PICHLER

Harald Spitaler wurde am 03. Februar 1977 in Bozen, in Südtirol geboren, er lebt mit seiner Frau und drei Kindern in Girlan bei Bozen.

In Bozen hat er zunächst die Technische Gewerbeoberschule für Maschinenbau besucht und nach der Matura im Jahr 1997 als technischer Zeichner bei Pichler Projects begonnen. Über die Jahre hat er innerhalb des Unternehmens verschiedene Tätigkeiten sehr erfolgreich ausgeübt und sich mit viel Einsatz und Professionalität beruflich ständig weiterentwickelt. Harald verfügt über ein hervorragendes praktisches Fachwissen und hat sich außerdem ständig durch Schulungen und Fachtagungen fortgebildet. Neben seiner Arbeit bei Pichler Projects hat er zudem zeitgleich das Studium zum Fachingenieur Fassade an der FH Augsburg besucht und dieses im Jahr 2008 sehr erfolgreich abgeschlossen. Seitdem hat er im Technischen Büro des Unternehmens eine leitende Funktion und ist als Design Manager hauptsächlich für die technische Entwicklung und Koordination anspruchsvoller Fassadenprojekte im Ausland zuständig. In den letzten Jahren hat er für Pichler Projects vorrangig Projekte in der Schweiz, Russland und den USA betreut.

In seiner Freizeit verbringt Harald sehr viel Zeit mit seiner Familie und ist begeisterter Sportler und Musiker.

PICHLER

160 Leroy Street (New York - USA)

Herzog & De Meuron

PICHLER

BNP Paribas - BNL (Rome - Italy)

5+1AA Architects

HQ Amazon Italia (Milan – Italy)
GBPA Architects

Quattro Corti (Saint Petersburg - Russia)
PiuArch

Muse (Trento - Italy) Renzo Piano

Design Assist

Design Assist – Der Ansatz

PICHLER

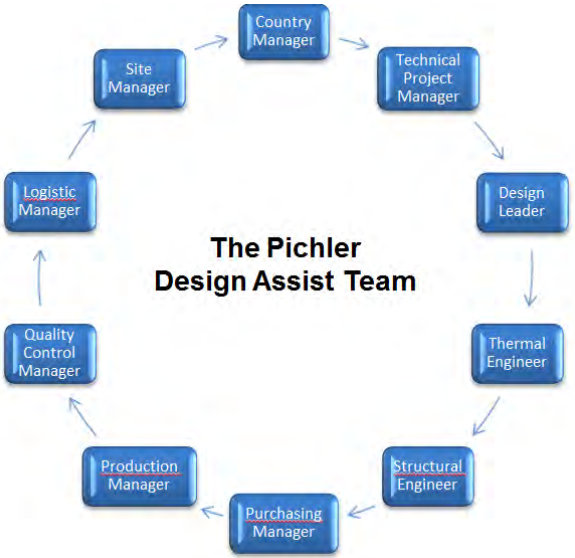
- **Design Assist ist team orientiert, verbindenden Zusammenarbeit mit:**
  - ✓ **Bauherr**
  - ✓ **Architekten**
  - ✓ **Ingenieure**
  - ✓ **Fassadenplaner**
  - ✓ **Fassadenbauer**

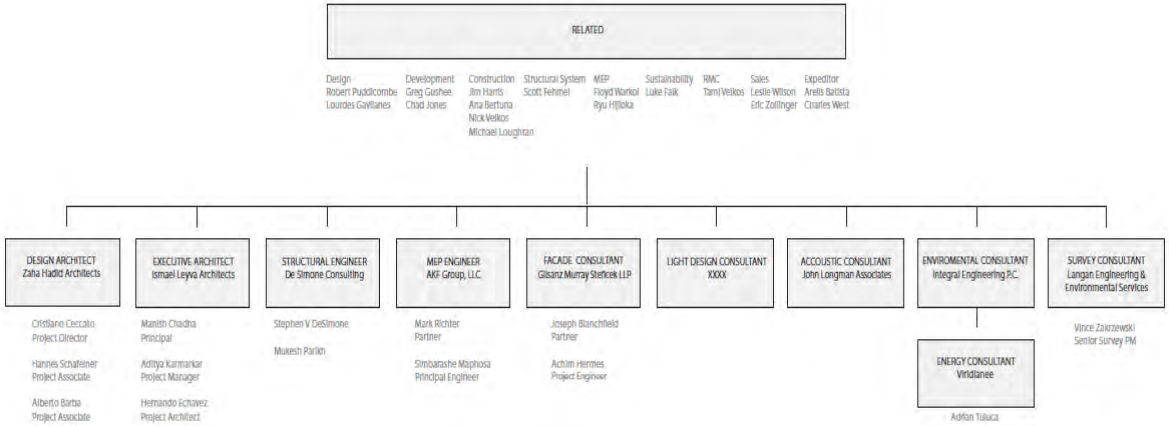
- **Ergänzende Fähigkeiten und Wissen**
  - ✓ **Alternativen bewerten**
  - ✓ **technischen Mehrwert für das Projekt einbringen**

Design Assist - Case Study

Glass Dome:
Soundport Ferring
Kopenhagen - Dänemark
Norman Foster
Fertigstellung 2020

Design Assist: Team & Vorgaben





Design Assist: Team & Vorgaben

Design Inputs: Konzeptplanung & Renderings

Foster + Partners

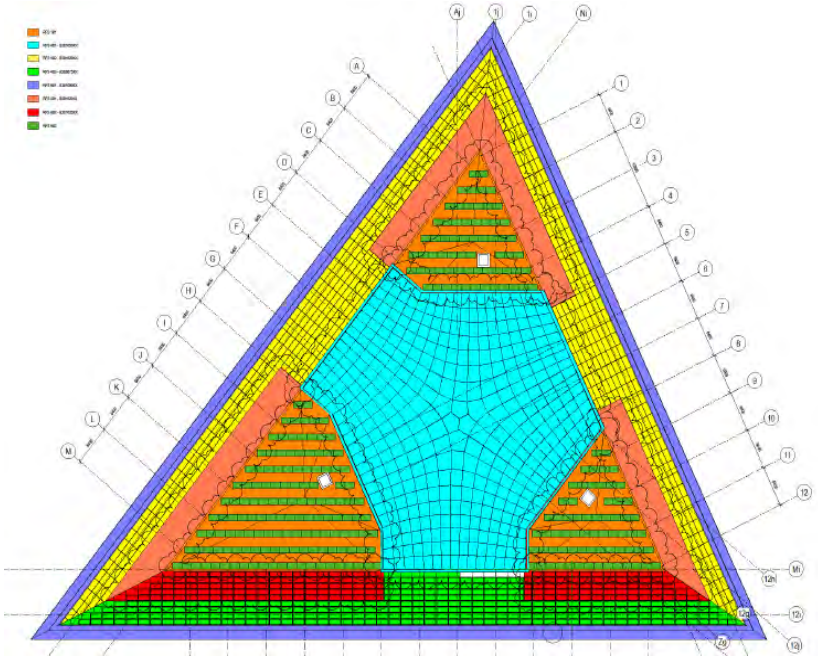
Ferring, Copenhagen

Facade Access Strategy

100% SD

Design Assist - Soundport Ferring (Norman Foster)

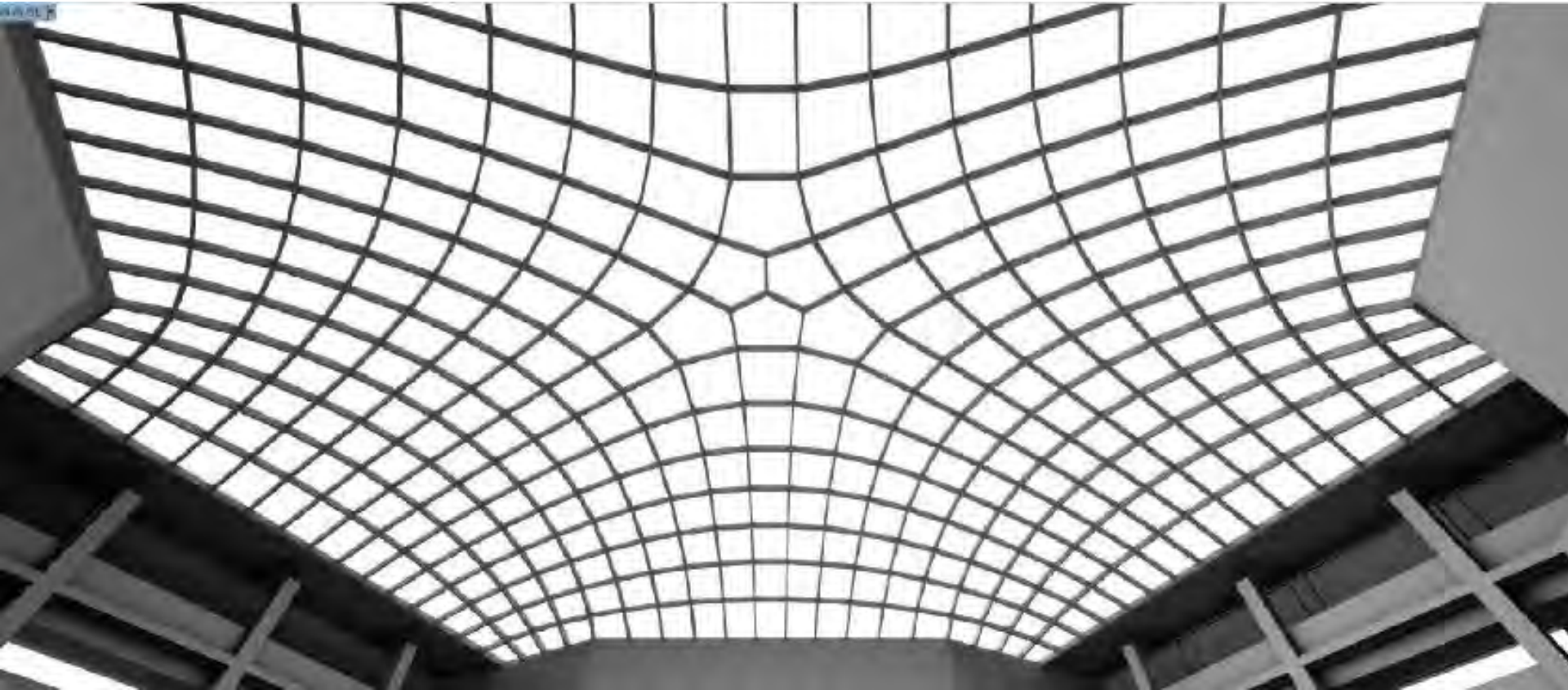
Design Inputs: Statik & Renderings



Design Assist - Soundport Ferring (Norman Foster)

