

## **G R O U P 5F Middle East LLC**

Facade System and Envelope Development Engineering  
Data and Review for Related Supporting Structures

Switzerland – Qatar - Germany – United Kingdom

We would like to introduce you to Group 5F.  
We will show you our expertise with Facades and introduce you to our experienced team of qualified engineers.

You will note we have worked for many International Architects and Contractors. We look forward to an opportunity to assist in delivering your project

## **Company divisions and service sectors**

- Planning and development of process with focus on facade cladding and building envelopes
- Creation and optimisation of process-data to meet design principals of DfM & CDM for H&S.
- Association with Wacker Engineering in Germany for Wind Assessments & Testing
- Utilising AutoCAD / Athena and parametric design with CATIA / Digital Project
- Association with Gruner Group for special Thermal & Acoustic Assessments
- Selection consultation in CAD/CAM, EDM/PDM and ERP applications
- Association with security threat experts, DGA, in United Kingdom

## **Our philosophy**

It is well understood that, for a building facade, the design process determines the path to the finished product that everyone sees on completion.

The efficiency of the process incorporates a role for value-engineering.

There are time and cost advantages which play a central role in facade planning and execution.

On the basis of these facts the architectural intent, feasibility and buildability of the envelope have to be harmonised with the aesthetics and the building life maintenance costs.

The planning goal of each project should be always to add design value so as to obtain the optimum result for all project partners, utilising all the available tools and resources.

Our basic approach for the optimisation of project life, is based upon the development and adaptation process throughout the complete value creation chain of a completed installation.



## **Business activities**

GROUP 5F offers comprehensive packages of planning, engineering and consultancy services for Architects, Facade companies and Contractors

On the basis of our outstanding technical resources and personnel expertise, together with our own supply-chain partners, we are capable to react quickly and efficiently to all the demands of modern envelope design.

On request, we can undertake thermal and acoustic calculations in support of our system recommendations, taking an holistic view of the immediate facade environment.

### 3. Personal CV & Alliances

# **David Stanton**

## **Managing Partner**

### **Group5f Middle East LLC**

#### **Qatar**



## **Key Data**

David has been in the façade industry for almost all of his career.

He has managed delivery of several major projects throughout the World. The latest being Sidra Hospital & Research Centre in Doha, Qatar - a US\$ 150m façade package - spread over three years.

Other prestigious projects have been successfully completed in the USA, Canada, Africa, Pakistan, Abu Dhabi and Saudi Arabia.

David was Senior Project Manager at Schmidlin UK for the Design and Cost Definition stages of Terminal 5 at Heathrow. Taking the main terminal and sub-projects through to Stage D – ready for construction. The Client, BAA, also made David their Design Task Team leader for the complete envelope package, incorporating structural steelwork, the roof cladding and related works, down to the underground railway public areas.

David has participated in diplomatic trade missions with both UK and Canadian Embassies in the Middle East and is currently a member of QBBF, with the British Embassy in Qatar.

Used to developing workable solutions with senior International Architects, David is a safe pair of hands for projects requiring a high level of cultural, aesthetic and technical input. The last fifteen years have seen David almost exclusively involved in leading design teams to positive, budget orientated outcomes.

David has good working knowledge of the requirements for facades involving blast-enhancement, acoustics and seismic loadings. He is a member of the CIBSE Society of Façade Engineers.

***Fakhreddine Wahab***  
**General Manager**

**Education and Professional Specialisation**  
**Date - Degree - Institution**

**1) 2002-2006 PhD Kharkiv Polytechnic University (Ukraine)**

***PhD Engineering Sciences***

***Speciality: Processes and Equipment for building of aeration tanks for the purification of waste water.***

**2) 2000-2002 Masters Kharkiv State Municipal Academy (Ukraine).**

**Civil Engineering**

**3) 1996-2002 Bachelors (B.Sc ) Kharkiv State Municipal Academy (Ukraine).**

**Civil Engineering**

**4) 1995-1996 Diploma of Design Construction Models Byblos Institute, Dora, Lebanon**

**Date / Place of Birth**

20.12.1970 / Zell i.W. Germany

**Profession**

Civil Engineer

Façade structural Engineer

**Current Position**

Structural Engineer Team Chef

**Joined GROUP 5F**

January 2006

**Qualification**

Bachelor of Technology diploma  
University Cologne, Germany

**Design Qualification**

Structural Analyses of Façade  
structures. Glass structure  
calculation and capacities.  
EN, DIN, ANSI & BS Design  
Standards

**Key Data**

After Markus finalised his course of  
studies in 1996, he worked in the field  
of concrete & steel building structure  
as an employ structural engineer.

In the year 1999 Markus  
established his own company for  
building structurals with a 100%  
shareholder. Since then he worked  
as independent civil engineer in  
the field of facade engineering.

By recognising Markus as a very  
good skilled engineer with a wide  
understanding of what a building  
envelop needs to perform, he get  
engaged in facade value  
engineering on ambitouse Projects  
such as the Burj Dubai Tower. On  
this project Markus investigate in  
the specification to prepare the pre  
structure calculation for the  
facade.

While Markus works already  
together with the founders of  
Group5F since 1999, he decide in  
January 2006 to be a Partner of  
Group5F. Since this time Markus  
is the responsible engineer by  
Group5F in all range of facade  
envelopes and building structures.  
As the responsibel structure team  
leader Markus his challenge is to  
qualify the team permanetly to aim  
at perfection.

**Relevant Projects**

- Burj Dubai UAE
- Airport Düsseldorf 2000plus  
Germany
- Skyscraper Ensemble Munich,  
Germany
- BMW Aerodynamic Research  
Centre Munich, Germany
- Europa Passage Hamburg,  
Germany
- Peek & Cloppenburg Cologne,  
Germany
- Capital Hill Moscow, Russia
- Dongdaemun Seoul, Korea
- Paddington Station, London UK
- Lime Street, London UK
- Mann Island Buildings  
Block1 to 3 Liverpool, UK

**Date / Place of Birth**

11.05.1973 / Karlsruhe Germany

**Profession**

Civil Engineer

Façade structural Engineer

**Current Position**

Structural Engineer

**Joined GROUP 5F**

January 2006

**Qualification**

Bachelor of Technology diploma  
University Karlsruhe, Germany

**Design Qualification**

Structural Analyses of Façade  
structures. Glass structure  
calculation and capacities.  
EN, DIN, ANSI & BS Design  
Standards

**Key Data**

After Claus finalised his course of studies in 2002, he continuously works as employee for Markus Rümmele in the field of Façade Engineering. Since January 2006 Claus is permanently working for Group5F as a member of Markus Rümmeles structure Team.

As a good exercised engineer in using all current design standards for curtain walling and building requirements, Claus is specialised to transact facade design in accordance to specific project specifications. Therefore he provide the design team with pre-calculation, simulation, expertise and specific information of standard the design team has to follow by preparing their constructions.

Because of particular requirements in using no common structure made out of wood and glass, Claus attain further knowledge in manufacturing method. For Renzo Pianos Peek & Cloppenburg Building in Colone he managed to perform 39m structural composite lumbers that carry heavy summarized loads.

**Relevant Projects**

- Burj Dubai, UAE
- ADIA Abu Dhabi, UAE
- BMW Aerodynamic Research Centre Munich, Germany
- Europa Passage Hamburg, Germany
- National Exhibition Centre, Germany
- Peek & Cloppenburg Cologne, Germany
- Hilton Palace Geneva, Switzerland
- Capital Hill Moscow, Russia
- Dongdaemun Seoul, Korea
- Mann Island Buildings Block1 to 3 Liverpool, UK



# Carlos Bercianos

- **Education 2000–2009 Industrial Engineering, Universidad de Oviedo, Oviedo - Spain, .**
- **Specialization: Civil Engineering 1986–2000 High School Graduate, Santa Teresa de Jesús School, Oviedo - Spain.**
- **Work Experience From Jan 2013 Engineer, Bauingenieur Rümmele GmbH , Zell im Wiesental - Germany. Department of Façade Engineering, Steel and Timber Structures Okt 2011 – Dez 2012**
- **Engineer, Yuanda Europe Ltd. , Basel - Switzerland. Department of Façade Engineering May 2011 – Sep2011**
- **Development Engineer/Static Calculation, Nordex Advanced Development GmbH , Germany. Department of Calculation, Analysis and Design Oct 2010 – May 2011**
- **Development Engineer/Static Calculation, Windrad Engineering GmbH, Germany. Department of Calculation, Analysis and Design Mar 2009 – Nov 2009**
- **Internship, Institut für Verbundwerkstoffe GmbH (Institute of Composite Materials), Germany.**
- **Intern in the Material Science Department**
- **Computer Skills CAD/CAM AutoCAD, Mechanical Desktop, CYPECAD, Metal 3D, Power Frame, Escal2D, Mepla, R-Stab, RFEM, Üko CAE Ansys Programming Matlab, Simulink Office Advanced Excel, Power Point, Internet, E-mail Others Presto, LaTeX OS's MAC, Windows**
- **Further Training**
- **Jul 2010 – Aug 2010**
- **Calculation and Planning of Steel Structures, Euroinnova, Granada, 180 hours.**
- **May 2010 – Jun 2010**
- **Calculation and Planning of Concrete Structures with CYPECAD, Fundación Laboral de la Construcción, Gijón, 200 hours.**
- **Feb 2008 – Jul 2008**
- **Integration to the New Evaluation Techniques of the Structural Integrity, Universidad de Oviedo, Oviedo, 60 hours.**
- **Feb 2008 – Jul 2008**
- **Design and Development of Products, Universidad de Oviedo, Oviedo, 60 hours.**
- **Sep 2005 – Jun 2006**
- **Mechanical Properties of the Human Cornea, University of Dundee, Scotland, Erasmus Grant. Dissertation. Jul 2004 New Tendencies in the Thermal Design of Electric Machines, Universidad de Oviedo, Oviedo, 45 hours.**

