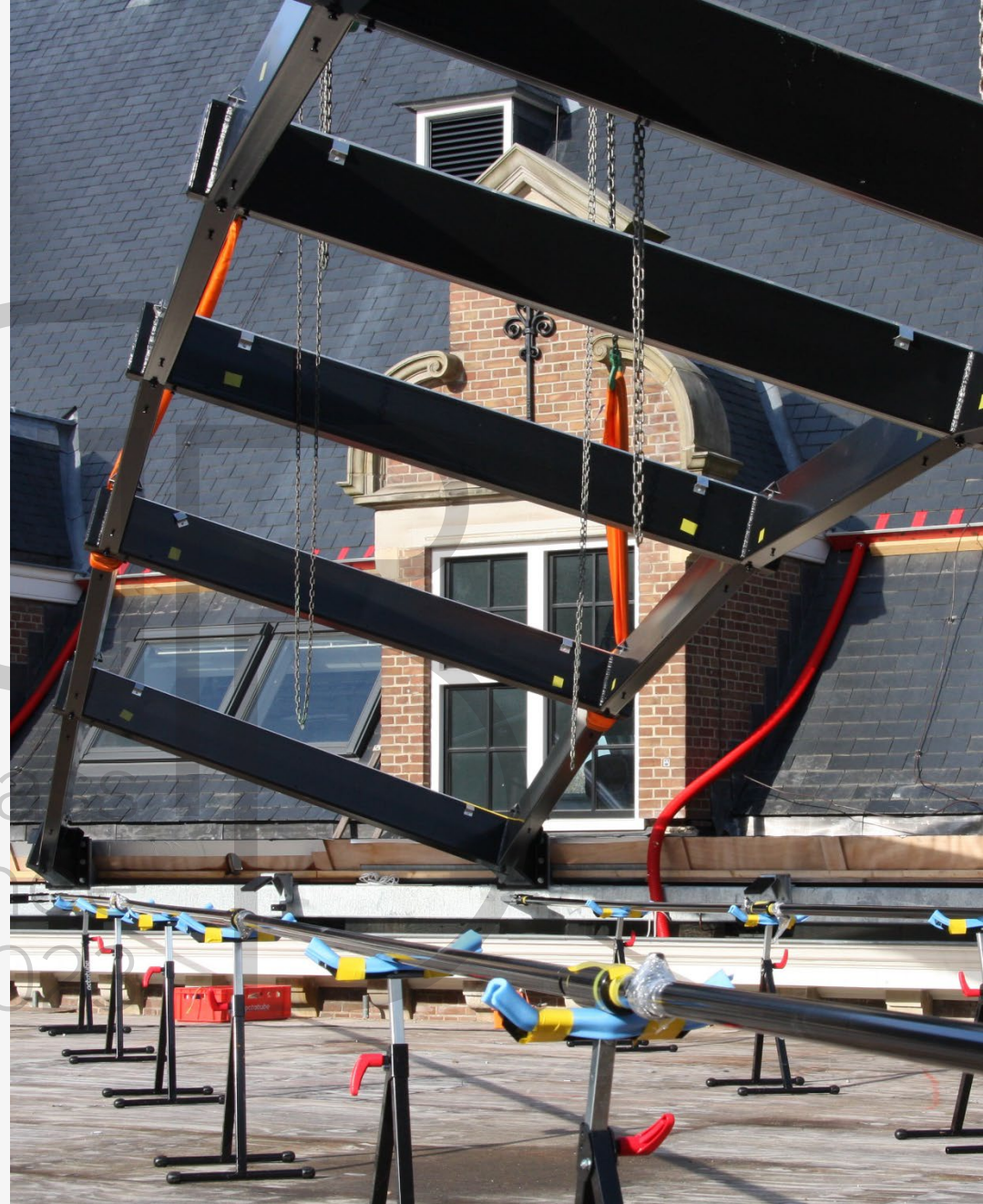
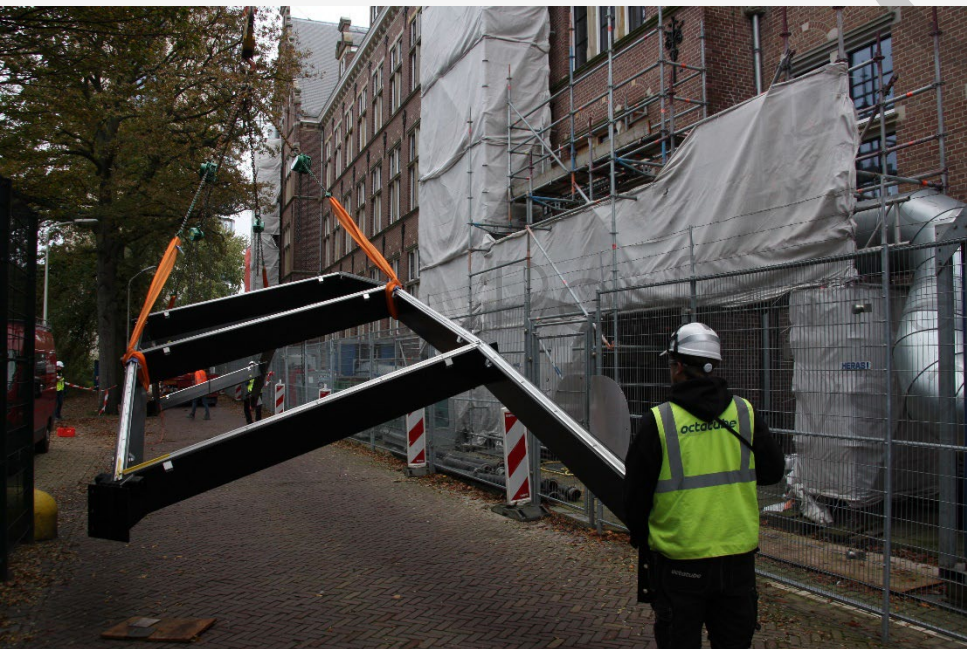
INDEX

C30

1. Introduction
2. Engineering of the geometry
3. Structural design
+ cold twisting of glass
4. Production
5. **Installation**
6. Conclusion

G
F
Glass
Performance
Days 2023













INDEX

C30

1. Introduction
2. Engineering of the geometry
3. Structural design
+ cold twisting of glass
4. Production
5. Installation
6. **Conclusion**

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