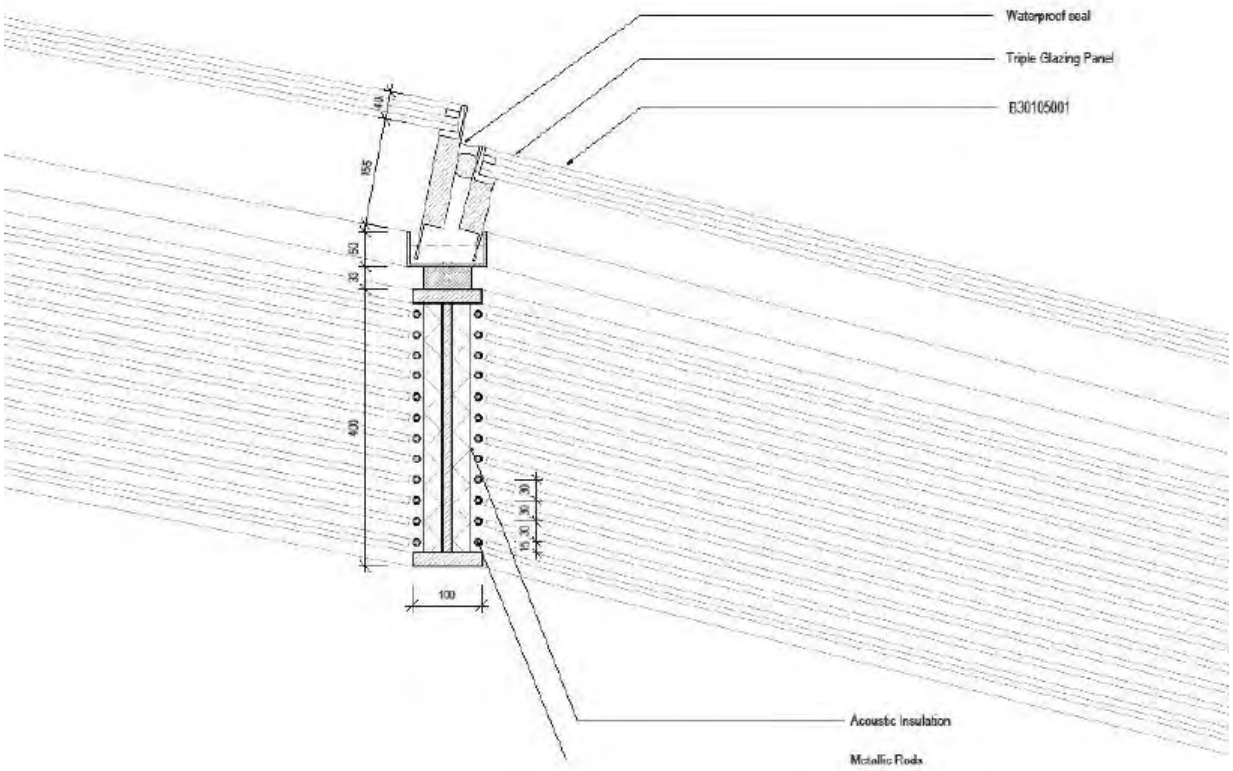
PICHLER

Vorgaben: Dome Systemkonzept – Soundport Ferring



Design Assist - Soundport Ferring (Norman Foster)

Vorgaben: Dome Systemkonzept – Soundport Ferring



Design Assist - Soundport Ferring (Norman Foster)

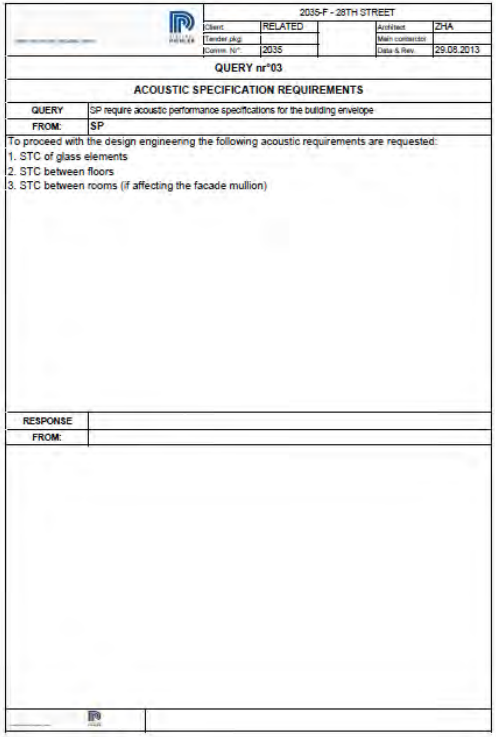
PICHLER

Vorgaben: Dome Systemkonzept – Soundport Ferring

Design Assist – Schritt 1 (Dokumentenprüfung)

Design Assist Process – Schritt 1

- **Prüfung**
  - Startdokumentation
  - Konstruktion means & methods
- **Analyse**
  - Materialien
  - Produktleistung
  - Baubarkeit
- **Kommentare**
  - Vollständigkeit
  - Unstimmigkeiten - Lücken



2035-F - 28TH STREET

Client:	RELATED	Architect:	ZHA
Tender pkg:		Main contractor:	
Comm. N°:	2035	Data & Rev.	29.08.2013

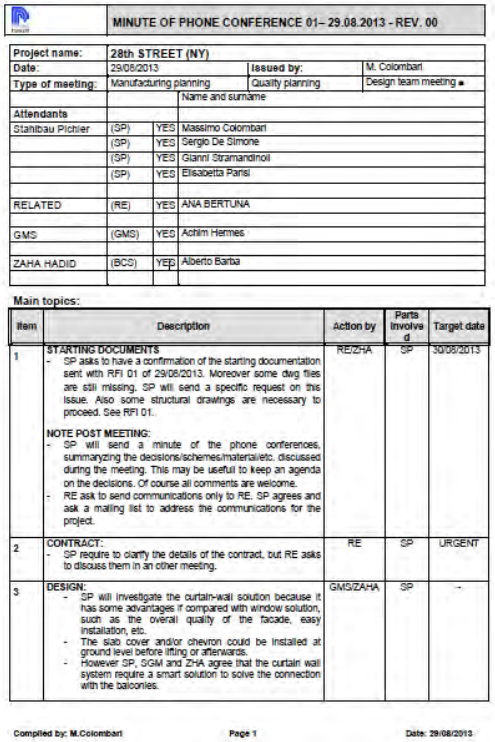
QUERY nr°03

ACOUSTIC SPECIFICATION REQUIREMENTS

QUERY	SP require acoustic performance specifications for the building envelope
FROM:	SP

To proceed with the design engineering the following acoustic requirements are requested:
1. STC of glass elements
2. STC between floors
3. STC between rooms (if affecting the facade mullion)

RESPONSE	
FROM:	



MINUTE OF PHONE CONFERENCE 01– 29.08.2013 - REV. 00

Project name:	28th STREET (NY)		
Date:	29/08/2013	Issued by:	M. Colombari
Type of meeting:	Manufacturing planning ■	Quality planning	Design team meeting ■

Attendants			Name and surname
Stahlbau Pichler	(SP)	YES	Massimo Colombari
	(SP)	YES	Sergio De Simone
	(SP)	YES	Gianni Stramandinoli
	(SP)	YES	Elisabetta Parisi
RELATED	(RE)	YES	ANA BERTUNA
GMS	(GMS)	YES	Achim Hermes
ZAHA HADID	(BCS)	YES	Alberto Barba

Main topics:

Item	Description	Action by	Parts involved	Target date
1	STARTING DOCUMENTS - SP asks to have a confirmation of the starting documentation sent with RFI 01 of 29/08/2013. Moreover some dwg files are still missing. SP will send a specific request on this issue. Also some structural drawings are necessary to proceed. See RFI 01. NOTE POST MEETING: - SP will send a minute of the phone conferences, summaryzing the decisions/schemes/materialetc. discussed during the meeting. This may be useful to keep an agenda on the decisions. Of course all comments are welcome. - RE ask to send communications only to RE. SP agrees and ask a mailing list to address the communications for the project.	RE/ZHA	SP	30/08/2013
2	CONTRACT: - SP require to clarify the details of the contract, but RE asks to discuss them in an other meeting.	RE	SP	URGENT
3	DESIGN: - SP will investigate the curtain-wall solution because it has some advantages if compared with window solution, such as the overall quality of the facade, easy installation, etc. - The slab cover and/or chevron could be installed at ground level before lifting or afterwards. - However SP, SGM and ZHA agree that the curtain wall system require a smart solution to solve the connection with the balconies.	GMS/ZAHA	SP	-

Compiled by: M.Colombari Page 1 Date: 29/08/2013

Design Assist Prozess – Schritt 2

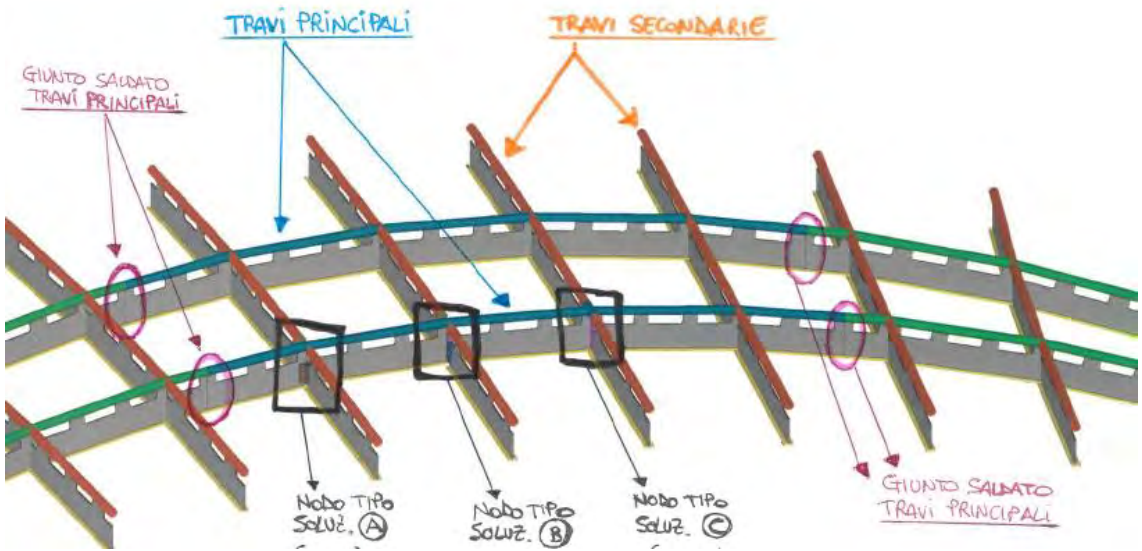
Soundport Ferring (Norman Foster) – Konstruktive Zusammenarbeit mit dem Design Team

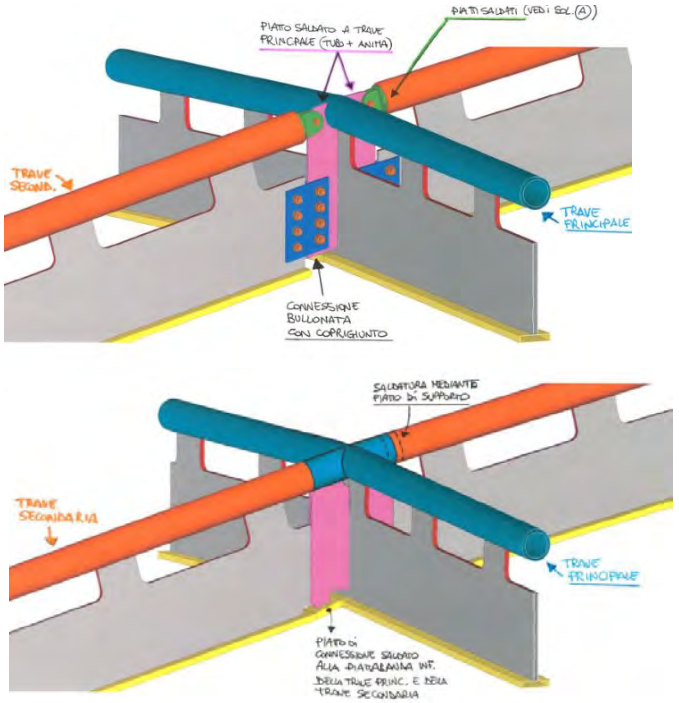
Bewertung von

- Kritischen Elementen
- Qualitätsrisiken
- Kostentreiber

Design Assist Process – Schritt 2

Identikation kritischer Elemente und potentielle Qualität und Kostentreiber





Tragfähiges Gittermantel-System

- Tordierte Träger
- Kombination zwischen Stahlkonstruktion und Aufsatzsystem
- Die Architektur umsetzen und die wellige Form erhalten

Design Assist Process – Schritt 2

Identikation kritischer Elemente und potentielle Qualität und Kostentreiber

PICHLER

Flowing Glass Canopy:

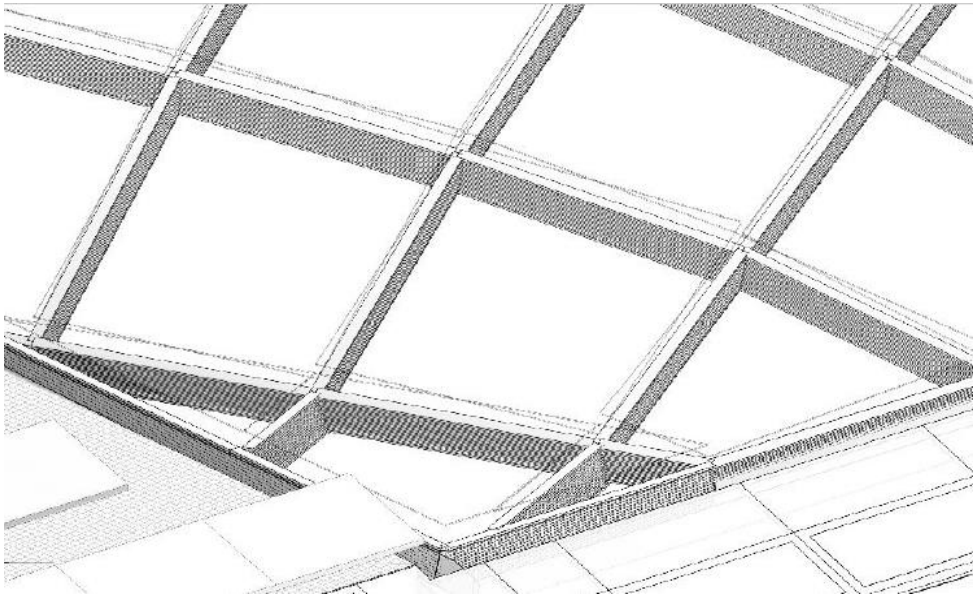
Flat glass units & steps („shingles“)
vs.
Curved glass & flat glass joints