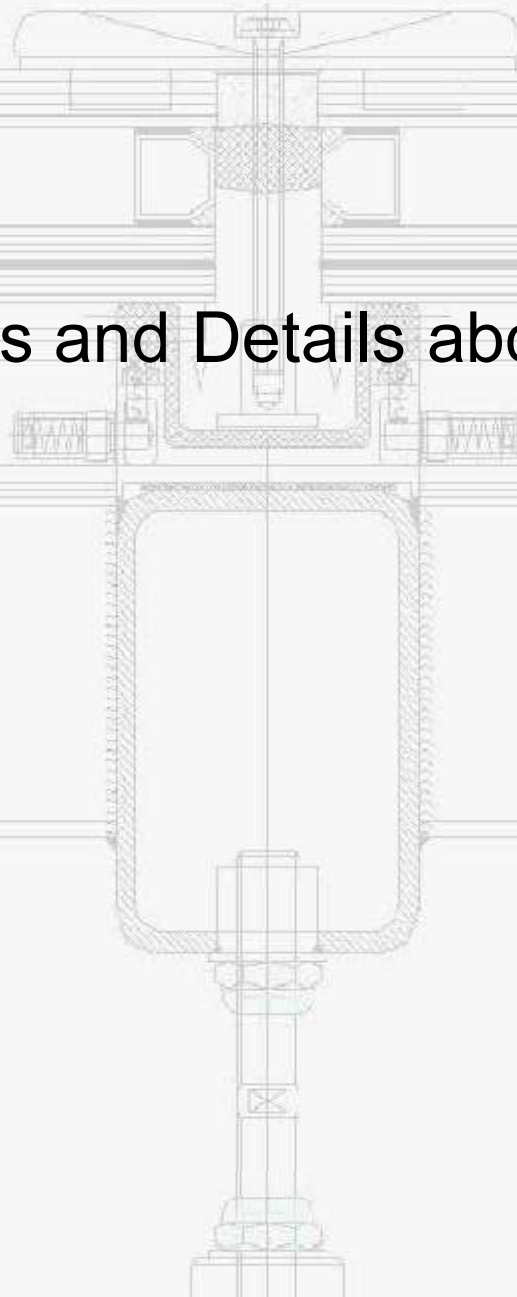
## Software equipment

**G R O U P 5F**

- Autocad 2006 to 2009 / Athena 2006to 2008 (new core technology V2008)
- Flixo thermal calculation
- 3D Vectorworks
- 3D CATIA / Digital Project Designer GT Technology
- 3D Acrobat Professional
- 3D Finite Elements Application
- Application for linear and spatial grids
- MAP incl. G5F - 3D Processing Solution
- Common Microsoft Office Products incl. MS-Project
- ANSYS mechanical / structural finite element calculation and simulation
- SJ MEPLA Glass design calculation and pendulum impact simulation
- RSTAB (Dlubal Software)
- Friedrich + Lochner products
- Pcae products
- Üco
- Hilti profi anchor
- Fischer Compufix



## 5. Images and Details about some Projects





## **Peek&Cloppenburg, Colone – Germany**

Architect: Renzo Piano, Paris

Value of envelope: 35 Mio USD

Range of exterior façade wall types:

- Hybrid structural / aluminium glass units
- Compound secondary timber structure
- Point -fixed roof glazing at plantroom level
- Stick Systems to Ground floor level.
- Glass & steel canopy

Consulting and value estimating, study of feasibility and façade development by Thomas Breiting as design manager for tender 1 stage. Design execution planning by Rolf Reinert.

Structural clarification and calculation by Claus Herm.





















## **VW-Volkswagen, Audi & Seat Autostadt Wolfsburg / Germany**

Audi, Seat und VW Showrooms

Architects: Henn & Henn Munich / Germany

Value of Envelope: 19 Mio USD

Range of Curtain Wall Types:

- Structural Glazing System
- Stick System
- Cast Aluminium Panel Cladding
- Bent Roof Aluminium Sheet Metal
- Vertical Ceramic Cladding

Consultancy ,Development and Execution of Facade  
Planning



# BMW Worlds Bridge, Munich Germany

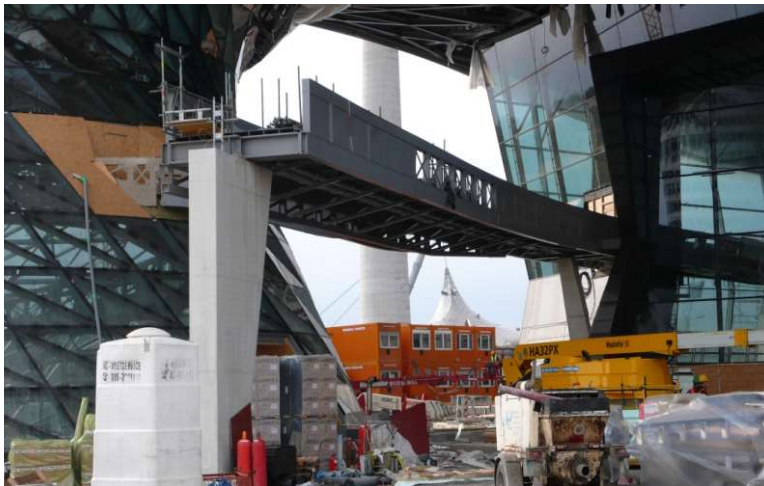


**GROUP 5F**

Client: BMW Group  
Architects: Coop-Himmelblau

Value of bridge cladding: 1 Mio USD

Design & value engineering development,  
Geometrical approval, 3D modelling, CNC-  
Data export for production.



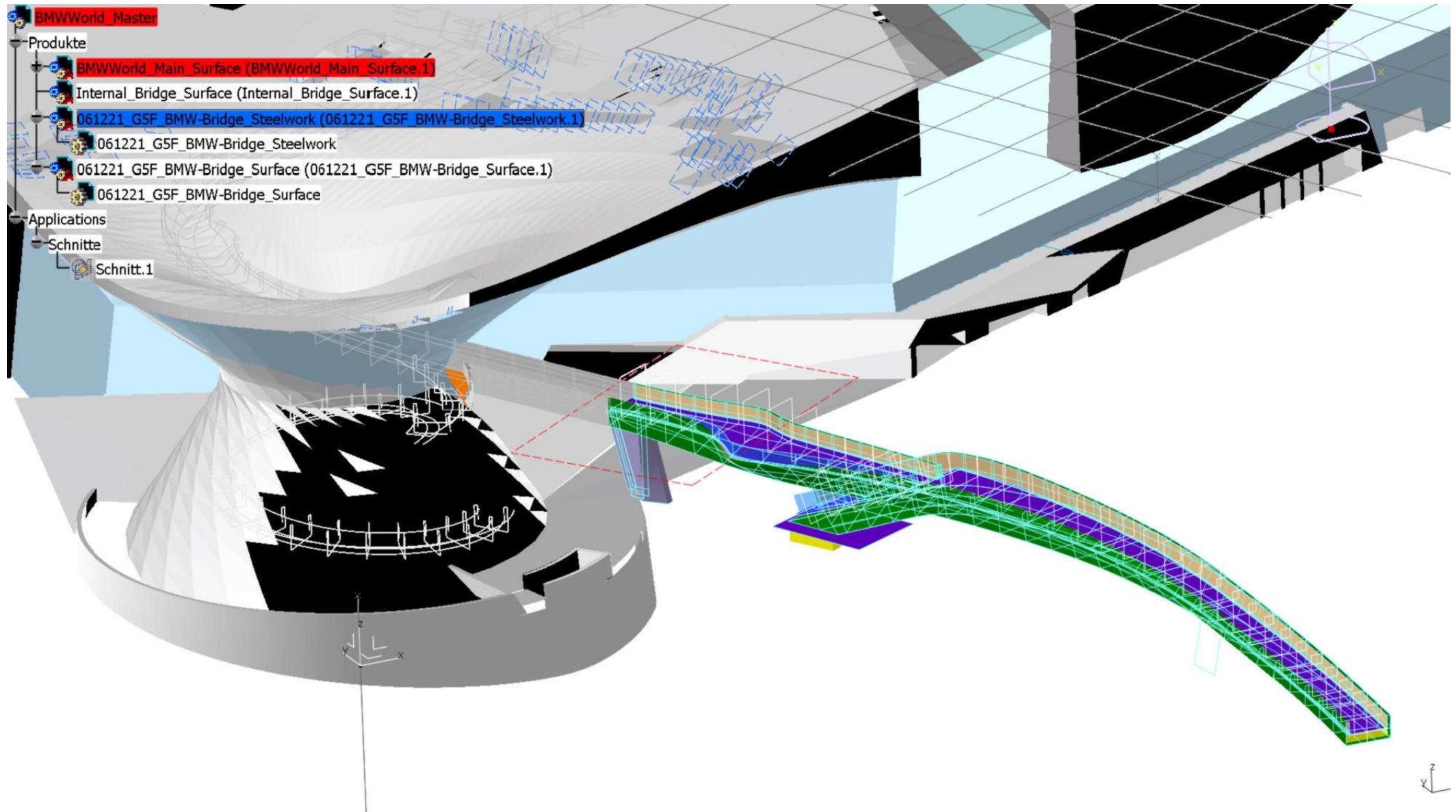














## **Enzo Ferrari Museum Modena, Italy**

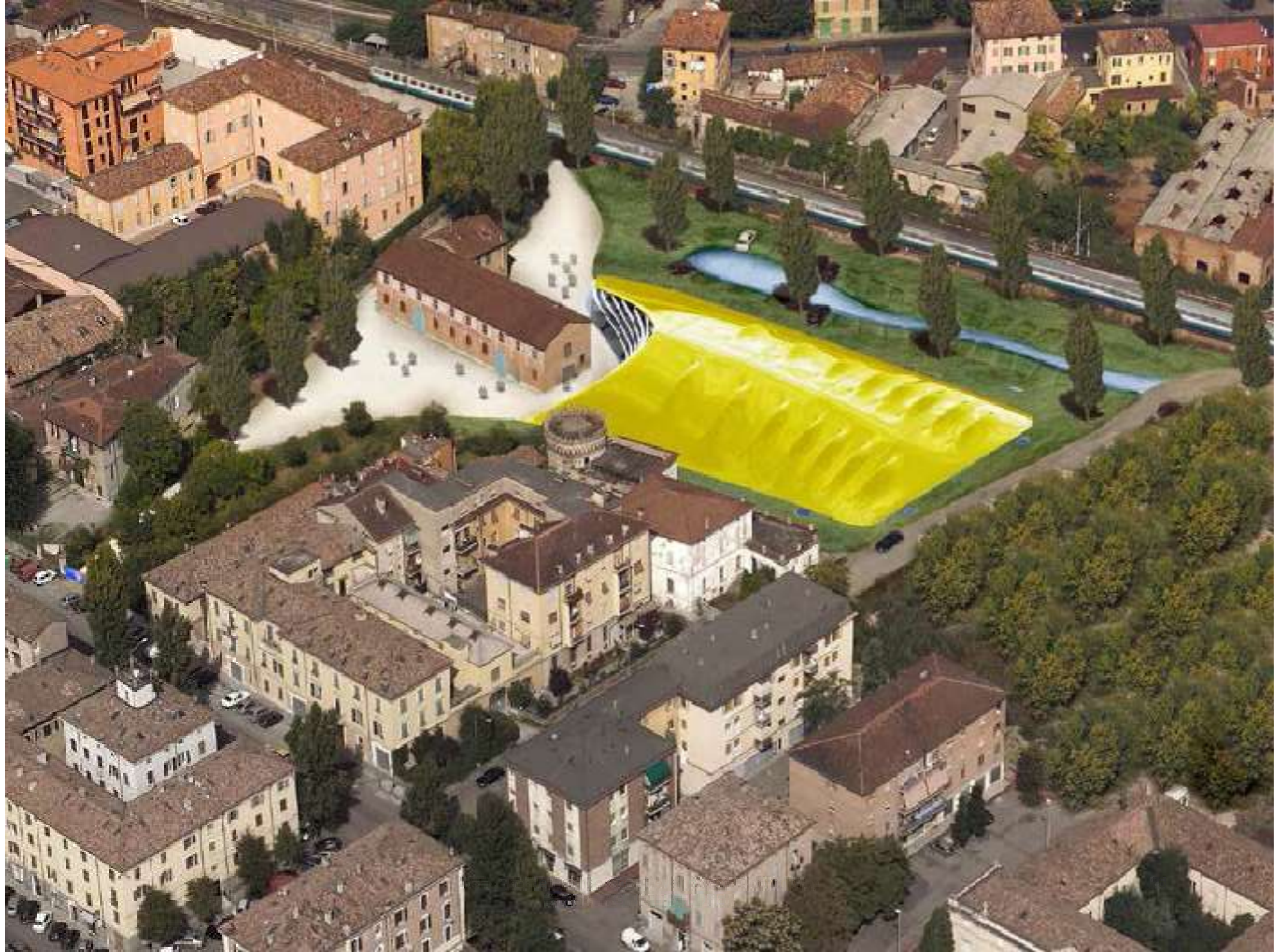
Façade envelop value: Project did not go ahead

Type of envelope:

- Aluminium metal sheet
- Insulated Roof composite panels

Schematic design study by Ulrich Blümmert





## **Skyscraper - Ensemble 'Münchner Tor' Munich / Germany**

Architect: Murphy / Jahn Chicago USA

Value of envelop:	62 Mio USD
Total envelop sqm of Building 1 to 4:	58'380 sqm

Type of Façades:

- Aluminium glass curtain wall units with Stainless steel sheet metal, glass and TPS glass edge technology
- Ground floor unitized glass & aluminium elements
- Structural glazed exterior lift shafts
- Structural roof glazing
- Structurally glazed link-bridge between the towers
- Special LED lightning on the vertical corner sections

Façade development and design management by Thomas Breitingner , as responsible design team chef.





