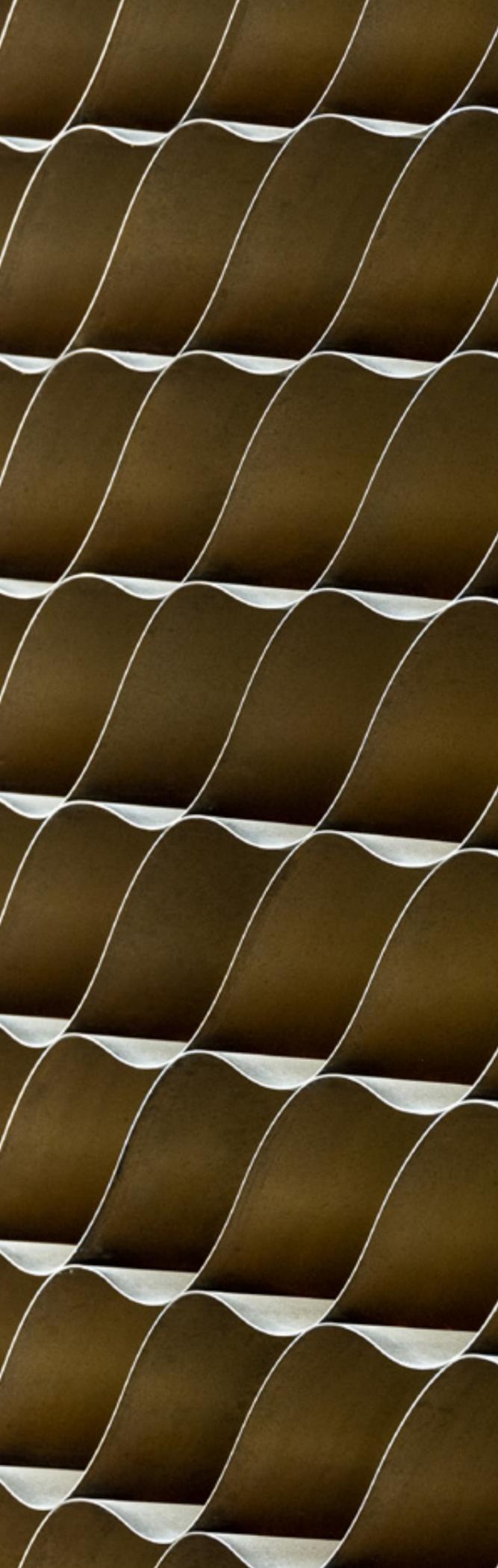




**FRENER  
REIFER**

FASSADEN



Musée Atelier Audemars Piguet, Le Brassus (Switzerland)  
Client: Audemars Piguet  
Architect: BIG | Bjarke Ingels Group



Craftsmanship.  
Precision down to the last detail.



FRENER & REIFER

Starting where the others stop...

... for excellence in facades.



## EXCEPTIONAL FACADES COME FROM BRESSANONE, SOUTH TYROL.

"Everything is feasible" is our motto. The "how" is an art, practiced by skilled, experienced and creative people who think outside the box - an art we have mastered. For **50 years**, FRENER & REIFER has stood out for its outstanding craftsmanship, technical excellence and implementation expertise.

The two founders of the company, Georg Frener and Franz Reifer exemplified our ongoing passion for finding solutions for seemingly unrealisable designs. A driving force helping FRENER & REIFER to reach the **top of a global industry**. Since the founders retired into private life, longstanding employees and FRENER & REIFER Holding AG in Munich have been managing the company to ensure its continuing success and dependability.

Our headquarters are in **Bressanone, South Tyrol** - in the middle of the UNESCO Dolomites World Natural Heritage region, characterised by the harsh reality of the mountain world. A meeting place of languages and cultures. The base from which we create architectural milestones worldwide.



A company from  
**SÜDTIROL**

FRENER & REIFER  
Project locations



# COMPLETE PACKAGE FACADE.

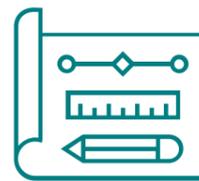
As a full-service provider and general facade contractor, we partner clients, architects and specialist planners through the entire process.

Our partners appreciate our solution-oriented flexibility and the way we approach every single project challenge with tireless inventiveness.

We act as team players, providing constant creative input and thinking two steps ahead. We live our shared credo: "starting where the others stop". For excellence in structural facade engineering.



## DESIGN



### CONSULTATION

Customised solutions.  
Design studies. Material proposals.  
Indicative and budget prices.

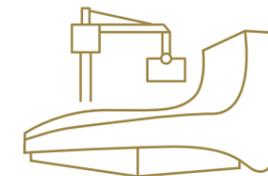
### DEVELOPMENT

Preliminary planning of new solutions.  
Binding price quotations.  
Variants. Design recommendations.

### PROTOTYPING + TESTS

Visual mock-ups.  
Performance mock-ups.  
Functional tests: certifications.

## NEW BUILD & REVITALISATION



### DESIGN

3D. Parametric. BIM.  
In-house structural engineers.  
Project management.

### FABRICATION

Efficient production.  
Industrial craftsmanship.  
Quality and environmental management.

### INSTALLATION

In-house installation managers.  
Qualified installation teams.  
In-house construction and logistics team.

## SERVICE



### MAINTENANCE

Portfolio maintenance.  
Operational reliability.  
Value retention.