Design Assist Process – Schritt 2

Identikation kritischer Elemente und potentielle Qualität und Kostentreiber

PICHLER

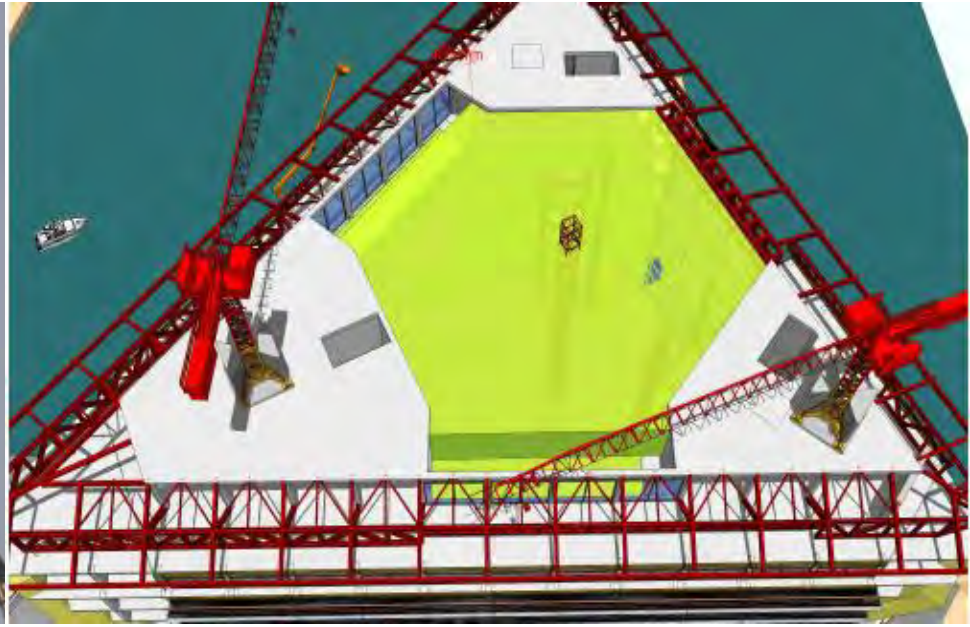
Glass:
Heat bent glass
vs.
Cold bending



Design Assist Process – Schritt 2

Identikation kritischer Elemente und potentielle Qualität und Kostentreiber

Mittel und Methoden & Baustellenlogistik
Koordinierung mit anderen Auftragnehmern
Arbeitseben auf +39,0m Höhe?



Design Assist Process – Schritt 3

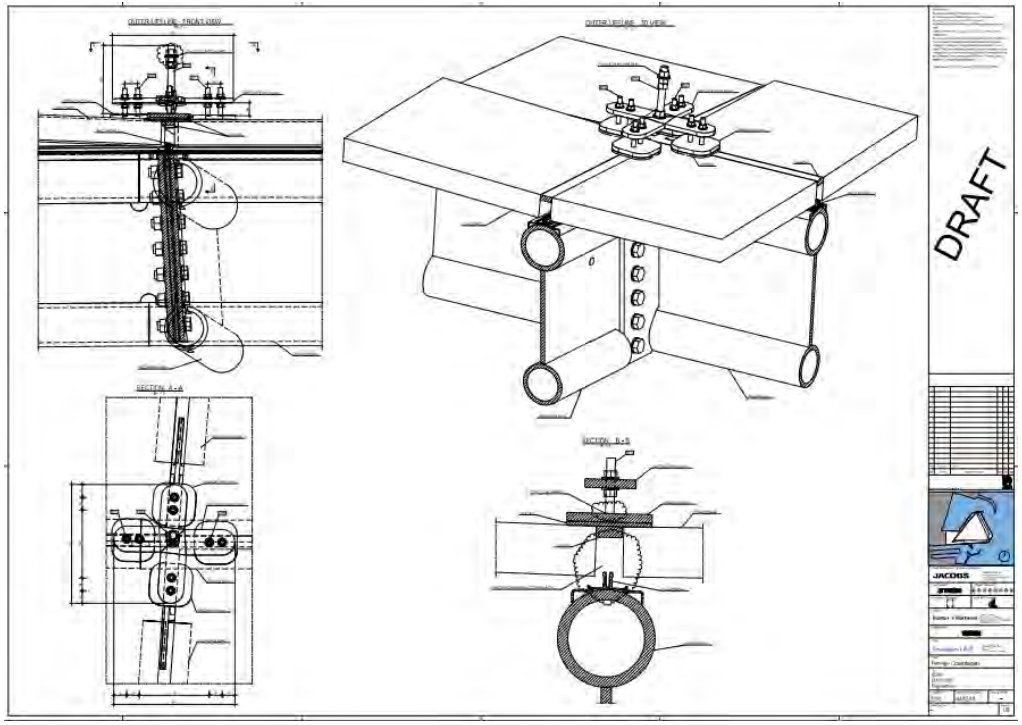
Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

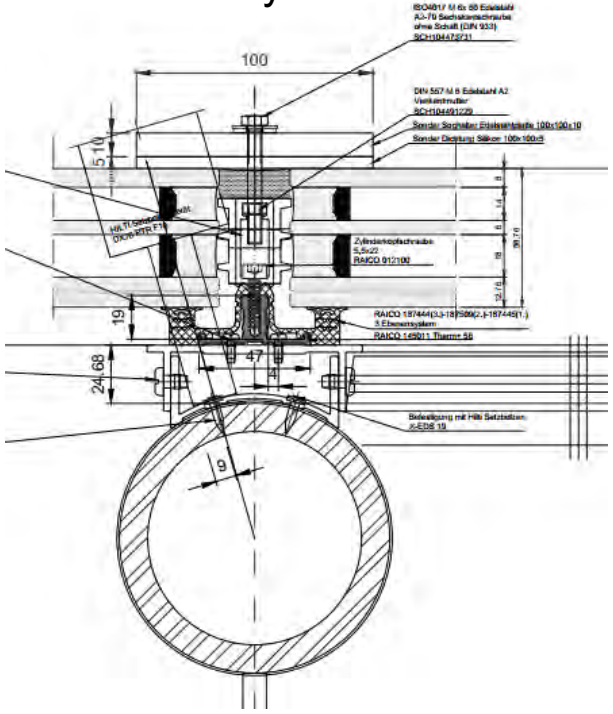
PICHLER

Design Assist Process – Schritt 3

Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

Systementwicklung: Gittermantel-System
mit tordierten Trägern kombiniert mit einem Aufsatzsystem

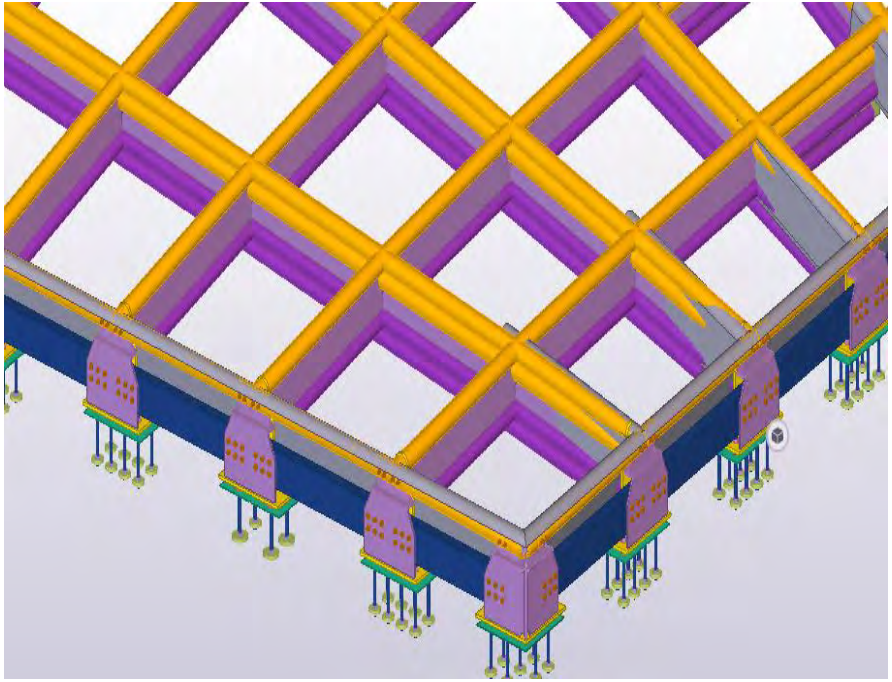


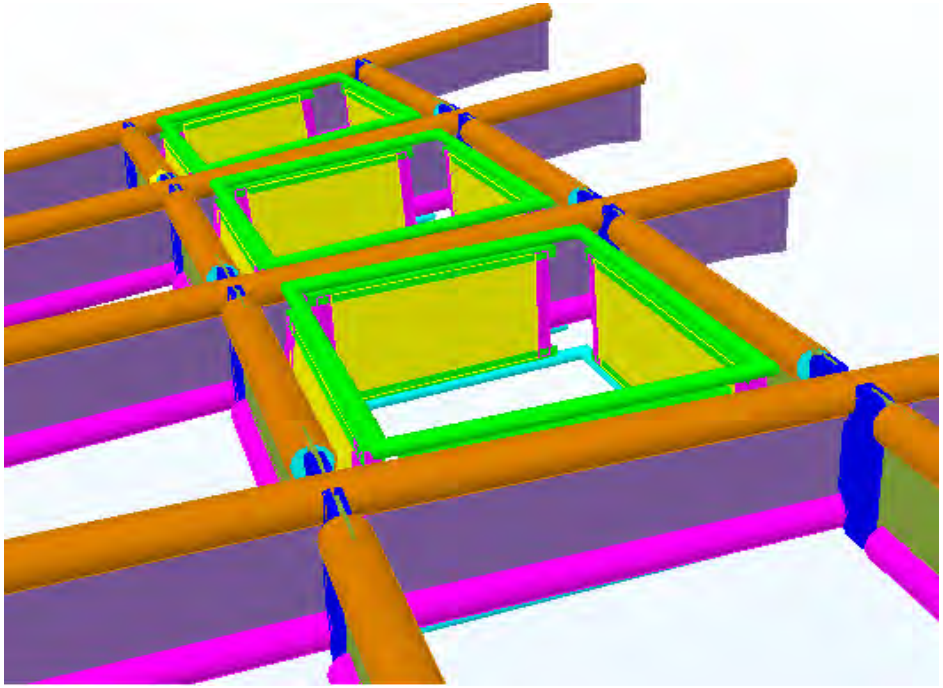


Design Assist Process – Schritt 3

Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

Systementwicklung: Gittermantel-System
mit tordierten Trägern kombiniert mit einem Aufsatzsystem

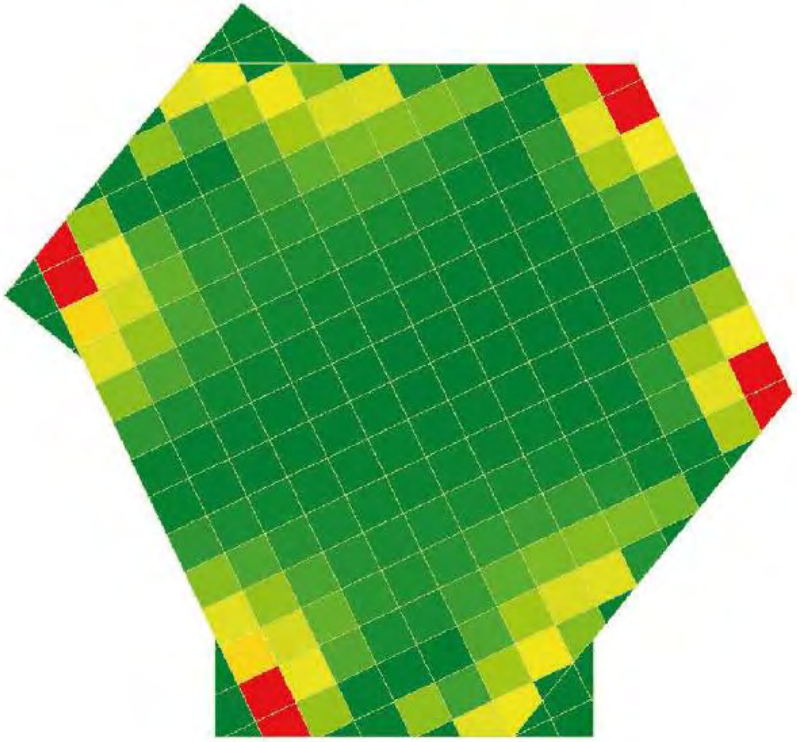




Design Assist Process – Schritt 3

Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

Cold Bending & Neuaufteilung des Rasters



AGC INTERPANE

Customer Information n. 028en

„Cold Bending" of Glass

1. Introduction

"Cold bending" is not a new term on the glass industry. It refers to a technique that allows a deformation of a glass plate, either monolithic, laminated or IGU, without applying heat to it.
It has become more popular, due to several advantages.
The design approach of "cold bending" was developed and investigated due to the challenging 3D building enclosures.
This information should focus on the main topics which must be considered during a design process.