This high-rise building format is technically unique in Europe, due to the very unusual structure.

The building does not have a solid concrete-core like most high-rise buildings . Carrying the minimized flat concrete slabs, at both ends of the floorplate, are vertical steel frameworks that span the floors horizontally; with all of the design loads carried between.

To keep a continuous element pattern and a consistent joint appearance; high precision brackets manage building movements and deflections . Even though the top section is, by software modelled windloads; twisting almost 20cm.

High precision aluminium extrusions allow the façade cleaning system to slide vertically, very smoothly.

Because the location is close to Munich airport the building has a special LED light system that is integrated into the corner units of the towers. At night this architectural light integration makes the building quite an impressive part of the City landscape.





HIGHLIGHT

KanAm

Aareal Bank

STRABAG

HIGHLIGHT

HIGHLIGHT



5

WOLFF



STRABAG

STRABAG





**Düsseldorf**  
international

## **New Airport Düsseldorf 2000 plus**

Architect: JSK/Düsseldorf

Value of exterior & interior facade: 31 Mio USD

Type of Façades:

- Unitised curtain wall with electrically operated windows with sensors
- Aluminium sheet metal cladding
- Air-side acoustic unitised curtain wall
- 90 minute fire-rated interior glass steel façade
- Terrace stainless steel handrails
- Main entrance swing doors & vestibules with special electronic equipment
- 30 minutes fire rated Glass & Steel flight link bridges

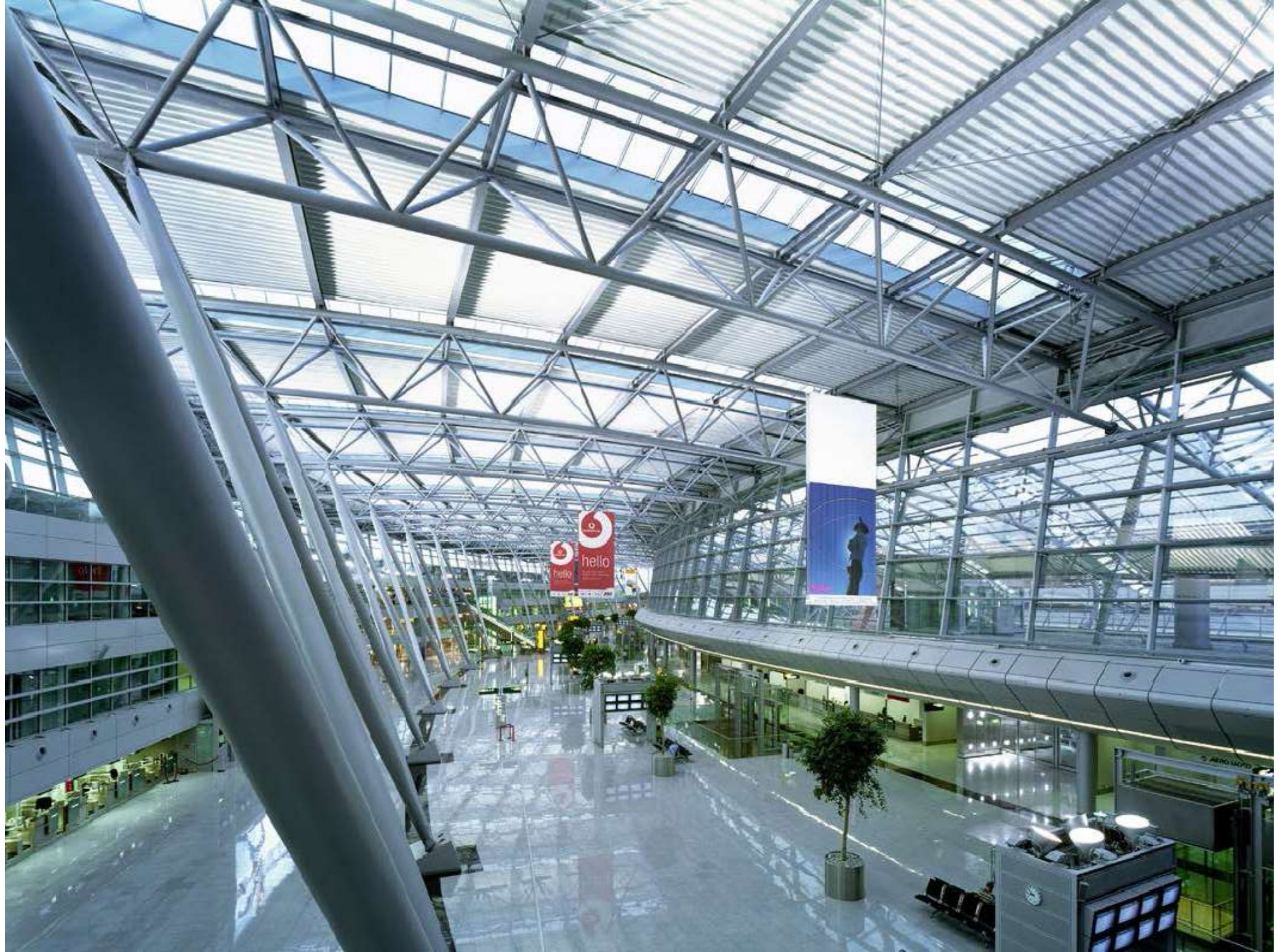
Development, Approval- and Workshop Planning, design and supply chain management.

Structural calculation, pendulum test and simulation by Markus Rümmele as structural engineer.

The new Düsseldorf airport specified the highest standards for fire protection and H&S in Europe which informed the façade design criteria. All exterior and interior façade constructions are key components of a comprehensive fire prevention strategy. Therefore the façade integrated BMS electronic equipment is also a customised solution.











## **Airport Terminal 5 Heathrow**

Client: British Airport Authority

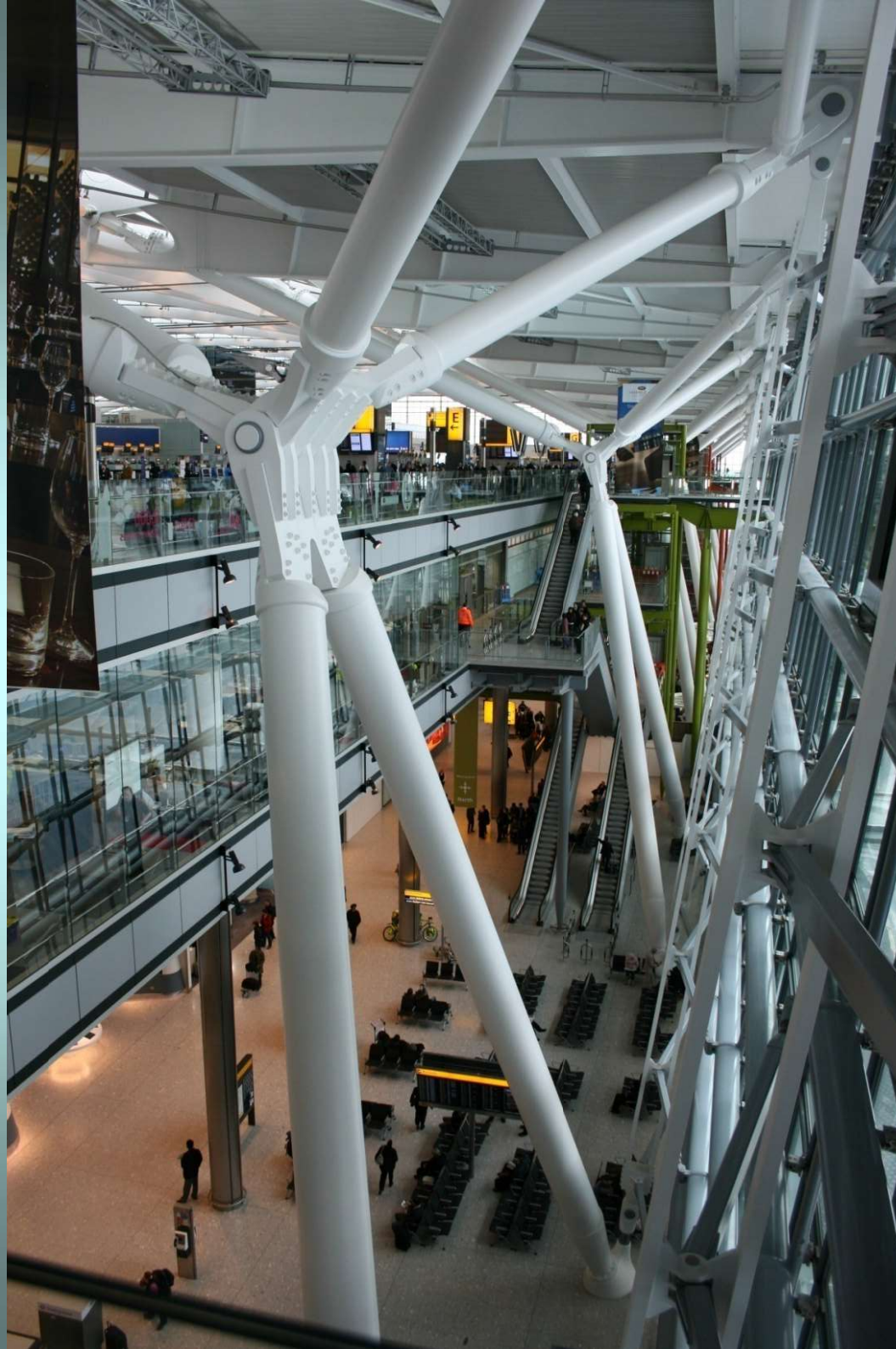
Architects: Richard Rodgers Partnership

Value of façade envelop: 117 Mio USD

Local consultancy, design definition, system development and design integration by Thomas Breiting and David Stanton

Approval and system detail drawings by Rolf Reinert.