### REPAIRS

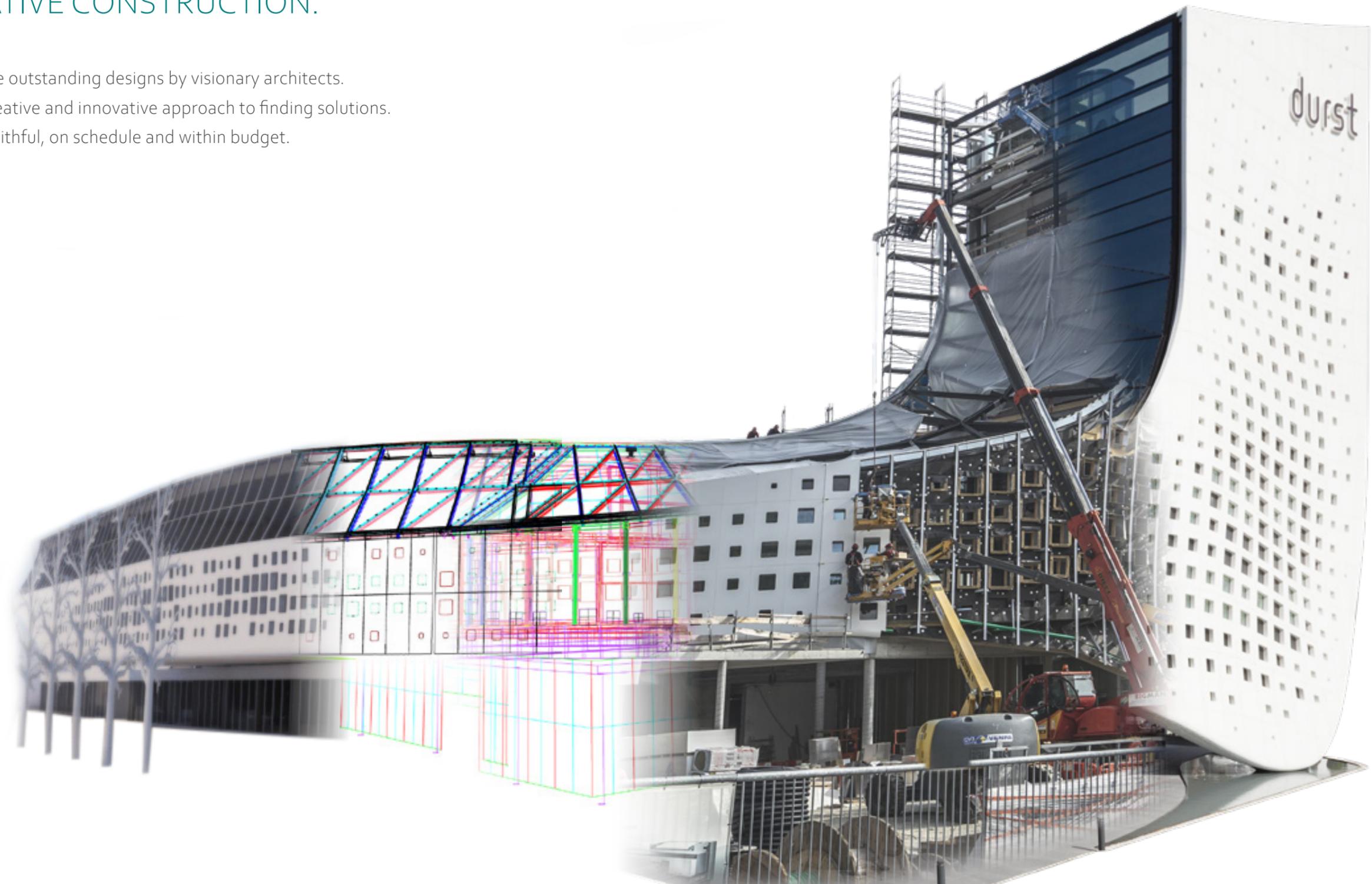
Rapid response times.  
Ready availability of special spare parts.

### REFURBISHMENT

Consultancy and repairs. Renovation.  
Maintenance of facades in existing buildings.

## CREATIVE CONSTRUCTION.

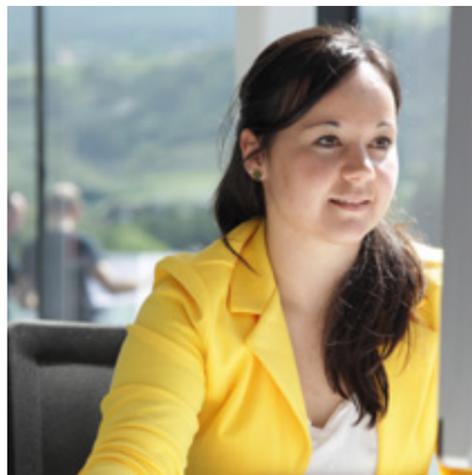
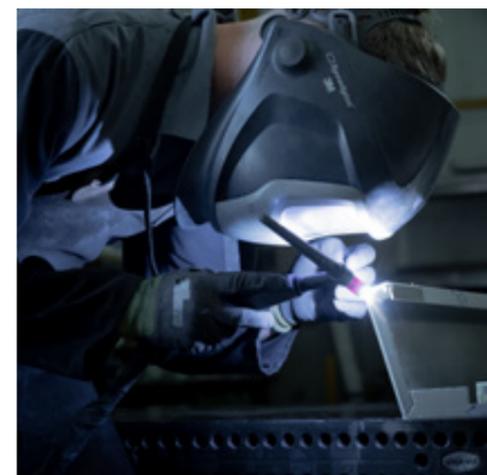
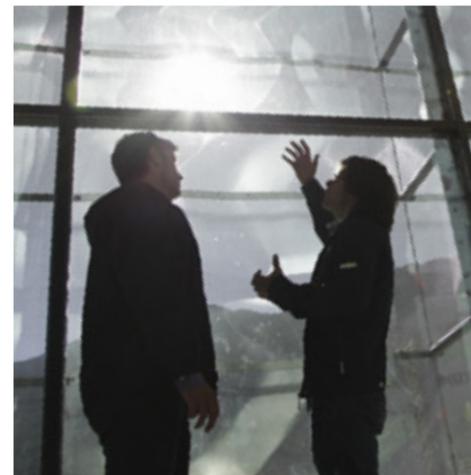
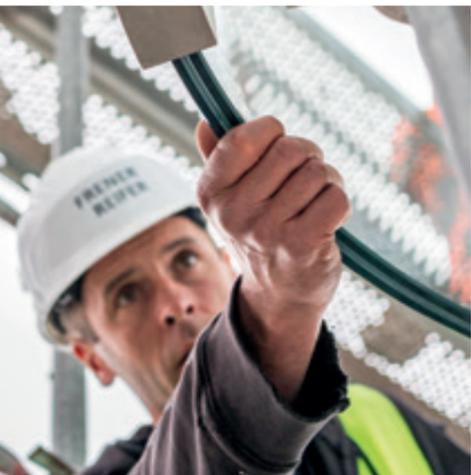
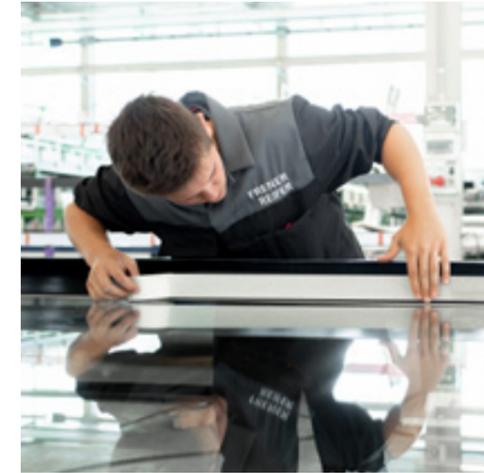
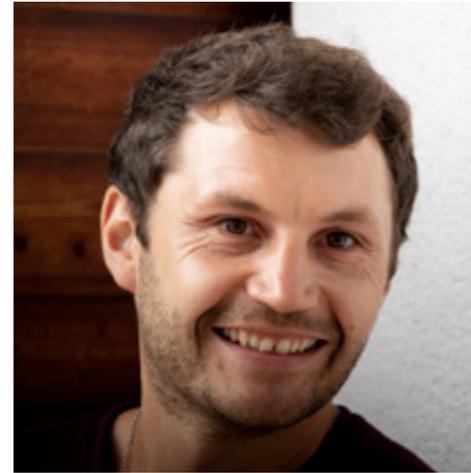
We realise outstanding designs by visionary architects.  
With a creative and innovative approach to finding solutions.  
Design-faithful, on schedule and within budget.