2. Shapes

Shaping a flat glass into a curved „structure" is done by applying stress to the glass, either punctually or linear, in order to achieve the desired shape.
Bending glass „cylindrical" of (figure 1)".

Figure [1] Main principle of "cold" bending – Cylindrical Shape
Twisting

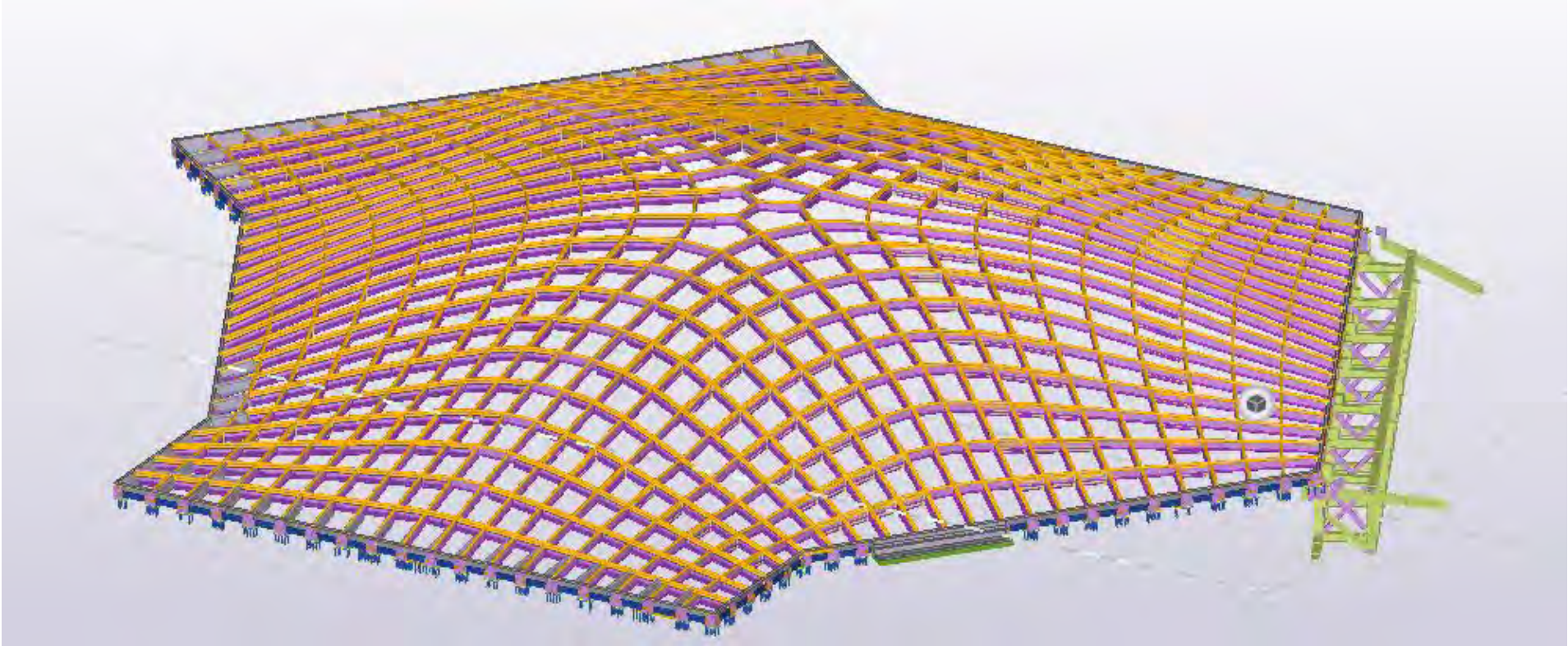
Figure [2] Figure [1] Main principle of "cold" bending – Twisting .
Which means glass is bent over its diagonal.

Design Assist Process – Schritt 3

Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

PICHLER

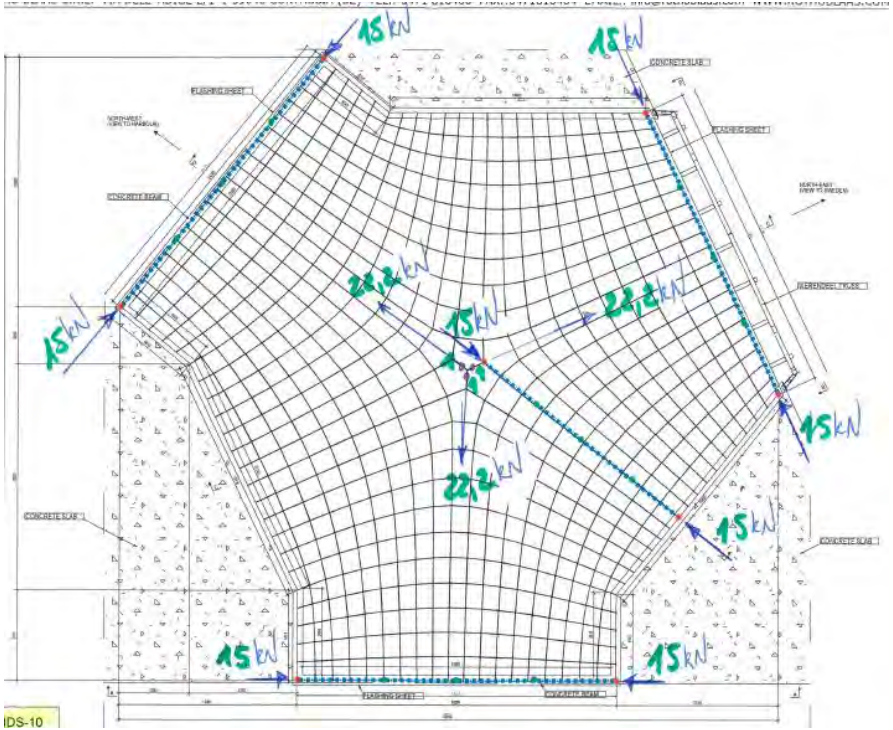
Cold Bending & Neuaufteilung des Rasters

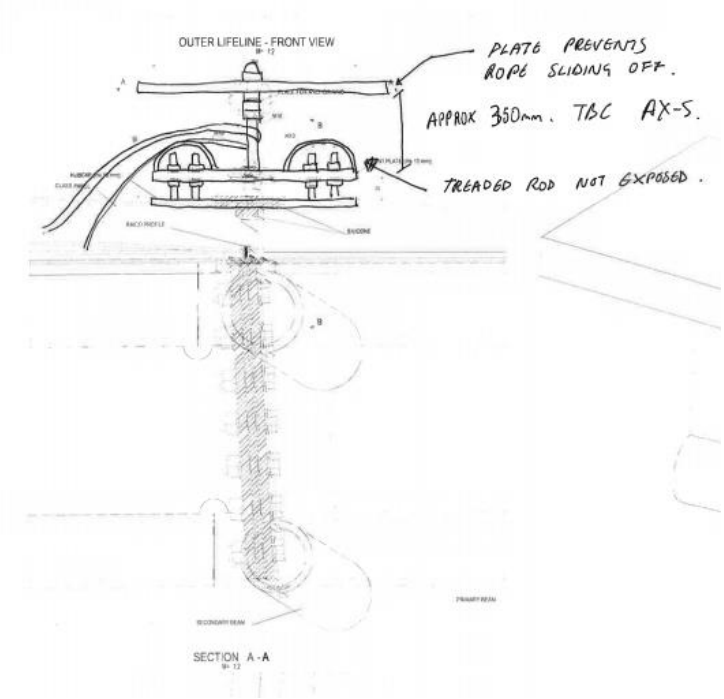


Design Assist Process – Schritt 3

Soundport Ferring (Norman Foster) Value Engineering & beste Preis-Leistung

Wartunge & Sicherheit





Design Assist Process – Schritt 4

PICHLER

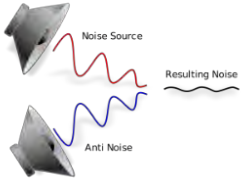
Ermittlung der Leistungseigenschaften

Design Assist Process – Schritt 4

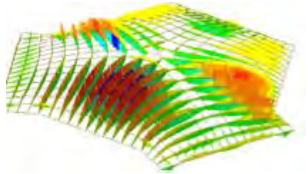
Ermittlung der Leistungseigenschaften

- WÄRMEDÄMMUNG

- AKUSTIK



- STATIK



Design Assist Process – Schritt 4

Soundport Ferring (Norman Foster) Statikberechnung

DOCUMENT: Structural Preliminary Report "Dome"
CLIENT:
CODIFICA: 2424_Dome_Report.docx
EMESSO: M.P. | CREATO: 2017/10/24 | MODIFICATO: / | REV. N°: 00 | PAG.: 5 di 17

2 FEM MODEL DESCRIPTION: ROOF DOME

2.1 DOME MODEL: 3D MODEL AND STEEL PROFILE

The structural model is realized using "beam" elements (Figure 2-1).

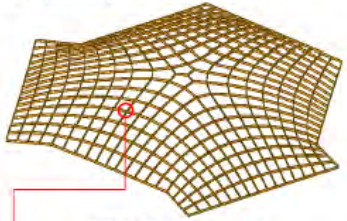
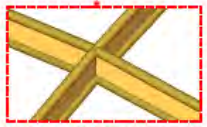
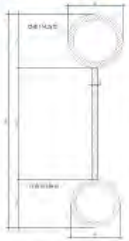


Figure 2-1: "Roof Dome" 3D model.



The primary and secondary steel profile is realized with two tubes respectively CHS 114.3x12mm above the section and CHS 101.6x10mm under the section connected with a plate of 12mm thickness. The total height is 450mm.

Figure 2-2: "Roof Dome" steel profiles.



Section Properties		
Area	9.65115e-003	m^2
Asy	1.27147e-003	m^2
Asz	4.80641e-003	m^2
Ixx	1.63113e-005	m^4
Iyy	2.16401e-004	m^4
Izz	8.00941e-006	m^4
Cyp	0.0569	m
Cym	0.0569	m
Czp	0.2117	m
Czm	0.2380	m
Qyb	0.0548	m^2
Qzb	0.0024	m^2

Figure 2-3: "Roof Dome" characteristics of steel profile.

DOCUMENT: Structural Preliminary Report "Dome"
CLIENT:
CODIFICA: 2424_Dome_Report.docx
EMESSO: M.P. | CREATO: 2017/10/24 | MODIFICATO: / | REV. N°: 00 | PAG.: 10 di 17

3 RESULTS AND VERIFICATIONS: ROOF DOME

3.1 DOME R&V: DEFLECTION CONTROL

The displacements in Z direction are represented in Figure 3-1 and Figure 3-2. The maximun value equal to $d_{z,max}$ = 37.78mm is acceptable being less than d_{adt} = 40mm.