**GROUP 5F**



**GROUP 5F**









**GROUP 5F**

Swiss-Re, London

Architect: Sir Norman Foster

Façade envelop value: 76 Mio. USD

Type of Façades:

- Three angular exterior curtain wall units
- Three angular interior glass panels
- Interior sheet metal flashings
- Glass steel construction





SKANSKA

Van 10  
4.20 m x 1.20 m  
1000 kg













## **Novartis Pharmaceuticals AG Switzerland**

Architect: Frank O'Gehry / Los Angeles

Types of glazing and metal building:

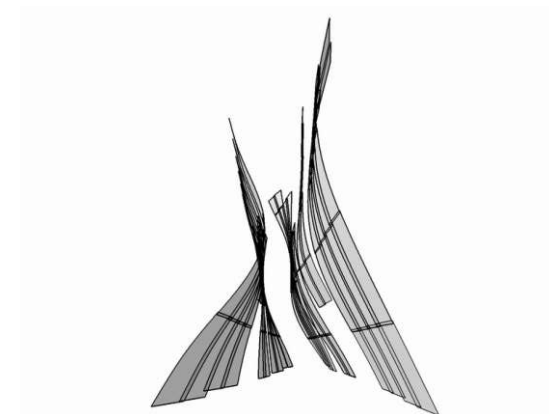
- Glass Canyon with double curved glass
- Smoke curtain
- Auditorium acoustic glass sealing
- Primary & secondary steel structure 3D modelling  
Façade bracket positioning, Façade Mock-Up  
steel structure
- M&E 3D integration 3D modelling
- Water cooling aluminium lamellae 3D

Design Tasks:

Structural calculations by Markus Rümmele, clash-analysis and ASCII export by Katrin Osswald

This Design Study by FOGA consists of 100 double-curved glass panes.

Site Management







12.04.2007 18:25





12.04.2007 18:25









04.08.2008





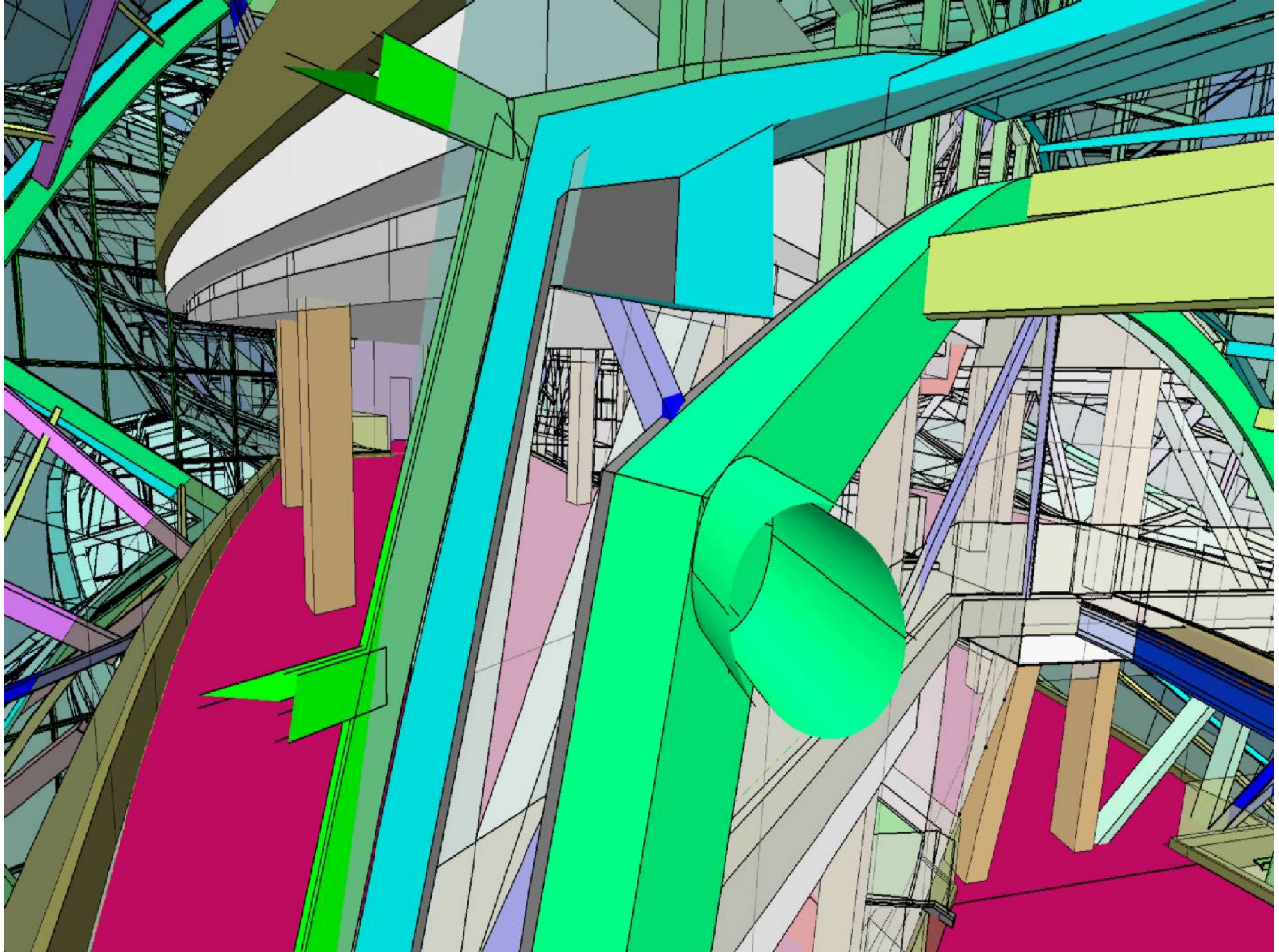
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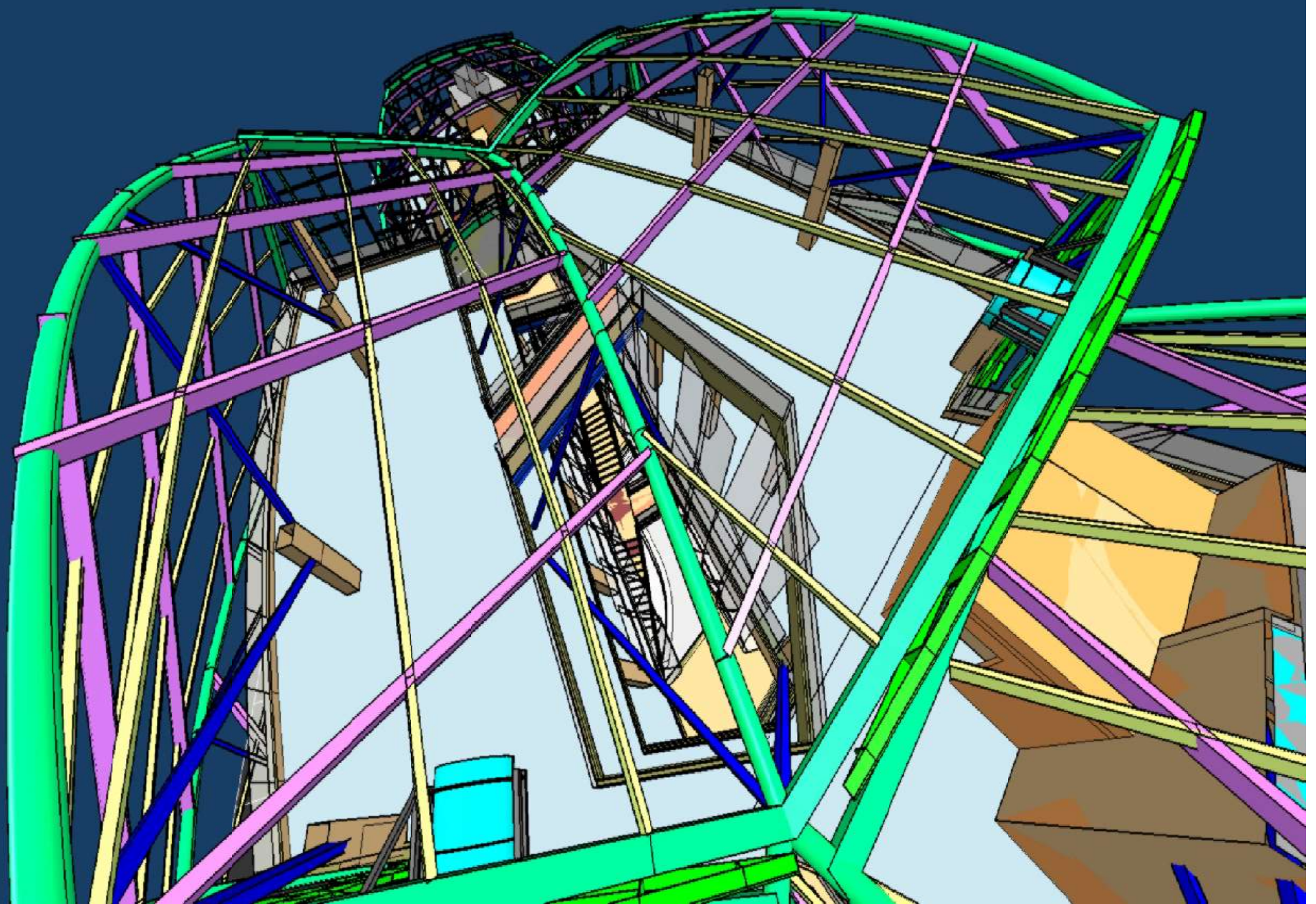