CONSULTATION >> DEVELOPMENT >> DESIGN >> FABRICATION >> INSTALLATION >> SERVICE

## TEAMWORK.

Forward thinkers and creators. Bold specialists and skilled craftspeople. A strong team that breaks new ground - achieving extraordinary things in the process.



# LA SAMARITAINE

Paris, France

SANAA & SRA Architects



**LOCATION** Paris, France  
**CLIENT** LVMH Moët Hennessy Louis Vuitton  
**DEVELOPER** VINCI Construction  
**ARCHITECT** SANAA & SRA Architects  
**IMPLEMENTATION** 36 months from design start to completion

# LA SAMARITAINE

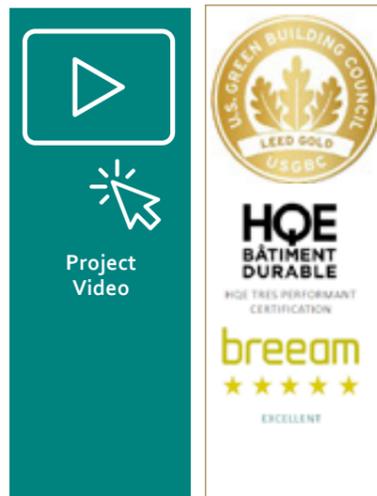
## Customised building envelope for Louis Vuitton

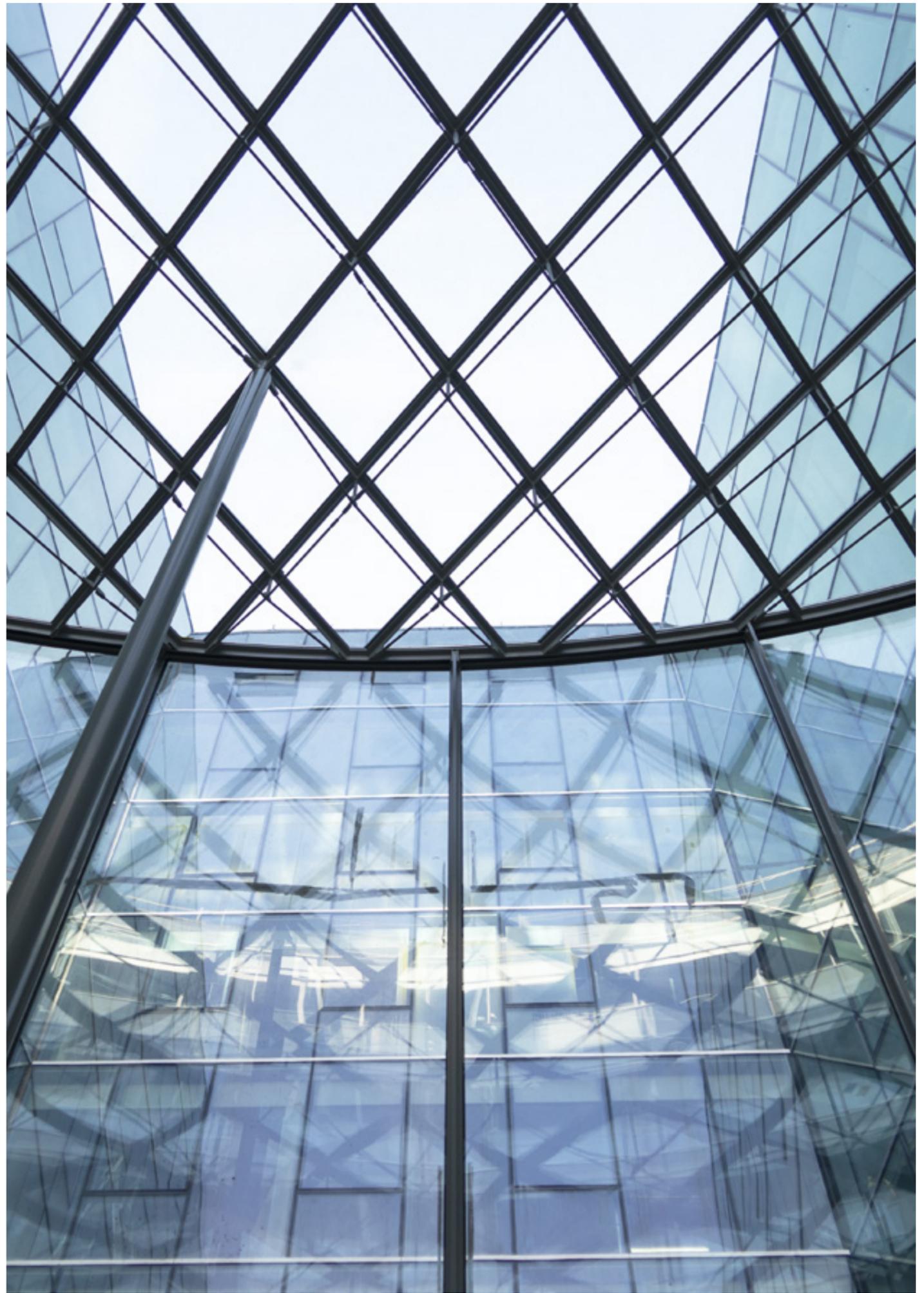
FRENER & REIFER realised the new facades for "La Samaritaine" in the heart of Paris. The owner of this global showpiece is luxury goods market leader LVMH Moët Hennessy Louis Vuitton SE. LVMH commissioned Tokyo-based Pritzker Prize winning architectural duo SANAA to come up with renovation and new construction plans for the well-known department store. The iconic undulating glass facade on Rue de Rivoli is a landmark combining tradition and modernity and has become the symbol of the rebirth of "La Samaritaine".