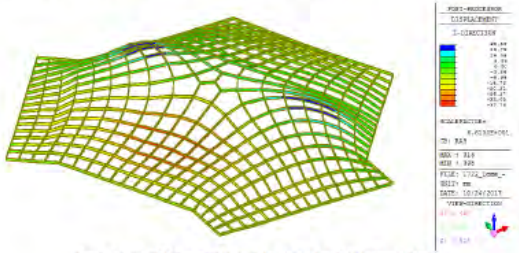


Figure 3-1: "Roof Dome" displacements in dir. z for <RA01> combination.

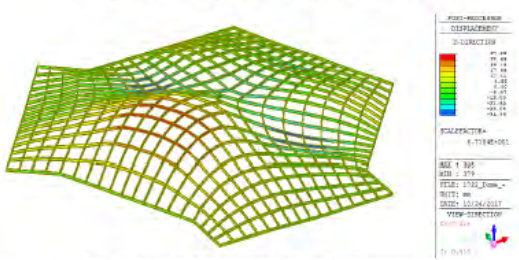


Figure 3-2: "Roof Dome" displacements in dir. z for <RA02> combination.

DOCUMENT: Structural Preliminary Report "Dome"
CLIENT:
CODIFICA: 2424_Dome_Report.docx
EMESSO: M.P. | CREATO: 2017/10/24 | MODIFICATO: / | REV. N°: 00 | PAG.: 11 di 17

3.2 DOME R&V: ENVELOPE ULS DIAGRAMS

The diagrams for axial force, bending moments and shear forces are represented in the figures below.

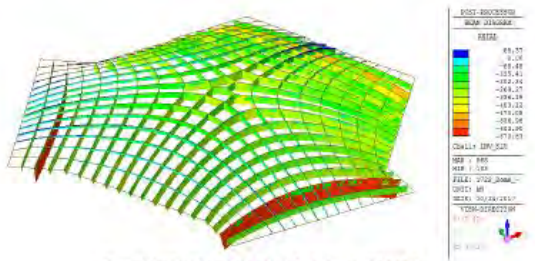


Figure 3-3: "Roof Dome" axial force F_x diagrams – ENV_ULS.

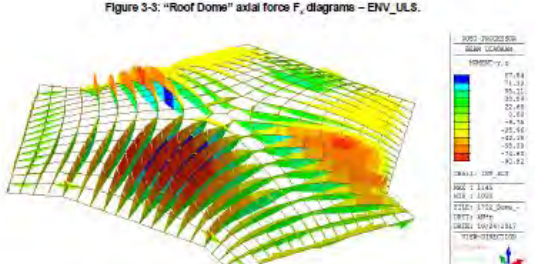
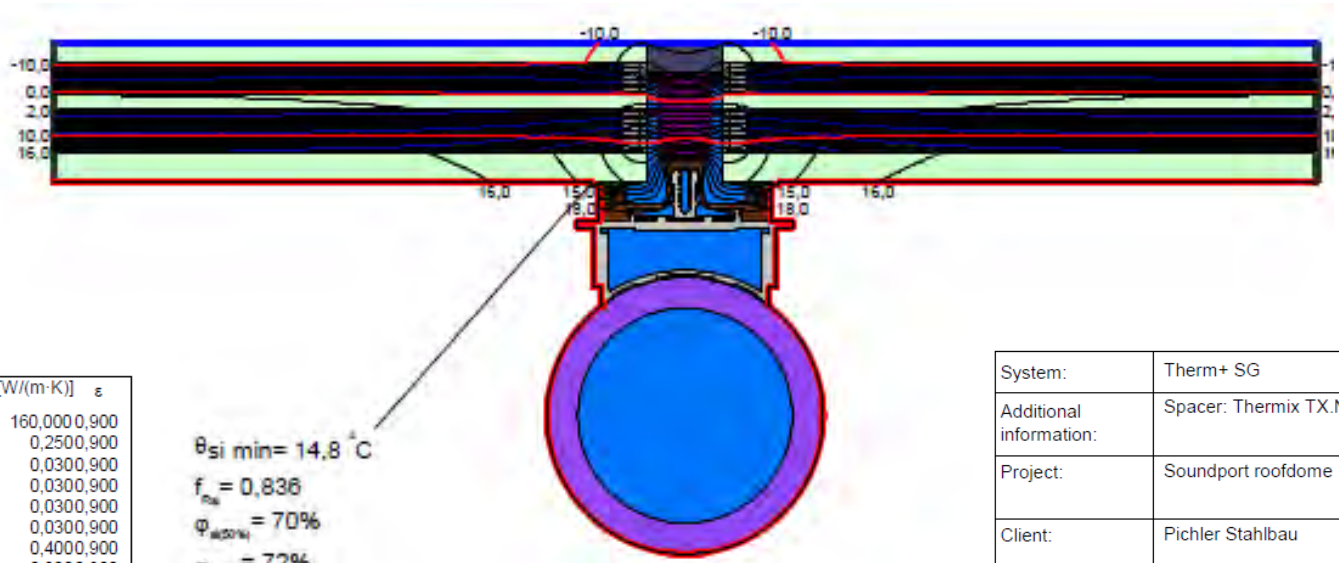


Figure 3-4: "Roof Dome" bending moments M_{yy} diagrams – ENV_ULS.

Design Assist Process – Schritt 4

Soundport Ferring (Norman Foster) Wärmestromberechnung



Material	λ[W/(m·K)]	ε
Aluminium mill finished	160,000	0,900
EPDM gasket	0,250	0,900
Gasfillin (2)	0,030	0,900
Gasfillin (3)	0,030	0,900
Gasfilling(3)	0,030	0,900
Gasfilling(4)	0,030	0,900
Thermix TX.N plus_Box1	0,400	0,900
Thermix TX.N plus_Box2	0,320	0,900
float glass	1,000	0,900
insulation block THERM+	0,040	0,900
nonventilated cavity, 0.90 *		
pure silicone	0,500	0,900
steel	50,000	0,900

* EN ISO 10077-2:2017, 6.4.3/anisotrop

System:	Therm+ SG
Additional information:	Spacer: Thermix TX.N plus
Project:	Soundport roofdome
Client:	Pichler Stahlbau
Software:	flixo pro 8.1.994.1
knot points:	56806

Boundary Condition	q[W/m²]	θ[°C]	R[(m²·K)/W]	ε
Epsilon 0,9				0,900
Exteriour -5° (1)		-12,000	0,040	
Interiour +20°		20,000	0,130	
symmetry / build cut	0,000			

Design Assist Process – Schritt 5

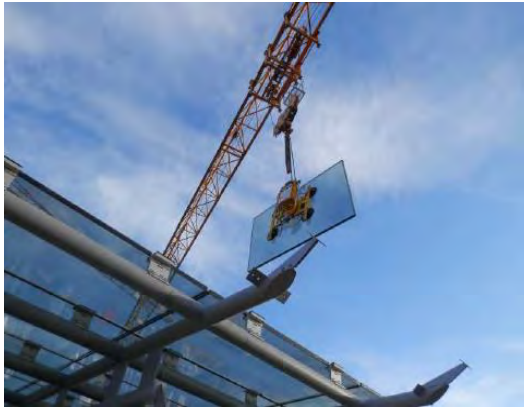
PICHLER

Mittel & Methoden

Design Assist Process – Schritt 5

Soundport Ferring (Norman Foster) Mittel & Methoden

PICHLER

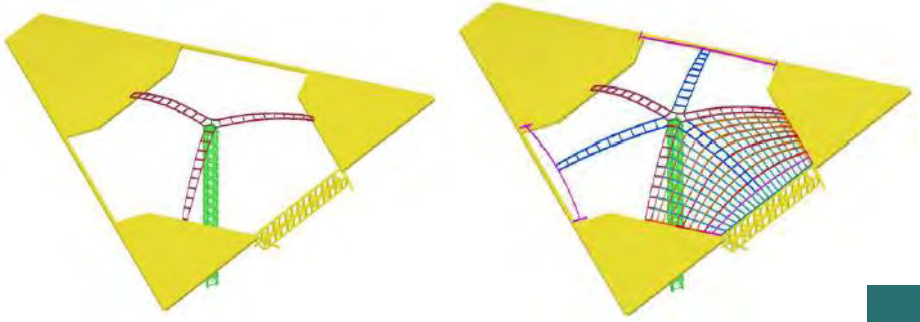


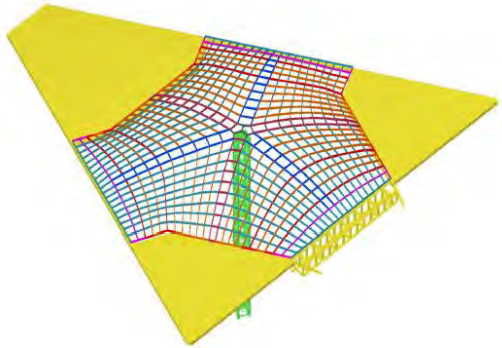
Design Assist Process – Schritt 5

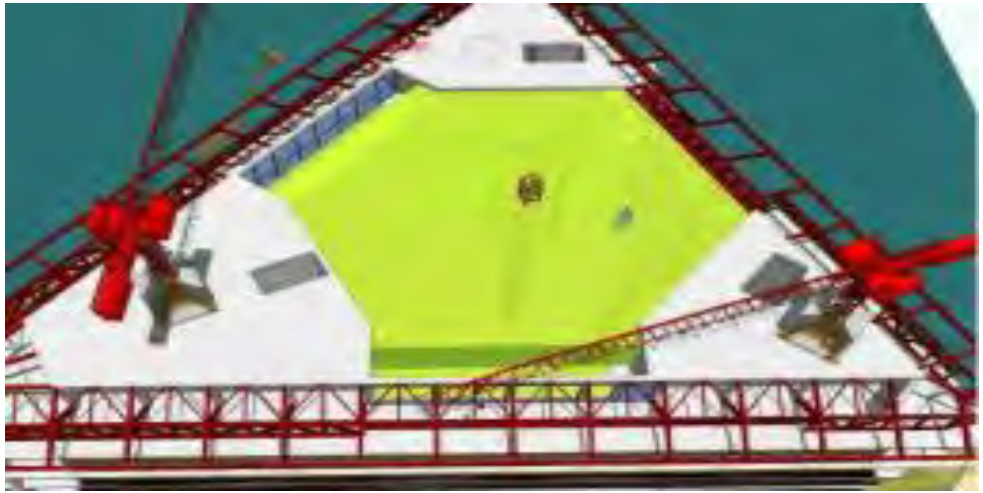
Soundport Ferring (Norman Foster) Mittel & Methoden

PICHLER

Anforderung: andere Firmen sollen unterhalb des Domes arbeiten können







Design Assist Process – Schritt 6

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Budget & Milestones

Design Assist Process – Schritt 6

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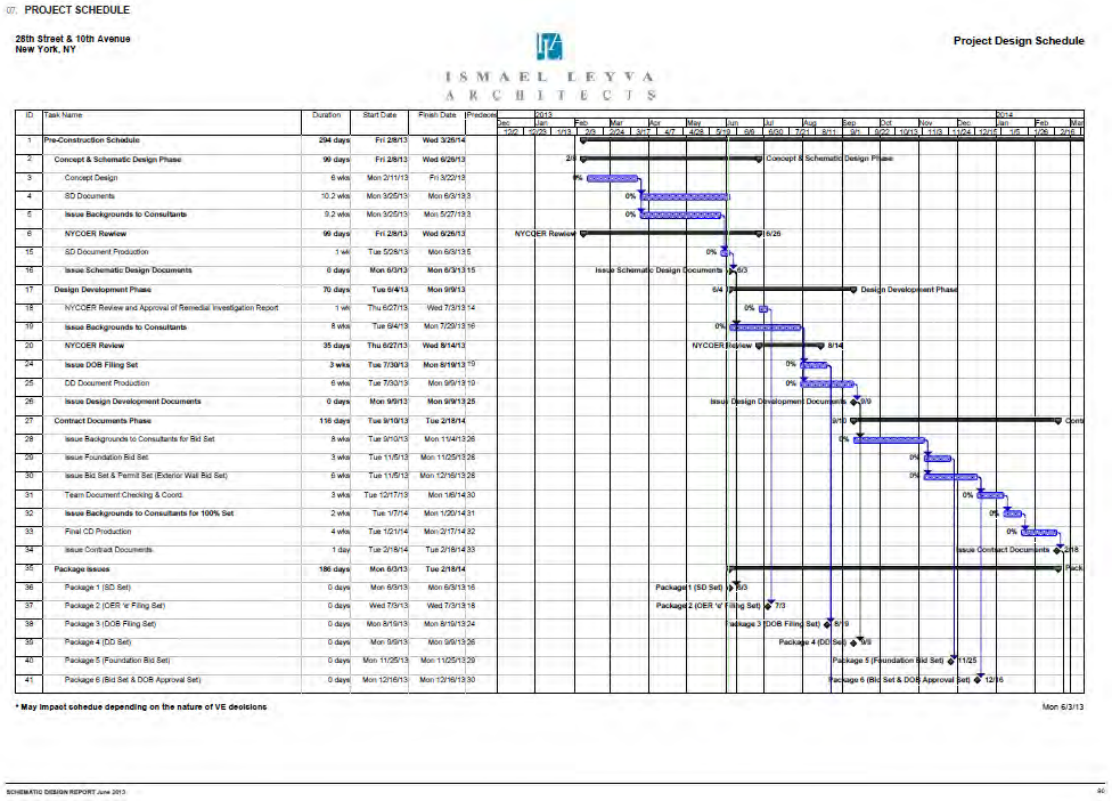
- BUDGET ÜBERPRÜFUNG
- TERMINPLAN