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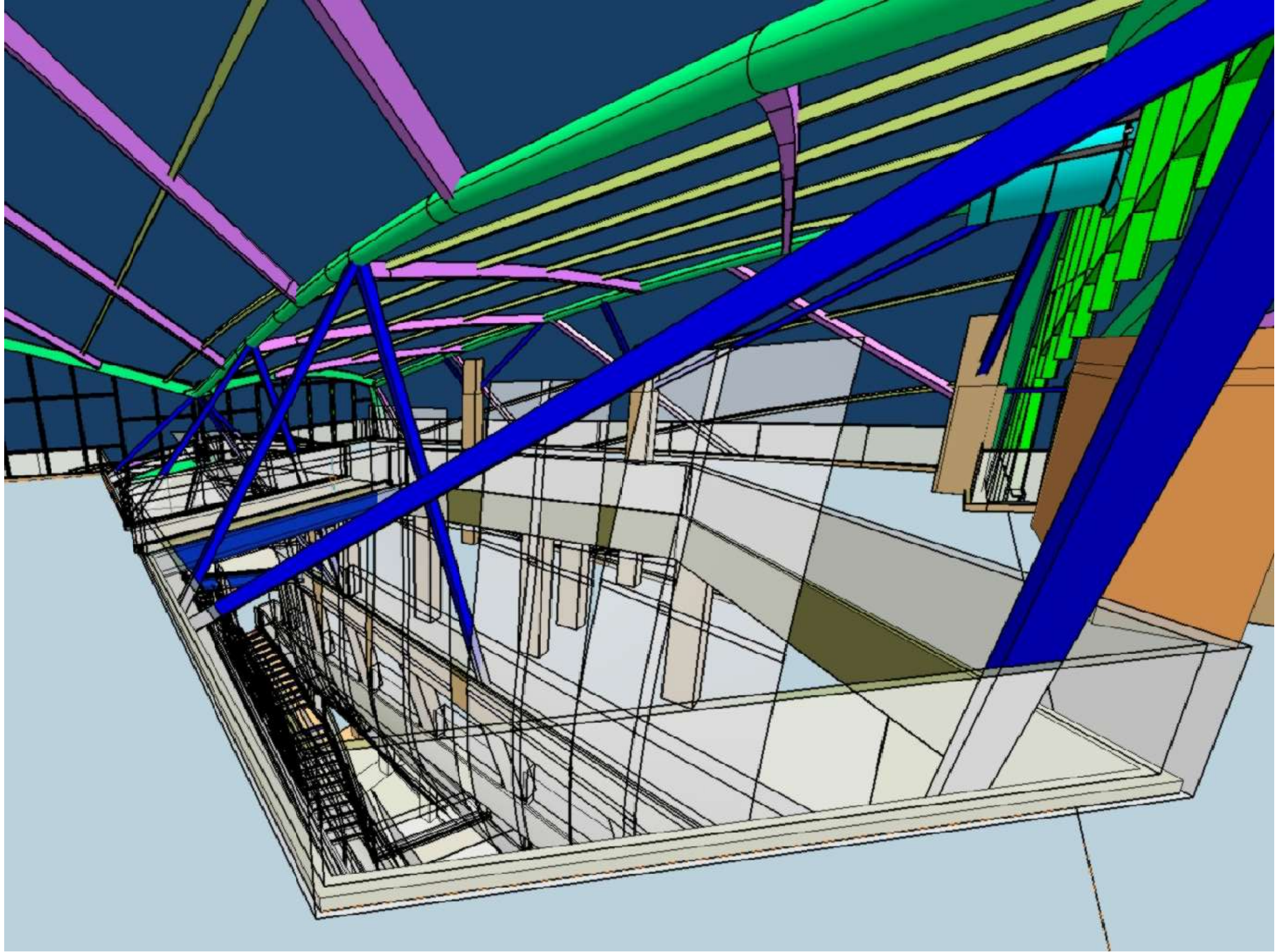