FRENER & REIFER's scope of work included an entire collection of bespoke facade types, the highlight being the elegant 2,890 m<sup>2</sup>, three-layer undulating glass facade with insert elements. There were also 2,500 m<sup>2</sup> of patio facades, 990 m<sup>2</sup> of roof level facades, two steel and glass roofs, both over 200 m<sup>2</sup> in size, and the entire pedestrian bridge with its 200 m<sup>2</sup> of glazing.

## Challenges

- » The storey-high undulating glass panes with weights of up to 1 tonne held in place by only 4 point-fixed stainless steel brackets (cantilevers).
- » High degree of innovation: development of numerous special solutions for for the technically highly complex glass facades and trussed steel and glass roofs.
- » Complex ATEX testing and certification procedure for development of the thermal facade and the extra-high entrance doors (E30 fire protection requirement).





# MUSÉE ATELIER AUDEMARS PIGUET

Le Brassus, Switzerland  
BIG | Bjarke Ingels Group



LOCATION Le Brassus, Switzerland  
CLIENT Audemars Piguet  
ARCHITECT BIG | Bjarke Ingels Group  
DESIGN & FABRICATION 2016 - 2017  
INSTALLATION 2017 - 2018

# MUSÉE ATELIER AUDEMARS PIGUET

## Spiral pavilion in glass

The luxury watch brand Audemars Piguet has had its headquarters in Le Brassus, in the heart of the Vallée de Joux above Geneva, since 1875. A spiral glass addition designed by BIG | Bjarke Ingels Group now complements the company's oldest building. FRENER & REIFER realised the building envelope, consisting of a curved, structurally self-supporting glass facade, an insulated steel roof construction and a customised sun protection system. The load-bearing structure consists of 101 rounded, insulated / uninsulated glass units in formats ranging from 2.4 m x 1.5 to 5.5 m. The highly complex sun protection system consists of approx. 15,000 brass lamellas. A bespoke pivot door in 4.5m x 2.8 m format, several sliding doors and a walkable glass roof completed our order package.