07. PROJECT SCHEDULE

28th Street & 10th Avenue
New York, NY

ISMAEL LEYVA ARCHITECTS

Project Design Schedule

ID	Task Name	Duration	Start Date	Finish Date	Predecessors
1	Pre-Construction Schedule	294 days	Fri 2/8/13	Wed 3/26/14	
2	Concept & Schematic Design Phase	90 days	Fri 2/8/13	Wed 6/26/13	
3	Concept Design	6 wks	Mon 2/11/13	Fri 3/22/13	
4	SD Documents	10.2 wks	Mon 3/25/13	Mon 6/3/13	3
5	Issue Backgrounds to Consultants	9.2 wks	Mon 3/25/13	Mon 5/27/13	3
6	NYCOER Review	99 days	Fri 2/8/13	Wed 6/26/13	
15	SD Document Production	1 wk	Tue 5/28/13	Mon 6/3/13	5
16	Issue Schematic Design Documents	0 days	Mon 6/3/13	Mon 6/3/13	15
17	Design Development Phase	70 days	Tue 6/4/13	Mon 9/9/13	
18	NYCOER Review and Approval of Remedial Investigation Report	1 wk	Thu 6/27/13	Wed 7/3/13	14
19	Issue Backgrounds to Consultants	8 wks	Tue 6/4/13	Mon 7/29/13	16
20	NYCOER Review	35 days	Thu 6/27/13	Wed 8/14/13	
24	Issue DOB Filing Set	3 wks	Tue 7/30/13	Mon 8/19/13	19
25	CD Document Production	6 wks	Tue 7/30/13	Mon 9/9/13	19
26	Issue Design Development Documents	0 days	Mon 9/9/13	Mon 9/9/13	25
27	Contract Documents Phase	116 days	Tue 9/10/13	Tue 2/18/14	
28	Issue Backgrounds to Consultants for Bid Set	8 wks	Tue 9/10/13	Mon 11/4/13	26
29	Issue Foundation Bid Set	3 wks	Tue 11/5/13	Mon 11/25/13	28
30	Issue Bid Set & Permit Set (Exterior Wall Bid Set)	6 wks	Tue 11/5/13	Mon 12/16/13	28
31	Team Document Checking & Coord.	3 wks	Tue 12/17/13	Mon 1/6/14	30
32	Issue Backgrounds to Consultants for 100% Set	2 wks	Tue 1/7/14	Mon 1/20/14	31
33	Final CD Production	4 wks	Tue 1/21/14	Mon 2/17/14	32
34	Issue Contract Documents	1 day	Tue 2/18/14	Tue 2/18/14	33
35	Package Issues	186 days	Mon 6/3/13	Tue 2/18/14	
36	Package 1 (SD Set)	0 days	Mon 6/3/13	Mon 6/3/13	16
37	Package 2 (OER 'e' Filing Set)	0 days	Wed 7/3/13	Wed 7/3/13	18
38	Package 3 (DOB Filing Set)	0 days	Mon 8/19/13	Mon 8/19/13	24
39	Package 4 (DD Set)	0 days	Mon 9/9/13	Mon 9/9/13	26
40	Package 5 (Foundation Bid Set)	0 days	Mon 11/25/13	Mon 11/25/13	29
41	Package 6 (Bid Set & DOB Approval Set)	0 days	Mon 12/16/13	Mon 12/16/13	30

* May impact schedule depending on the nature of VE decisions

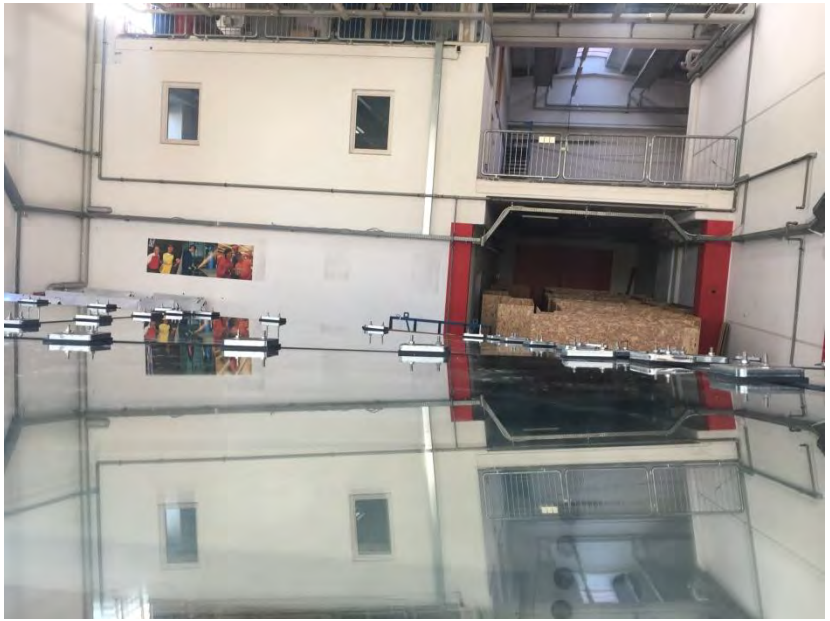
Mon 6/3/13

SCHEMATIC DESIGN REPORT June 2013

Design Assist Process – Schritt 7

PICHLER

VMU - Visual Mock Up

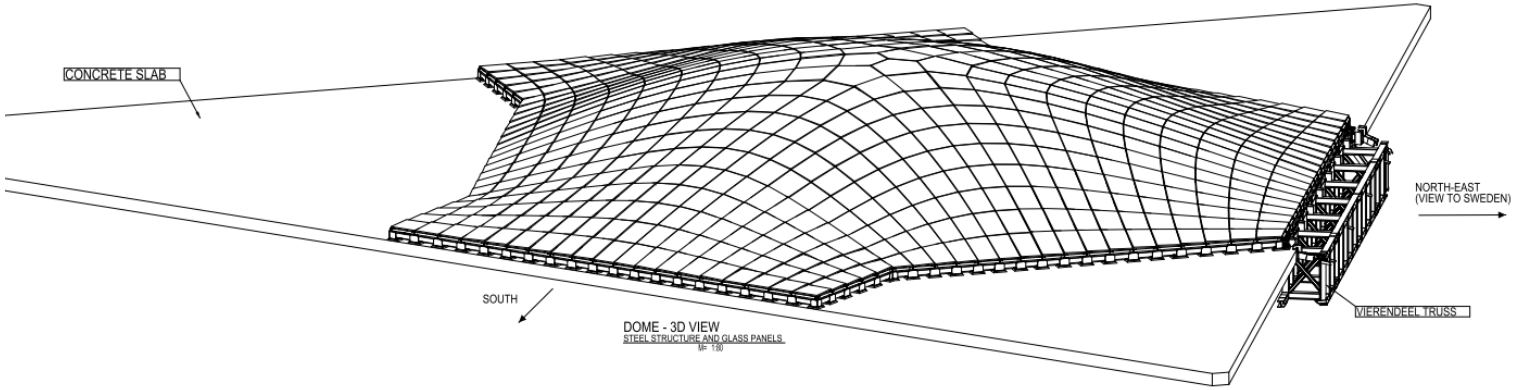


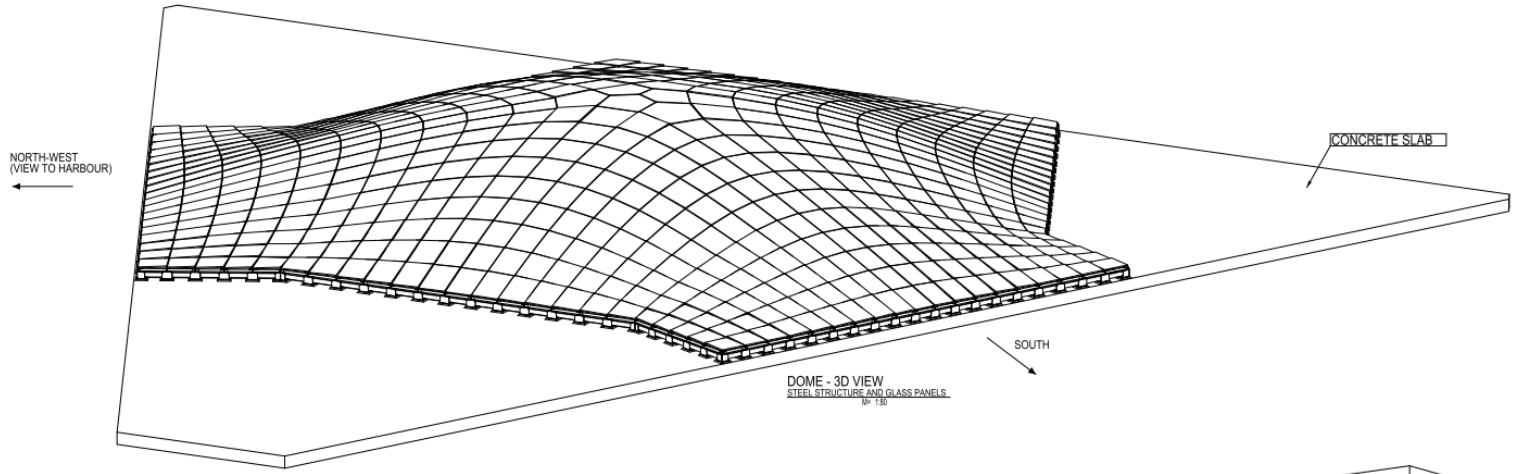
Design Assist Process – Schritt 8

Soundport Ferring (Norman Foster)

Design Assist Process – Schritt 8

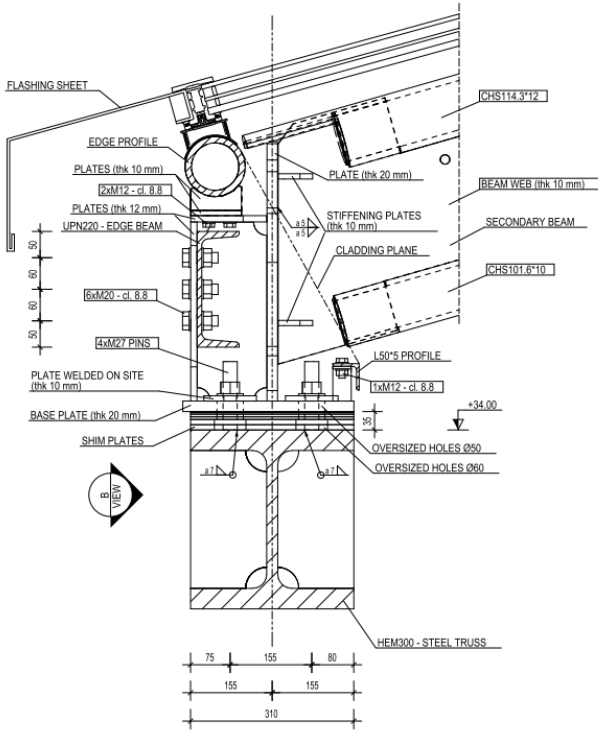
Soundport Ferring (Norman Foster) Finals Konzept