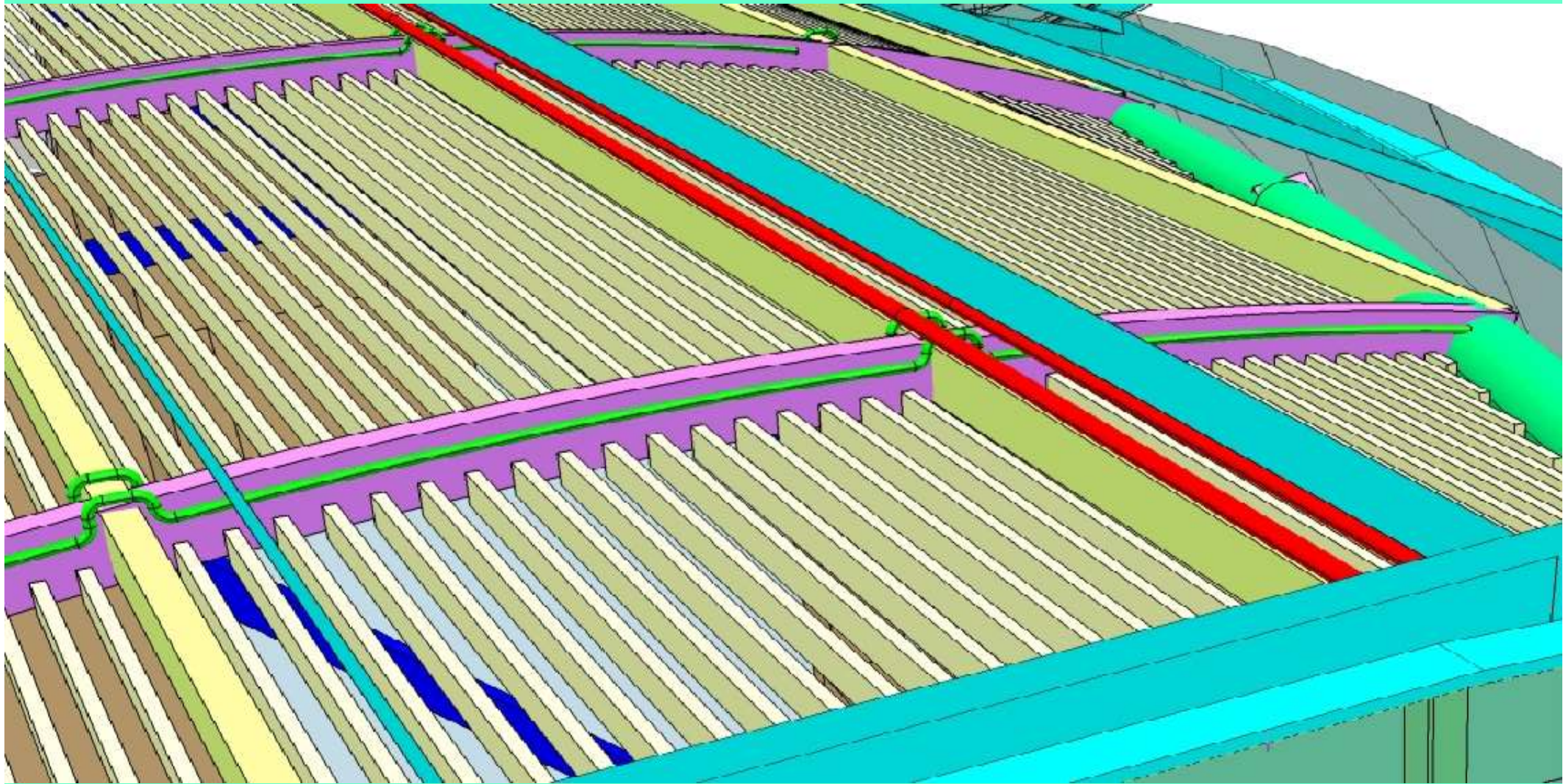




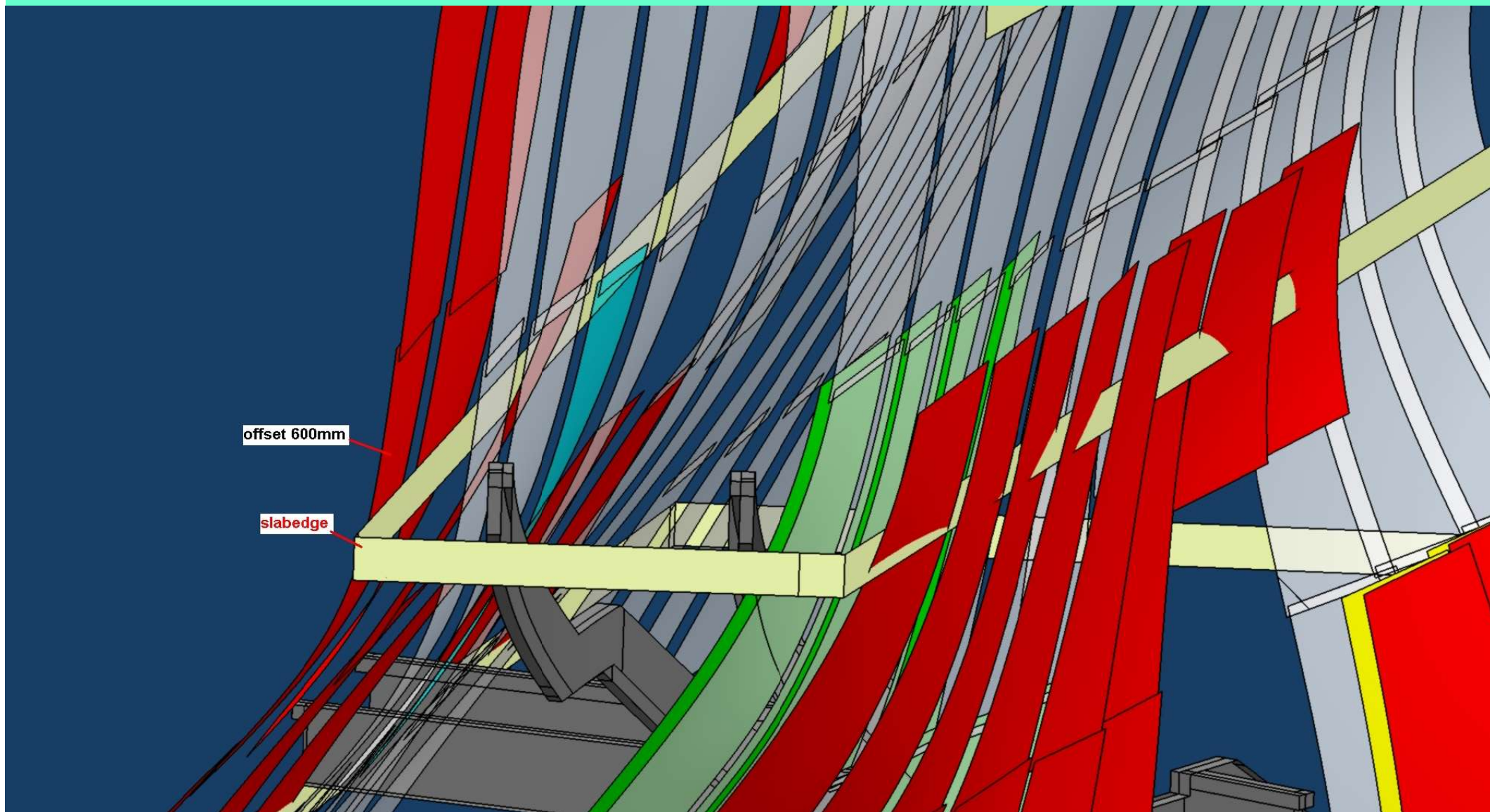




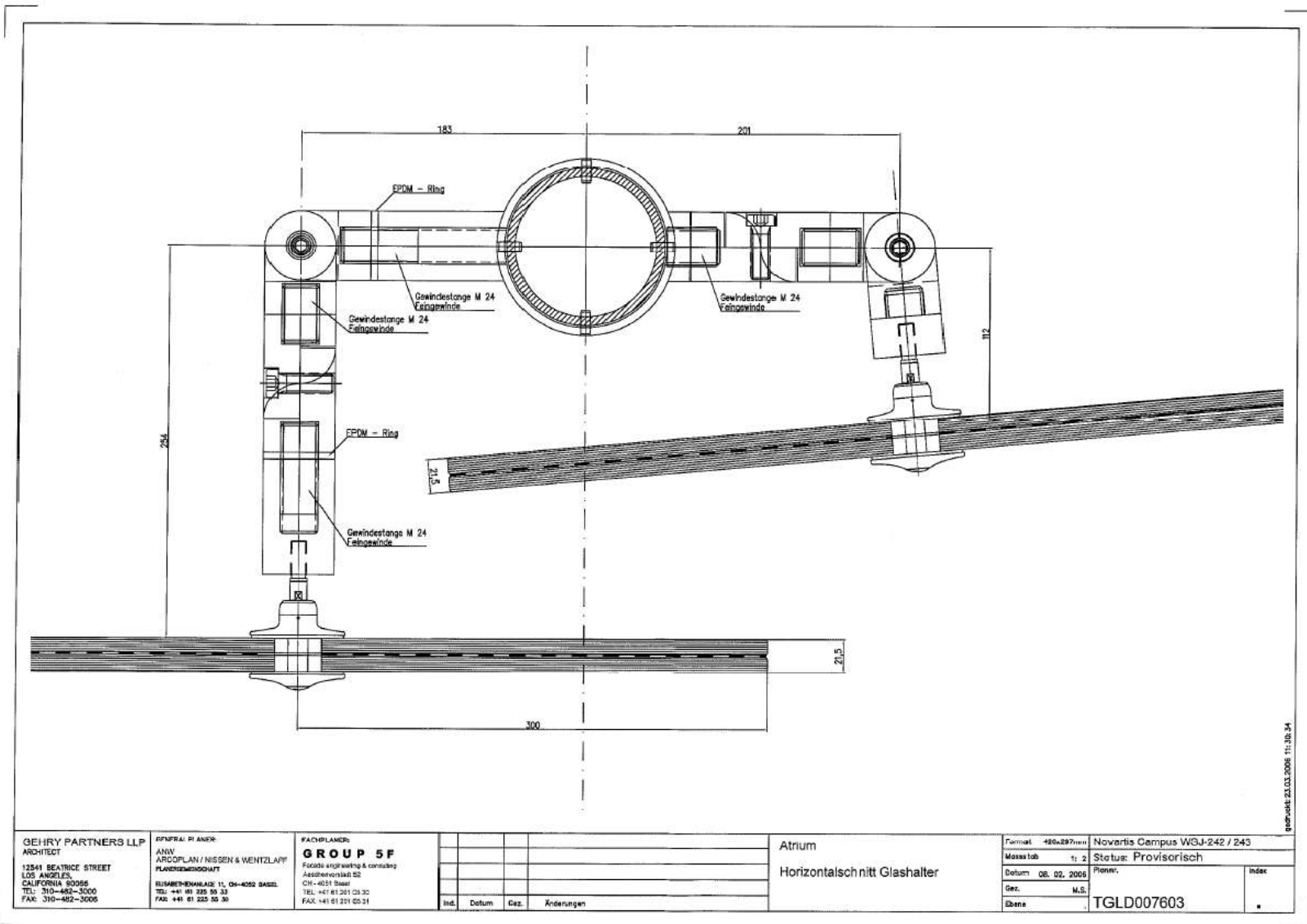












Typical glass canyon system design detail



## **Paddington Central / London UK**

Architect: Sheppard Robson

Value of envelope: 12 Mio USD

Types of façade:

- Atrium roof glazing
- Planar glazing
- Staircase glazing,
- Metal-sheet panel cladding
- Roof cladding,
- Plantroom louvre cladding,
- Special fire-rated windows

System development and Workshop drawings by  
Katrin Osswald





33  
Holborn

Home to  
Sainsbury's  
Store  
Support  
Centre

**Curry**

We've  
hundreds  
of ways  
to make  
your  
Christmas

Telephone  
020 7591 2811



## **Fleetway House / Birmingham UK**

Architect: STURGIS Associates

Value of envelope: 14 Mio. USD

Types of façade:

Free - form curtain wall spandrel

3D curtain wall element definition by Katrin Osswald

3D Workshop for CNC production

3D Clash analyze for system design and profile die matrix production







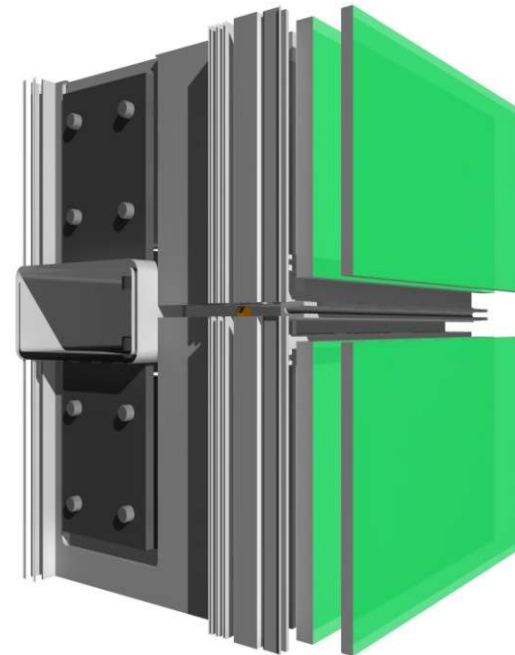
**Stamford Street, London UK**

Architect: Haworth Tommkins

Value of envelope: 6 Mio USD

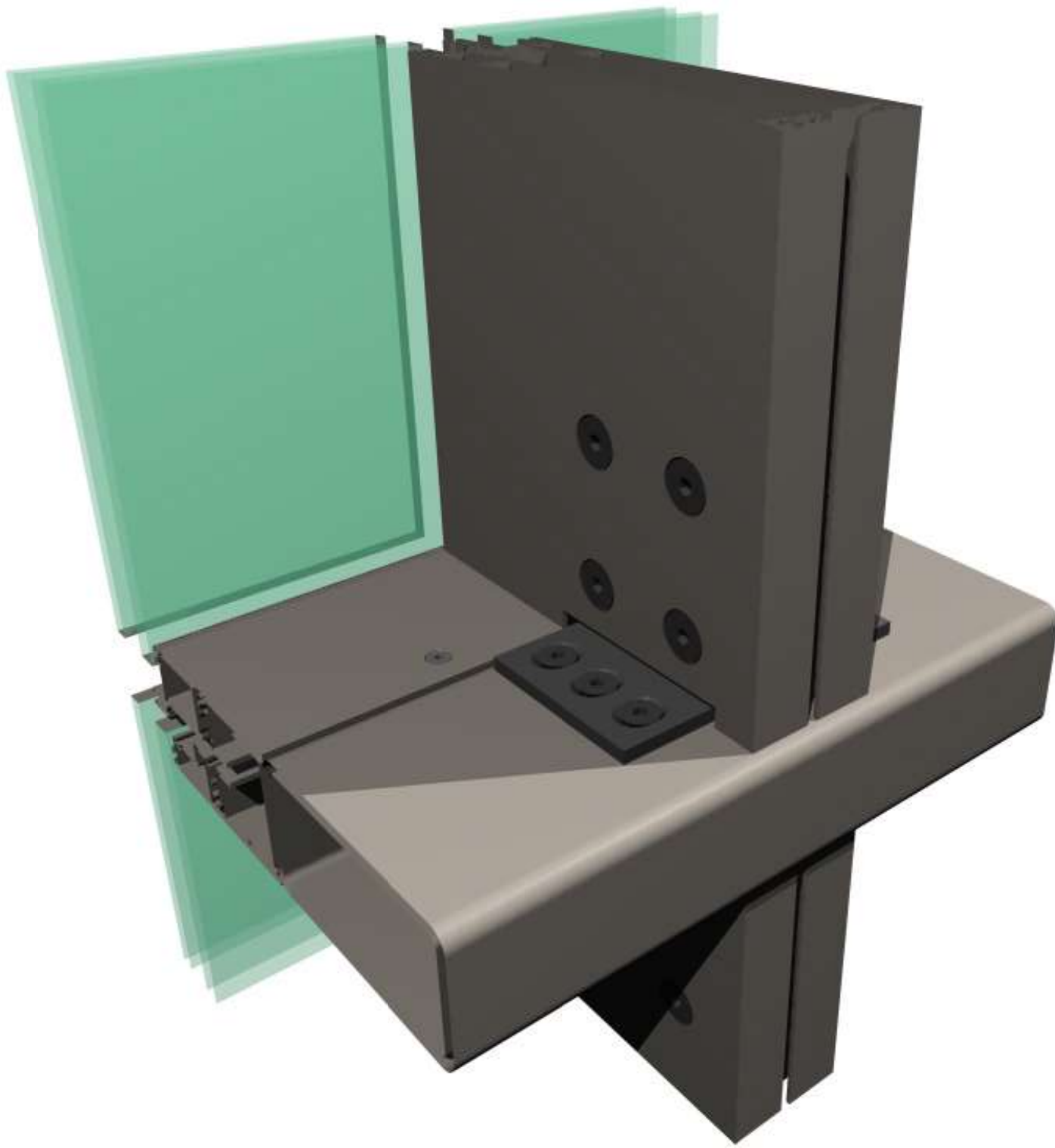
Type of envelope:  
Stick-System assembly with glass & panel infills

Water drainage analysis  
Approval Design and 3D modelling by Katrin Oswald









## **Dong Daemun Design World Park & Plaza DDPP Seoul / Korea**

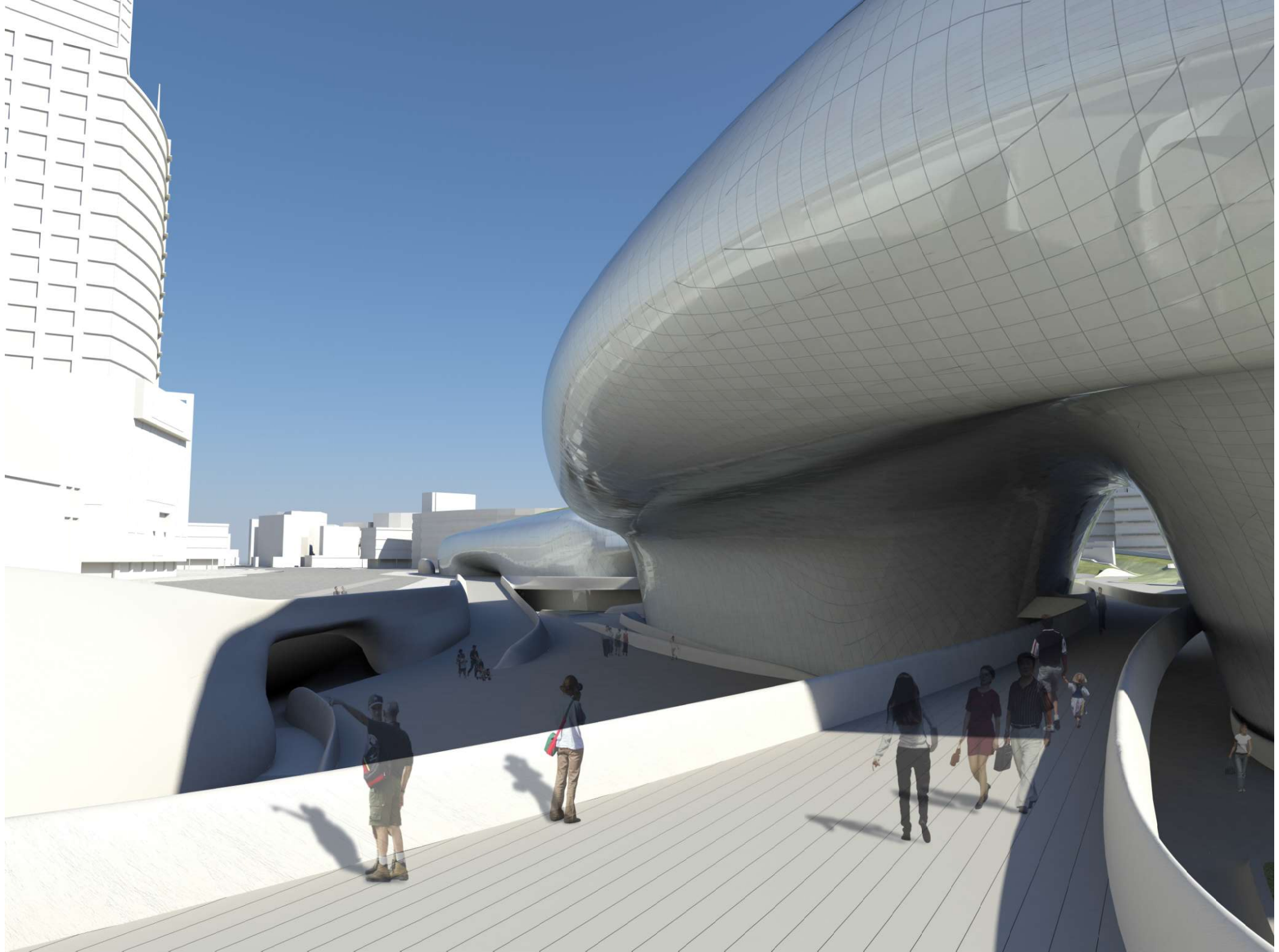
Architect: Zaha Hadid Architects, London