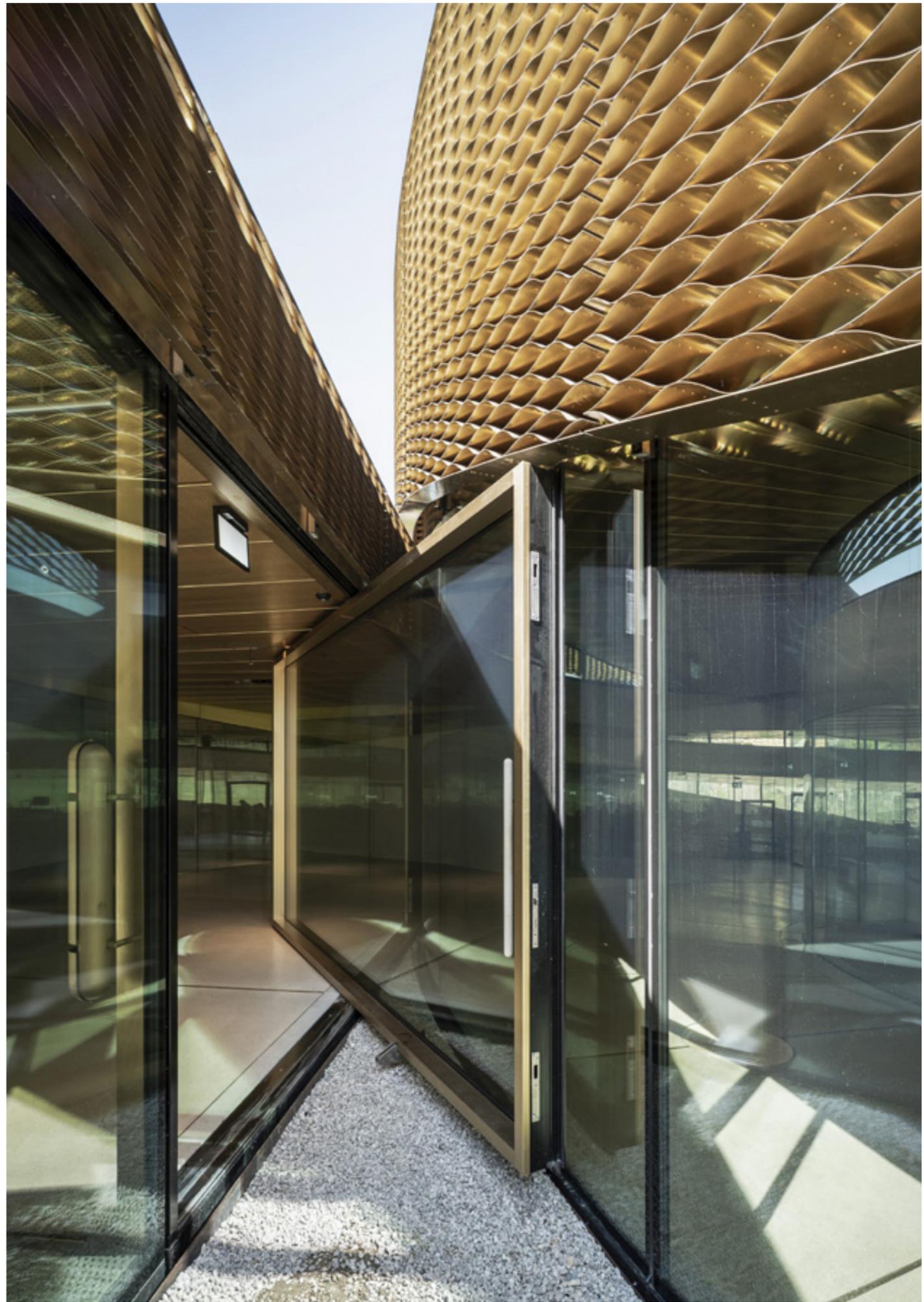
## Challenges

- » World first: development, testing and approval of load-bearing, curved insulating glass fulfilling all structural requirements for the highest snow and wind loads. An all-glass insulating pane was successfully tested at a load weight of 80 tonnes.
- » Highest design complexity in expanded metal sun protection: unique brass lamellas with untreated surface, precisely adapted to the radius of the curved glass facade, from 1 to 4 m in height and with varying degrees of lamella compression.



Project  
Video

MINERGIE®





# IONA SKYDOME

Meyer Werft  
Papenburg, Germany

LOCATION Papenburg, Germany

CLIENT Meyer Werft

FACADE ENGINEER Eckersley O'Callaghan

DESIGN & FABRICATION January 2018 - March 2019

INSTALLATION 4 months

## IONA SKYDOME

### World first: steel / glass dome roof on cruise ship

FRENER & REIFER design-engineered, fabricated and realised a 970 m<sup>2</sup> cantilevered steel-glass dome roof for the luxury cruise liner IONA - the first of its kind ever built for a ship. FRENER & REIFER's know-how and experience in complex and innovative custom constructions decisively contributed to the successful implementation of this project. The 41 m x 29 m (L x W) elliptical shell roof consists of 350 units of 2-layer insulating glass formed as 3 m isosceles triangles with a prescribed maximum weight of 105 tonnes. Turnkey pre-assembly (incl. glazing) took place directly next to the ship in the Papenburg shipyard, before it was lifted in one manoeuvre onto the 18th deck using a 600-tonne mobile crane for final installation.

### Challenges

- » Ensuring feasibility and the release of approvals by RINA-Germany in accordance with strict international shipbuilding regulations.
- » The dynamic substrate (fatigue, vibration, intrinsic frequency) meant that the geometry of the steel bar mesh had to be optimised to ensure optimum load status.
- » Special specifications for glazing and glass storage required for the introduction of a new type of glass in shipbuilding.
- » Extreme: hail test with 45 mm ice balls at 126 km/h and an impact force of 20.3 - 22.4 J.
- » Integration of building and lighting technology in glass roof shell.





# OUTERNET LONDON

London, UK  
Orms



CLIENT London, UK  
KUNDE Consolidated Developments Ltd.  
ARCHITECT Orms  
GENERAL CONTRACTOR Skanska AB  
DESIGN & FABRICATION 2017  
INSTALLATION 2018 - 2019

# OUTERNET LONDON

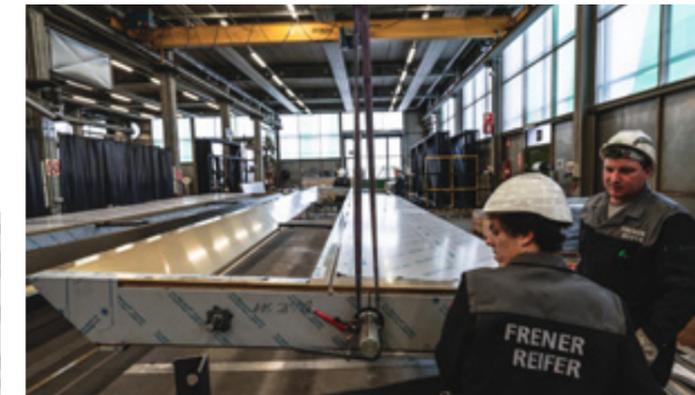
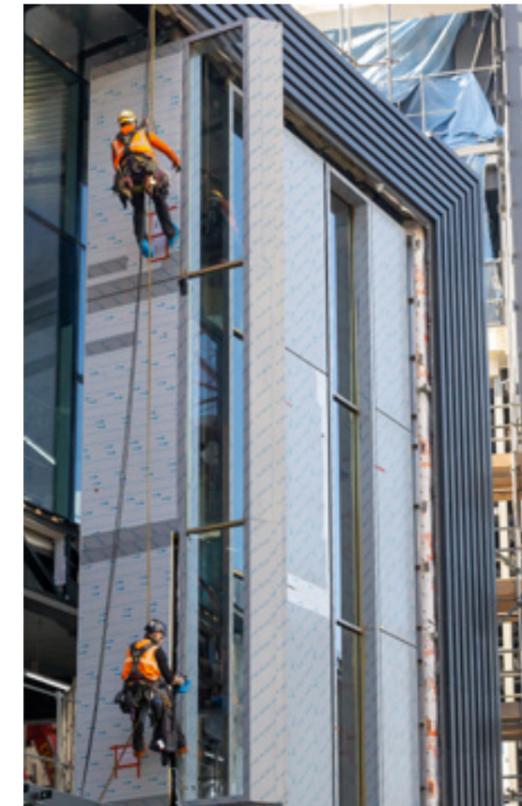
## High-tech facade for immersive entertainment world

Outernet London is a new kind of entertainment district at the eastern end of Oxford Street with space for music, art, culture, shopping and enjoyment. The contemporary Now Building was created to stand alongside modernised existing buildings nearby. The building features a striking, fully openable, shimmering gold facade consisting of 18 gigantic 10 m x 2.5 m pivoting / sliding lamella units. The units, weighing up to 3.6 tonnes, can be turned individually and moved to the side together, providing a view of the world's largest LED video walls.