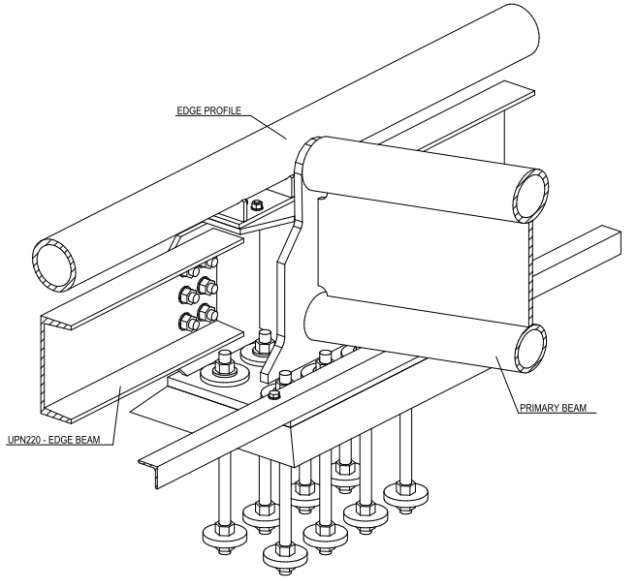


Design Assist Process – Schritt 8

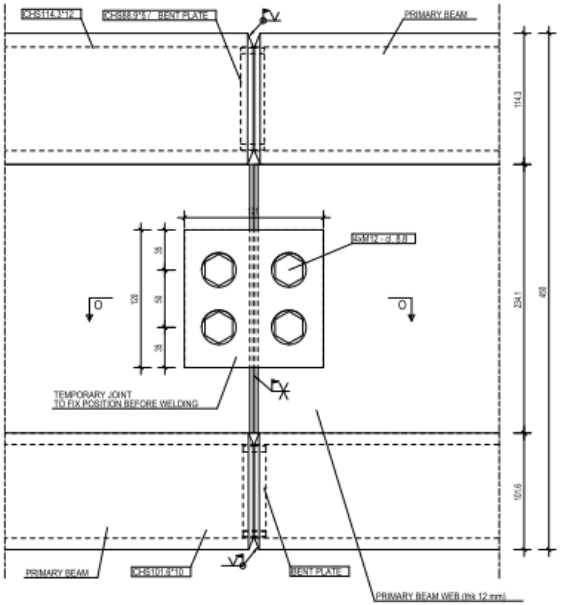
Soundport Ferring (Norman Foster) Finales Konzept



BASE NODES - STEEL TRUSS
DETAIL 02
M= 1:5



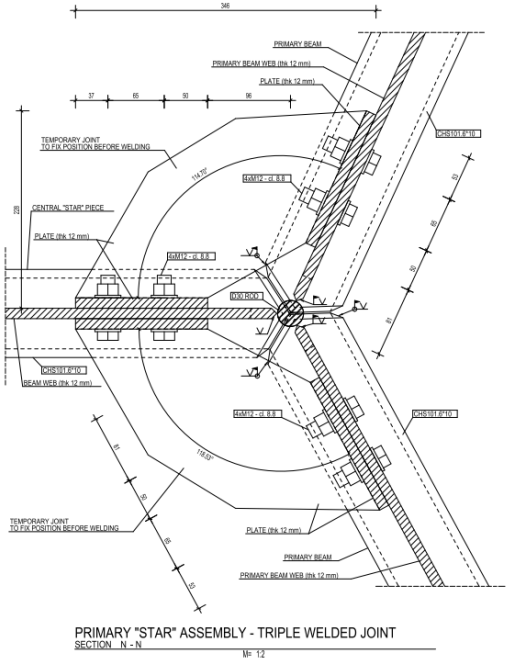
BASE NODES - CONCRETE
3D VIEW
M= 1:5



PRIMARY BEAMS - WELDED JOINT
DETAIL 07
M= 1:2

Design Assist Process – Schritt 8

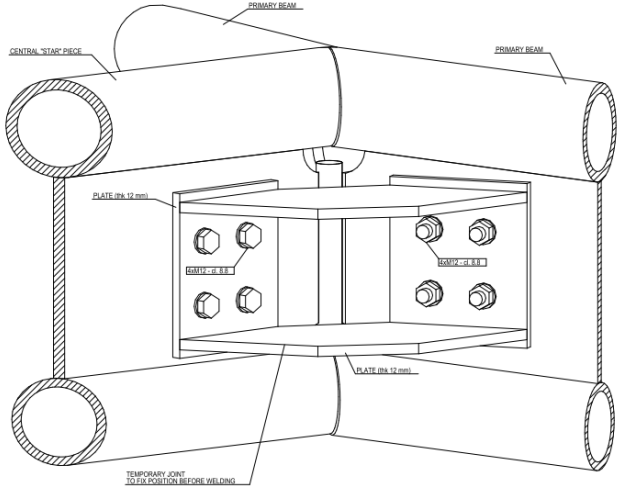
Soundport Ferring (Norman Foster) Finales Konzept



PRIMARY "STAR" ASSEMBLY - TRIPLE WELDED JOINT

SECTION N - N

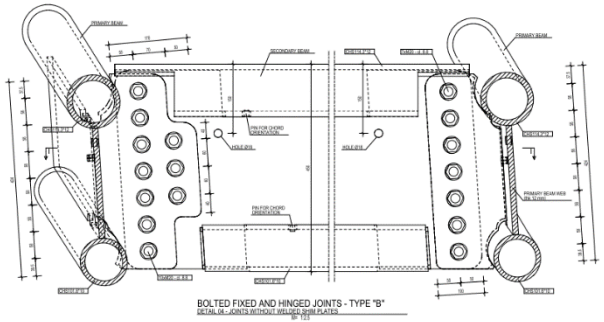
M= 1:2



PRIMARY "STAR" ASSEMBLY - TRIPLE WELDED JOINT

3D VIEW

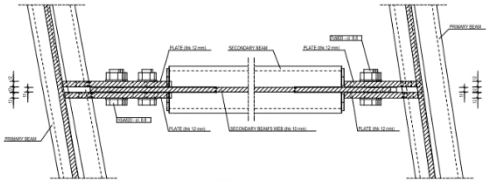
M= 1:2



BOLTED FIXED AND HINGED JOINTS - TYPE "B"

DETAIL B - JOINTS WITHOUT WELDED BEAM PLATES

M= 1:5



SECTION 1 - 1

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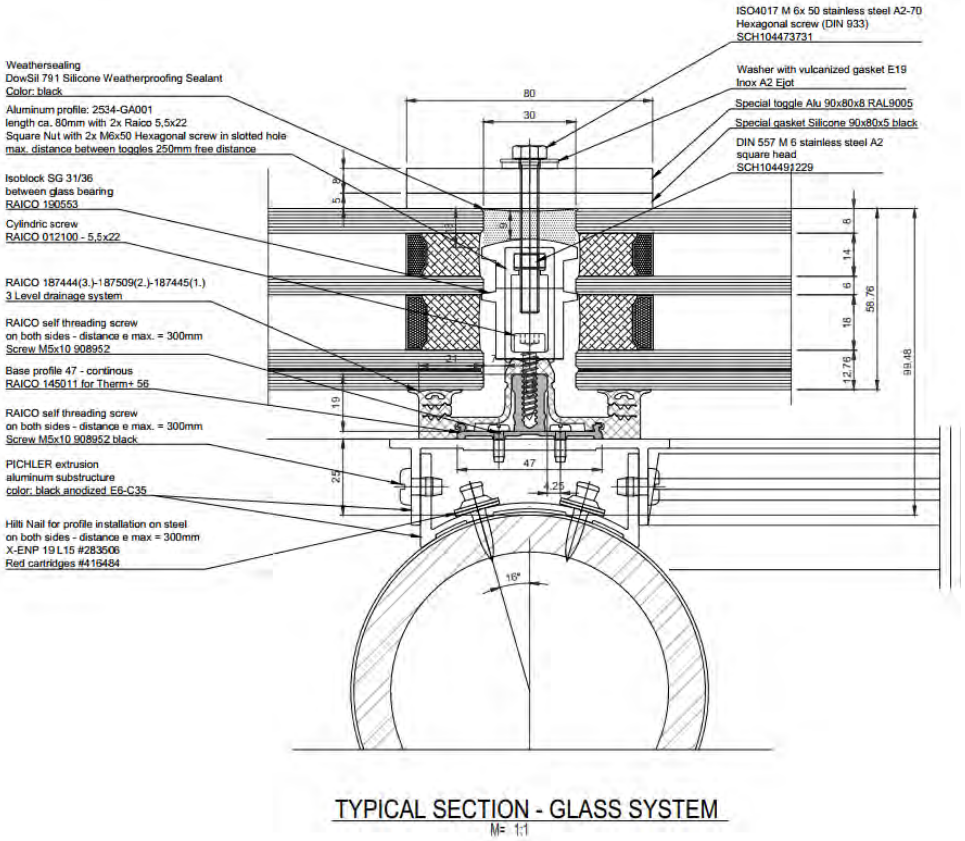
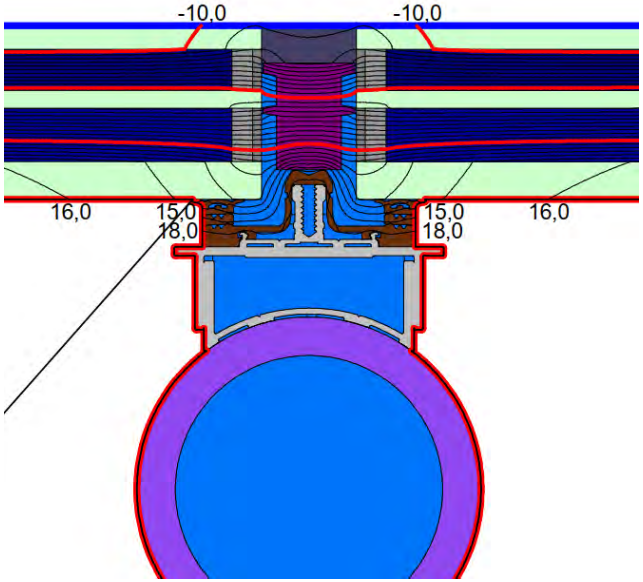
Design Assist Process – Schritt 8