Value of envelope 27 Mio. USD

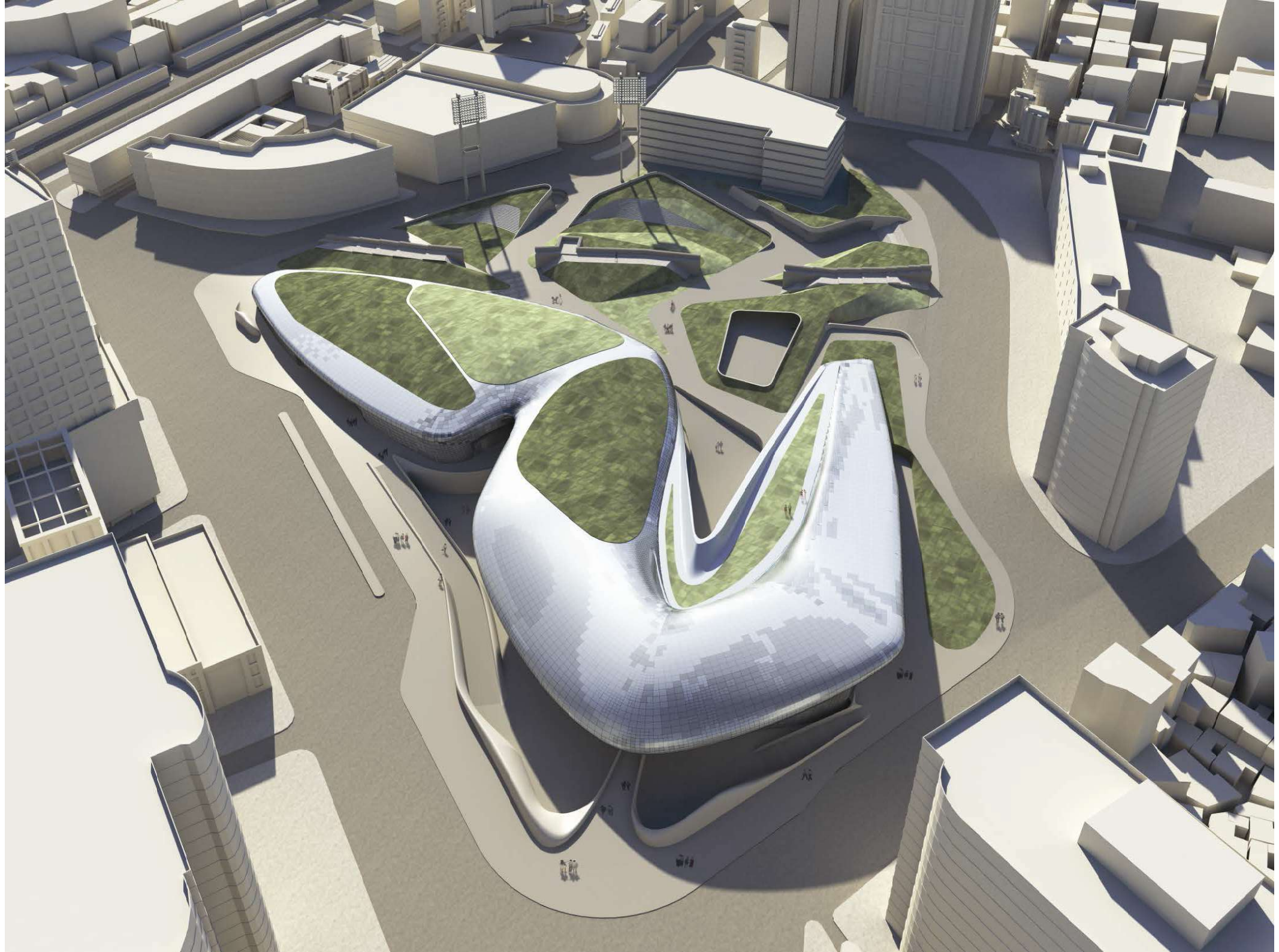
Consultancy, schematic design and system development  
3D modelling and system drawings by Katrin Osswald











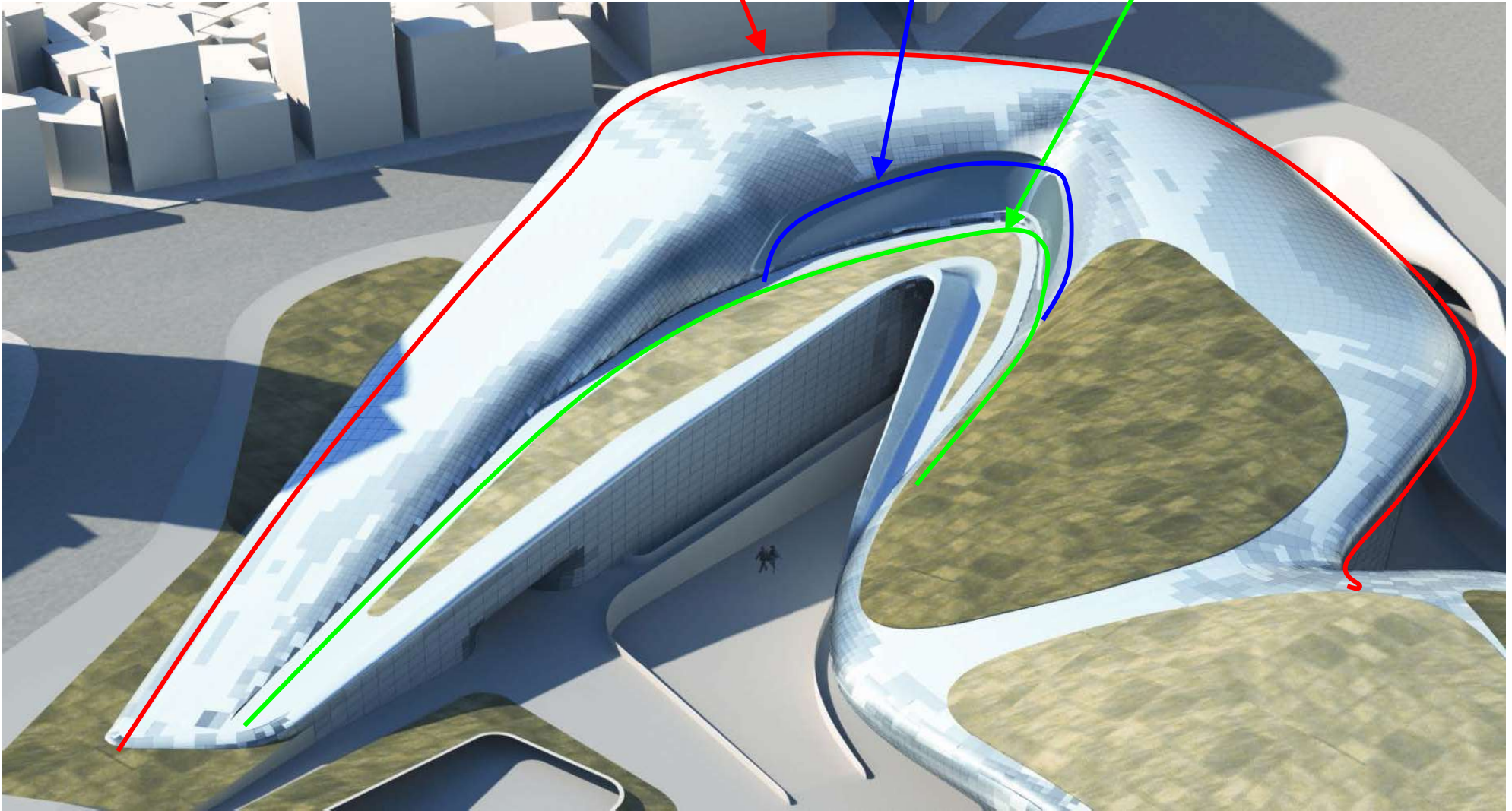


4. Step: Gutter proposal

Facade gutter

Lounge facade gutter

Terrace gutter





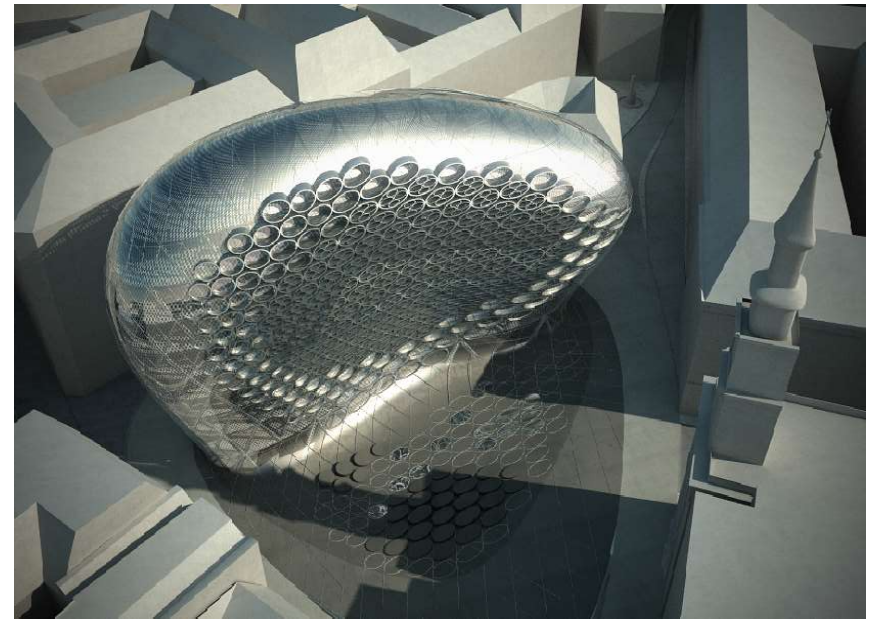
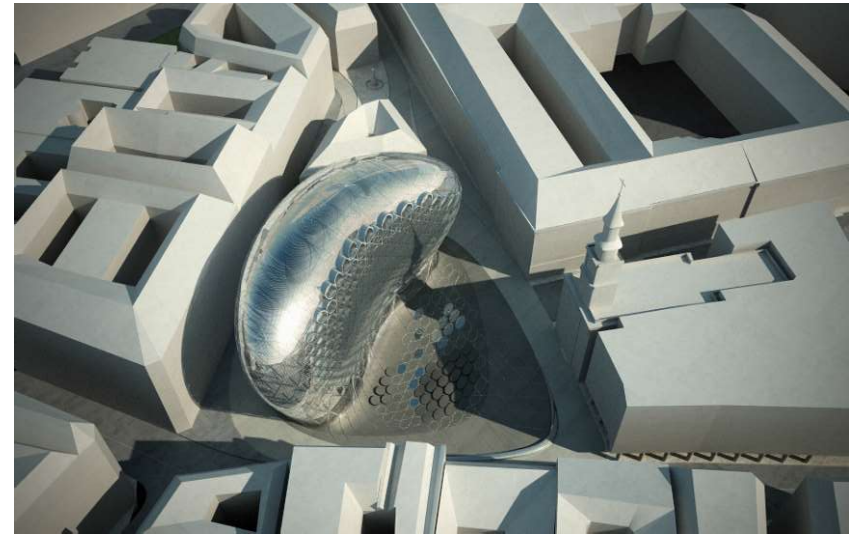