FRENER & REIFER was also responsible for the technical design, fabrication and installation of other facades. A total of approx. 1,000 m<sup>2</sup> of thermal glass facade with 24 stainless steel portals, 1,200 m<sup>2</sup> of stainless steel facade and 1,600 m<sup>2</sup> of glass facade, both as rainscreen cladding, 900 m<sup>2</sup> of fixed and rotating louvres, 320 m<sup>2</sup> of swing and slide doors, various folding elements, a thermally separated sheet metal facade, balustrades and glazed skylights.

## Challenges

- » Development and implementation of facade innovation, in particular the dynamic large louvre system, including performance mock-up, during the upstream PCSA (Pre Construction Service Agreement) phase.
- » Wide range of differing facade types for a large-scale project.
- » Very challenging construction logistics according to "just in time" procedure in the centre of London.





# MOMA. MUSEUM OF MODERN ART

New York, USA

Diller Scofidio + Renfro Architects

The David and Peggy  
Rockefeller Building

The David and Peggy  
Rockefeller Building



LOCATION New York, USA

CLIENT The Museum of Modern Art

ARCHITECT Diller Scofidio + Renfro Architects

GENERAL CONTRACTOR Turner Construction

DESIGN & FABRICATION 2018

INSTALLATION 2018 - 2019

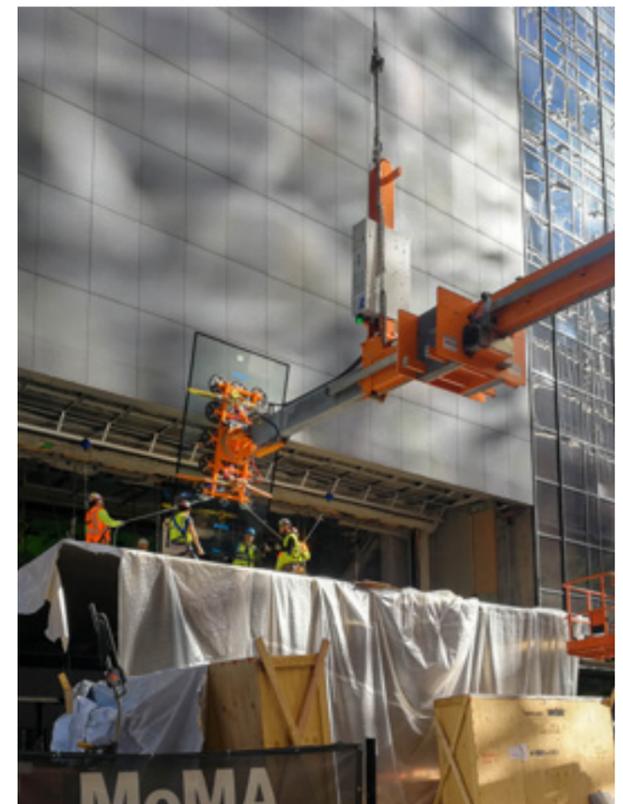
# MOMA. MUSEUM OF MODERN ART

## New building envelope for world-famous museum

The Museum of Modern Art was renovated and extended to designs by the architects Diller Scofidio + Renfro from New York. In the course of the renovation, several facades were renewed and the entrance area expanded via conversion into a light-flooded hall with a high glass entrance facade. The area is dominated by a 130 m<sup>2</sup> glass bead blasted 13 x 10 m stainless steel canopy. Two thirds of the roof (i.e. 7 m) are cantilevered. Its weight is held only by two tension rods introduced into the ceiling construction of the stick system facade. The completely glazed entrance facade with a large double-leaf door and four side-hung doors is framed on both sides by 2.5 cm thick, 8 m high and 0.5 m wide aluminium panels. The museum shop directly next to the entrance area was provided with a 4 m high all-glass facade.

## Challenges

- » Variety of materials and facade typologies: canopy construction, various glass facades, acoustic facades, opening elements, parallel-opening windows, revolving and folding door system, balustrades, curtain walls in sheet metal.
- » Development and production of the 3-part canopy construction in shipbuilding style at our factory in Bressanone, transport to the USA, final assembly on site and positioning in one manoeuvre.
- » Constricted access in inner-city New York.





# KÖ-BOGEN II

Düsseldorf, Germany  
ingenhoven associates



LOCATION Düsseldorf, Germany  
CLIENT Centrum Projektentwicklung GmbH  
ARCHITECT ingenhoven associates  
DESIGN & FABRICATION 2018  
INSTALLATION 2018 - 2019

# KÖ-BOGEN II

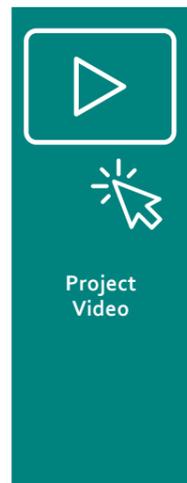
## Europe's largest green facade

A two-part commercial building for retail, office and hotel was built in Düsseldorf's city centre to a design by Christoph Ingenhoven, a pioneer in sustainable architecture. The Kö-Bogen II ensemble forms the conclusion of an overall urban development and is characterised by a striking fully greened facade. The geometrically complex facade on the north and west sides, inclined by up to 40°, was provided with 1,960 linear metres of steel planter troughs and planted with 8 km of hornbeam hedge. The 2,800 m<sup>2</sup> retail facades on the east and south sides of the building were designed as a stick system construction, with steel mullions up to 15 m high.

In its role as general contractor, FRENER & REIFER was responsible for the design and realisation of the entire building envelope from Service Phase 5 (implementation design) onwards, including roof sealing, including roof sealing, inner courtyard glazing, planter troughs with access systems and sun protection.

## Challenges

- » Complex twisted geometry of the building envelope featuring inclined facades in some areas.
- » Installation of planters to the double-curved inclined facade.
- » Integration of irrigation and drainage systems into the facade construction.
- » Structural challenges of dimensioning the planter troughs, which project 2 - 3 m beyond the roof edges in some areas.