Soundport Ferring (Norman Foster) Finales Konzept

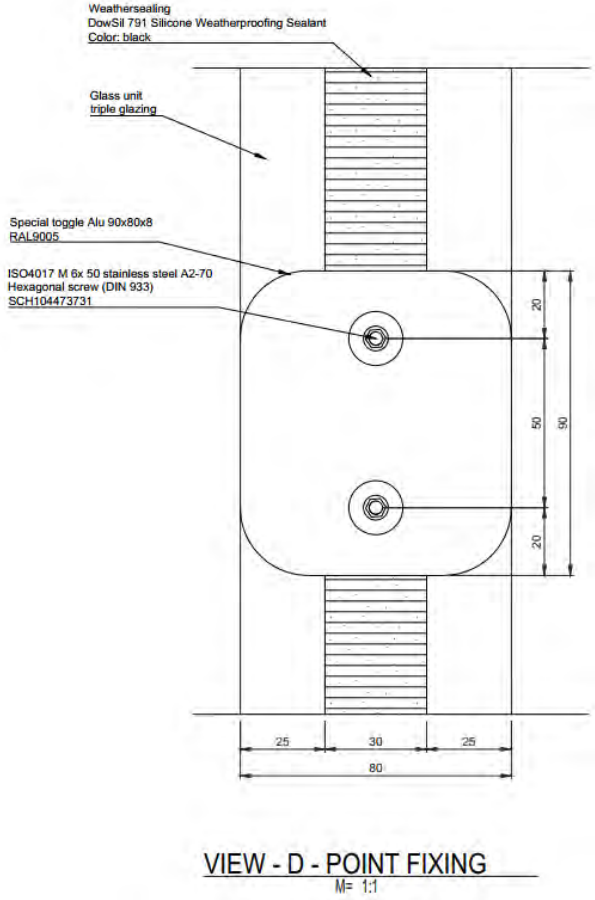


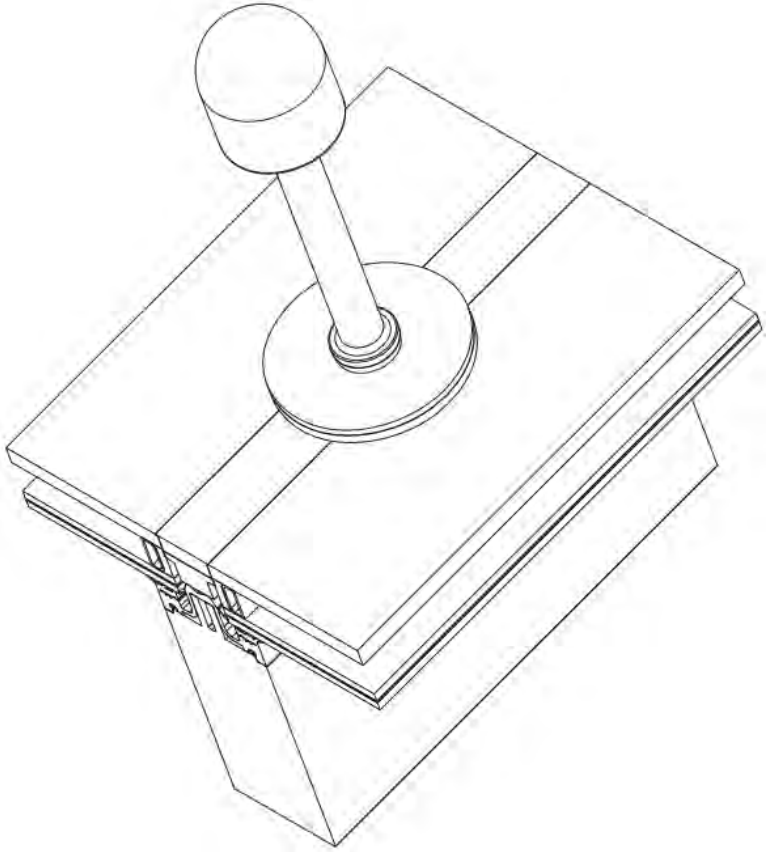
TYPICAL SECTION - GLASS SYSTEM
M= 1:1



Design Assist Process – Schritt 8

Soundport Ferring (Norman Foster) Finales Konzept





Design Assist Process

Soundport Ferring (Norman Foster)

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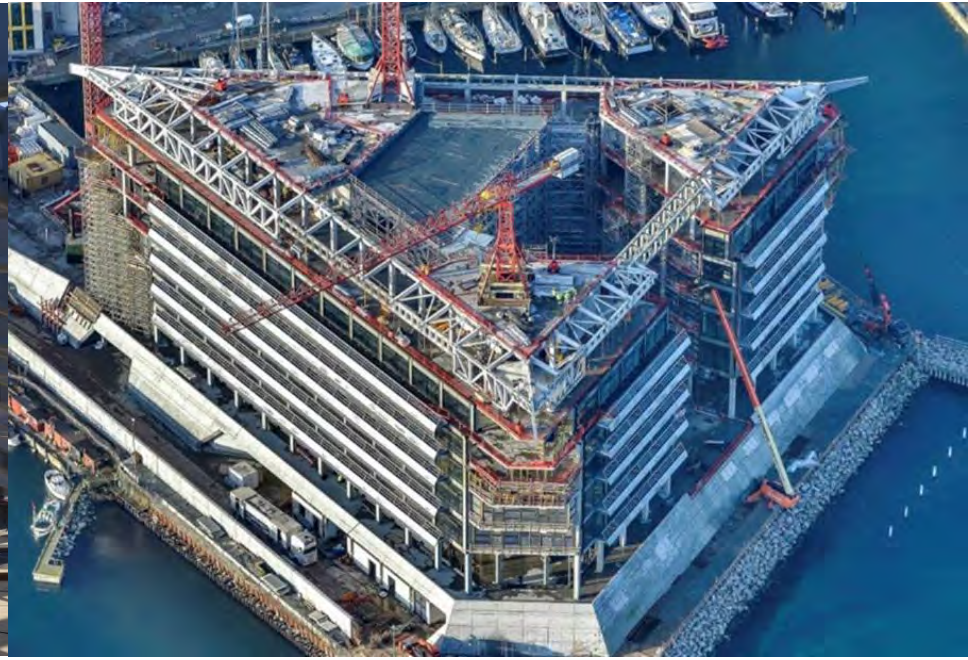
Baustellenbilder

Design Assist Process

Soundport Ferring (Norman Foster) - Baustellenbilder:

Errichtung der Montageebene auf +39,0m Höhe



Design Assist Process

Soundport Ferring (Norman Foster) - Baustellenbilder :

Design Assist Process

Soundport Ferring (Norman Foster) - Baustellenbilder :

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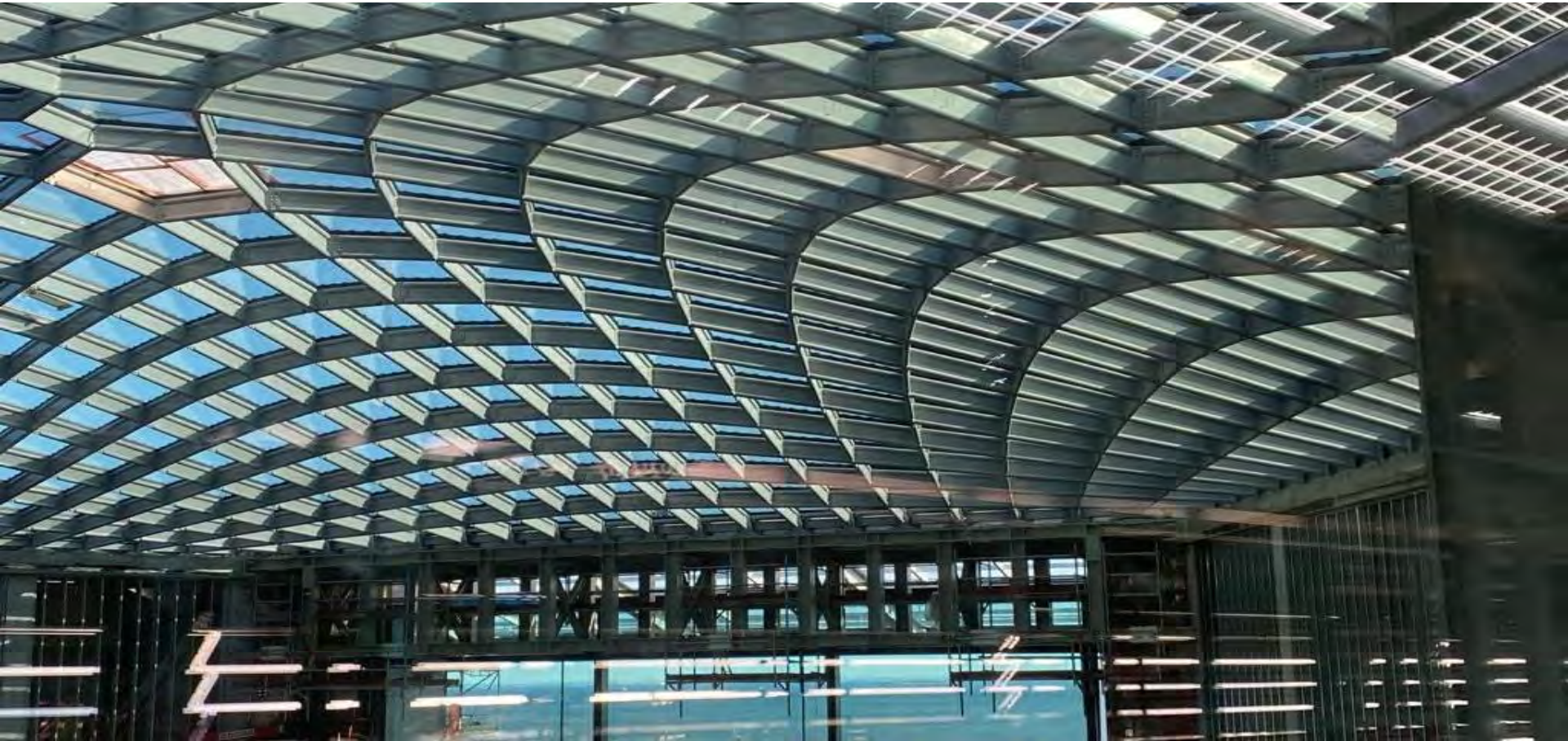

Design Assist Process

Soundport Ferring (Norman Foster) - Baustellenbilder :

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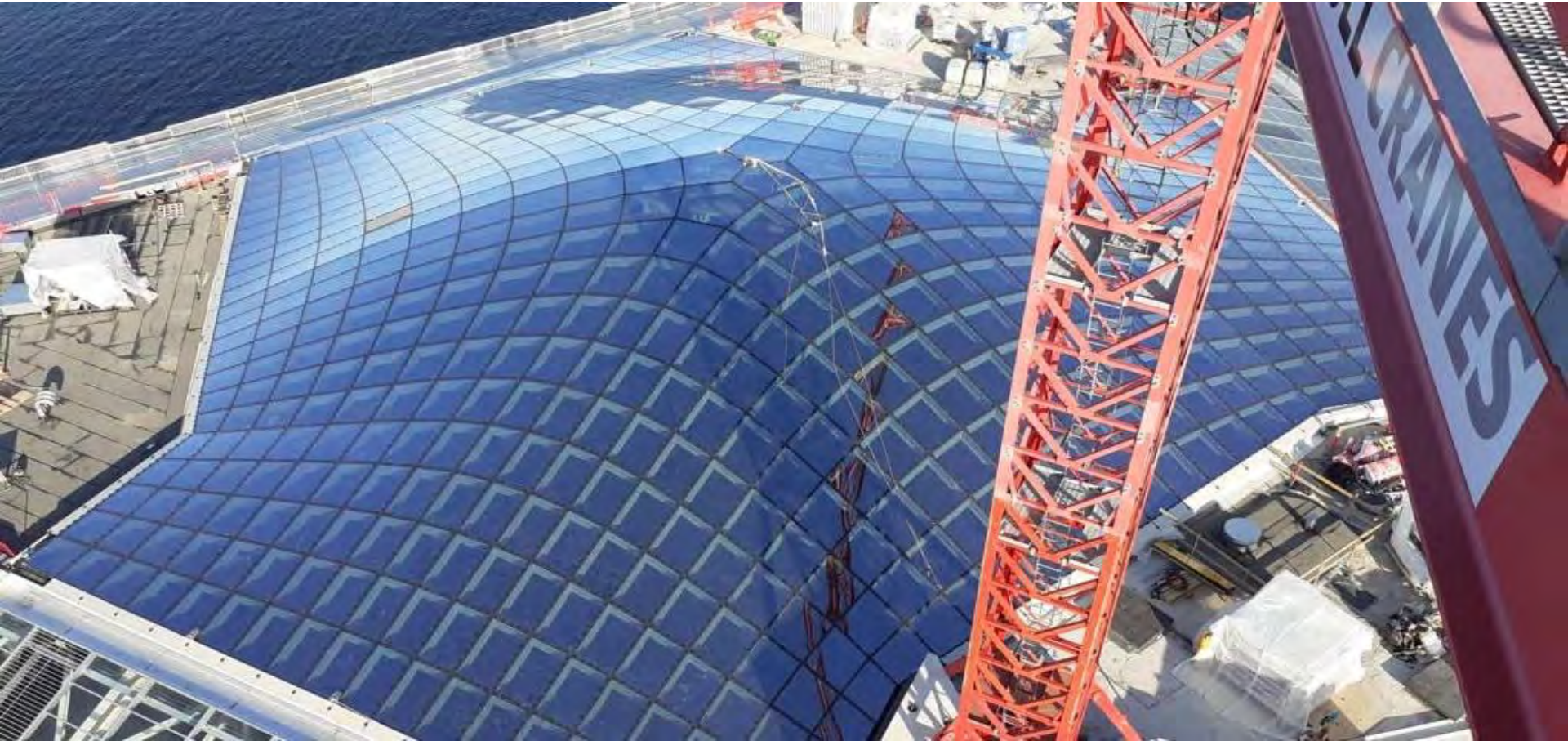


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DANKE FÜR IHRE AUFMERKSAMKEIT!