Architect & Client: Zaha Hadid Architects, London

Value of envelop: 27 Mio USD

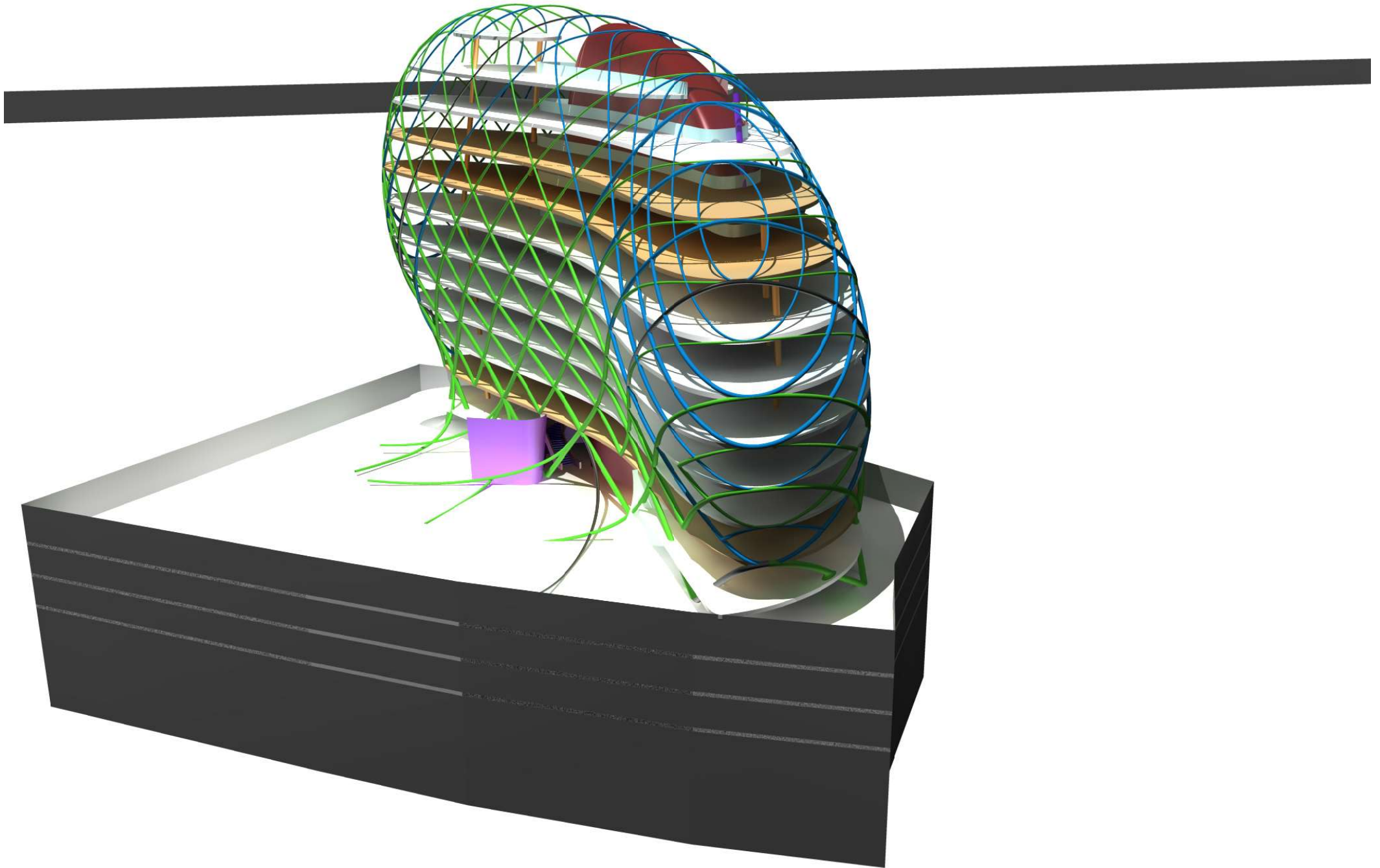
Schematic Design, Consultancy and System Development b

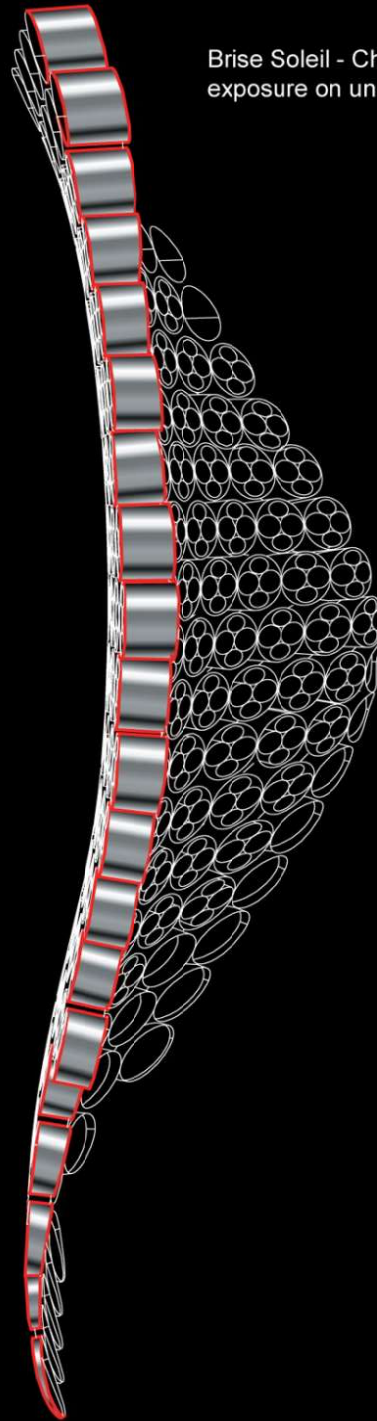




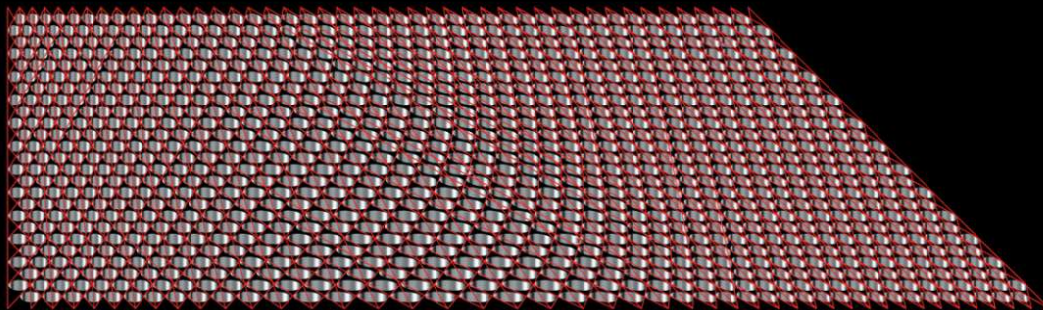
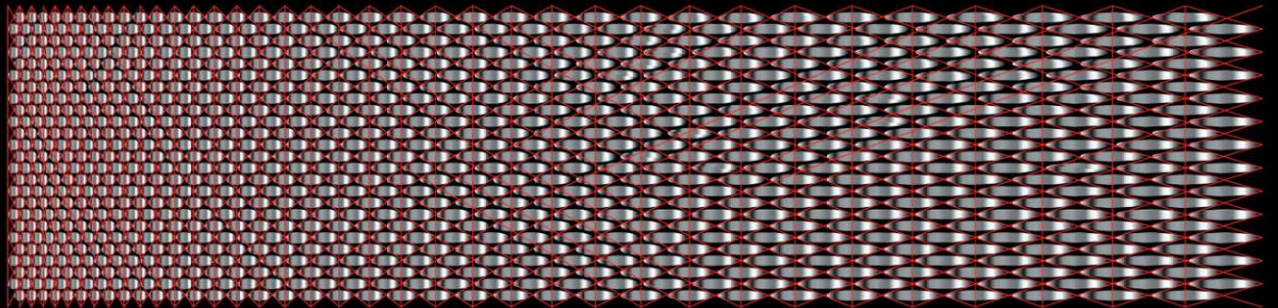
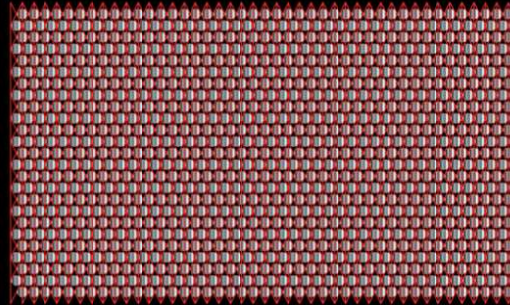








Brise Soleil - Changing profile and depth in response to sunlight exposure on undulating facade



Relation between Brise Soleil & Structural Diagrid



# Sidra Hospital & Research Centre



























## **Mann Island Project, Liverpool UK**

Architect: Broadway Malyan UK

Value of envelope: 35 Mio. USD

Types of façade:

- Curtain wall Block 1&2, granite & glass
- Semi unitised curtain wall Block 3, granite & glass
- Stick-system on ground floor Block 1, 2 & 3
- Skylight roof glass by bespoke spider system on Block 1&2,
- Terrace roof and balcony façades
- Planar glass roof and vertical façade to Ground Floor Public Realm area.
- Concierge steel / glass façade, internally, to Block 3.

Design definition and development by Thomas Breiting

Physical calculation & structural calculation by Claus Herm

Design management and system integration by David Stanton









# Capitol Hill - Russia - Zaha Hadid





# Conference Centre in Basel Elevation



# Conference Centre in Basel

## Ariel View





# QATAR 2015 HANDBALL ARENA







## Qatar Rail : Red Line South : Three Stations : Façade Engineering



## Salwa Beach Resort Hotel : Salwa