Project  
Video





# DURST GROUP HEADQUARTERS

Bressanone, Italy  
monovolume architecture + design



LOCATION Bressanone, Italy  
CLIENT Durst Group AG  
ARCHITECT monovolume architecture + design  
DESIGN & FABRICATION 2018  
INSTALLATION 2018 - 2019

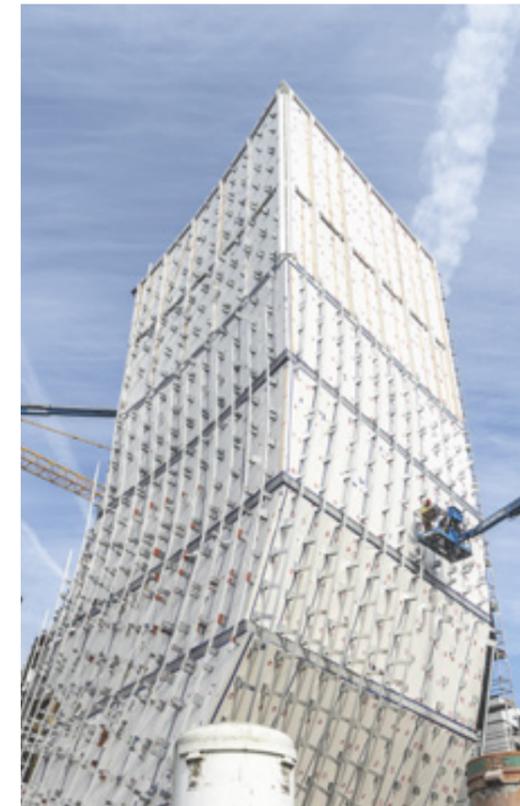
# DURST GROUP HEADQUARTERS

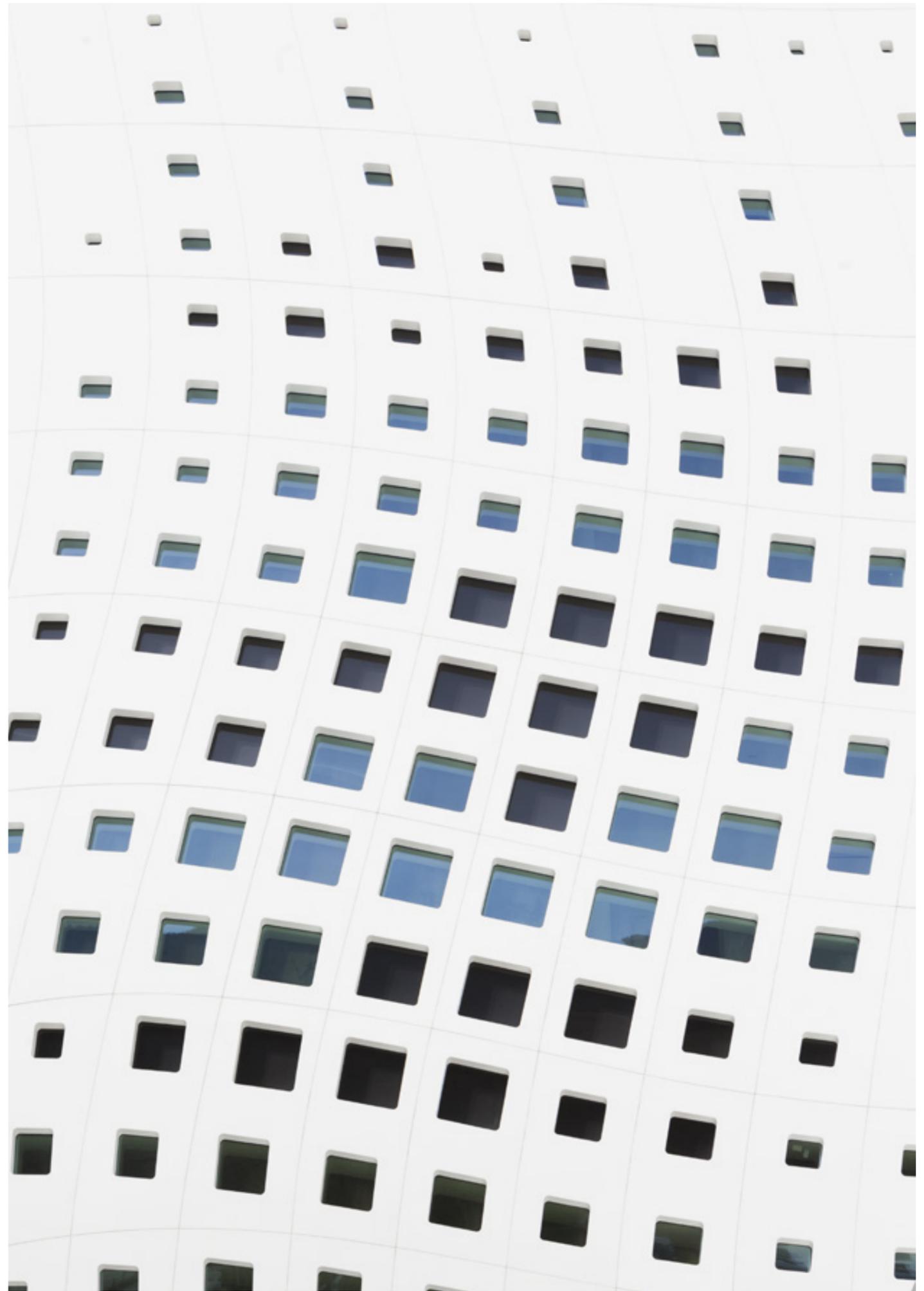
## Curved pixel facade

The organically shaped new Durst headquarters building is particularly striking due to its white metal facade - featuring 850 window elements in a pixel-like arrangement and an 850 m<sup>2</sup> inclined glass roof with approx. 250 insulating glass panes of different sizes, some of them triangular. The courtyard features a 1,300 m<sup>2</sup> stick system glass facade and is also where a 15 m long cantilevered steel and glass bridge connects the new building with the existing fabric. An elegant 1,100 m<sup>2</sup> stick system construction was installed at the ground floor with its showroom and cafeteria. FRENER & REIFER was responsible for the customised design, fabrication and installation of the 7,000 m<sup>2</sup> display area.

## Challenges

- » Parametric design of the various facade typologies.
- » Free-form geometry of the metal facade consisting of thousands of different components.
- » Complex transitions from initially vertical to horizontal roof glazing.
- » Scaffold-free installation due to complex facade geometry.
- » Perfect joint pattern.





# SAP GARDEN

Munich, Germany  
3XN Architects



SAP garden

**LOCATION** Munich, Germany  
**CLIENT** Bull Bau GmbH / Red Bull  
**ARCHITECT** 3XN Architects  
**DESIGN & FABRICATION** July 2019 - September 2022  
**SCHEDULED INSTALLATION** September 2022 - October 2023

# SAP GARDEN

## New landmark in Munich Olympic Park

SAP Garden is the new multi-functional arena for the ice hockey club EHC Red Bull Munich and the FC Bayern basketball team. The arena was designed by the renowned Danish architects 3XN, with whom FRENER & REIFER has already realised the award-winning IOC headquarters in Lausanne.

FRENER & REIFER's scope of services includes the technical development, design, fabrication and installation of the 5,000 m<sup>2</sup> primary facade as an aluminium-glass construction with 262 frontally located decorative aluminium pilaster strips. These strikingly shaped fin elements with an overall height of up to 18 m form a dynamic building envelope - a design solution that satisfies the desire for a new landmark in the Olympic Park as well as meeting the requirements of the city of Munich's environmental criteria catalogue. The opening of the new arena is scheduled for 2024.

## Challenges

- » New development of the frontally located aluminium pilaster strips - the largest of these is over 18 m high and weighs 1 t.
- » Absorption of different horizontal deformations in the individual floor slabs.
- » Complex spring joint formations in the pilaster construction joints to absorb the deformations in play.



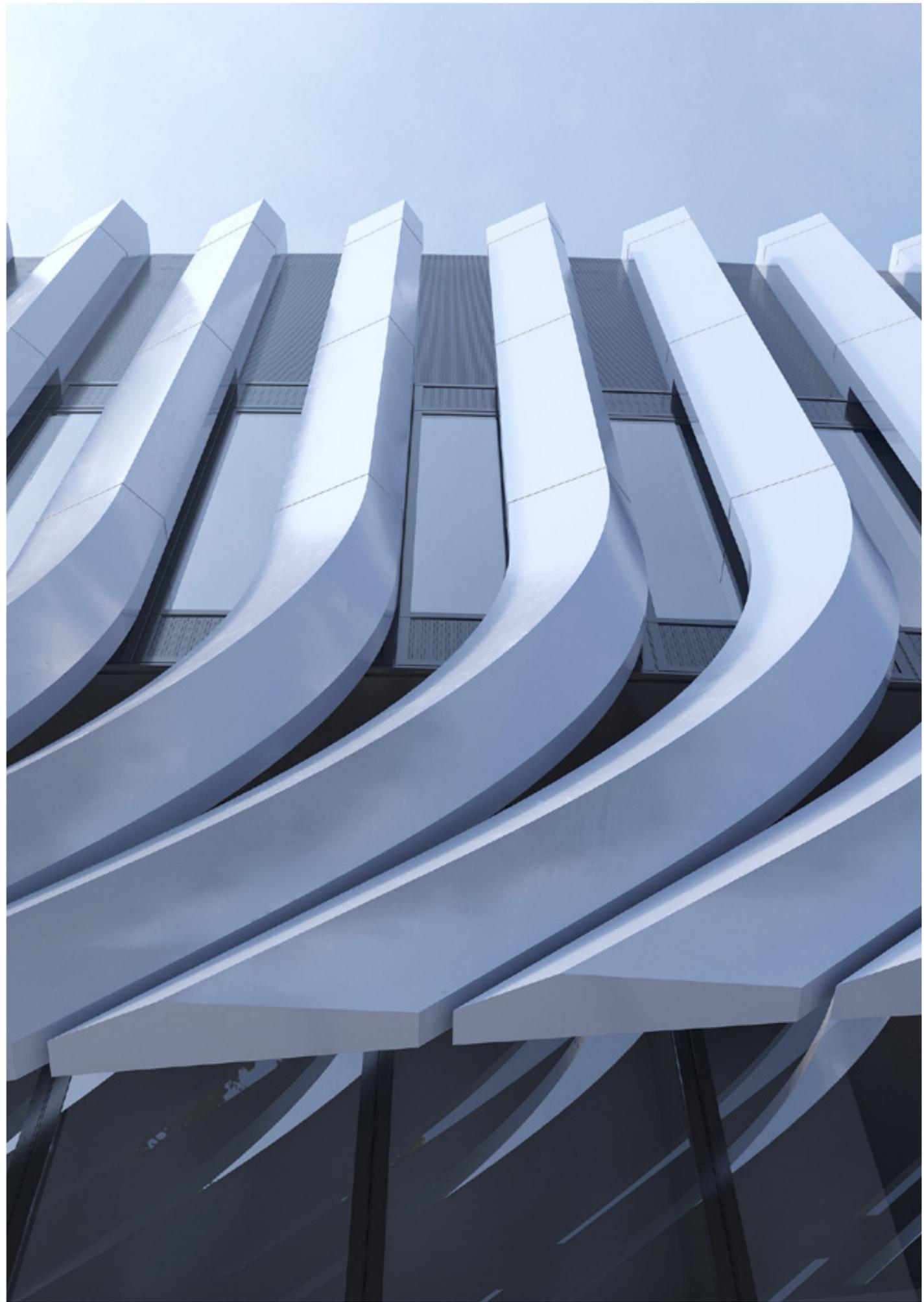
Under  
Construction



Project  
Video



Renderings © 3XN Architects



## CUSTOM FABRICATIONS FOR EXCLUSIVE VILLAS



Villa in the Park | Germany

### Exclusive building envelopes to meet the highest standards

We advise and partner private clients in the realisation of their dream homes, offering everything from a single source: from consultation to technical design to fabrication and finally installation on site. We supply all types of facades in metal, glass or wood, depending on your wishes.



Wave Villa | Germany



Pavilion Villa | Germany

### French and sliding doors in panoramic design

We create window and door systems in a wide variety of designs, using aluminium, steel, stainless steel, bronze and wood - or any combination of materials. Made to measure and in filigree design



Villa Hastings on Hudson | USA



# CUSTOM FABRICATIONS FOR EXKLUSIVE HOTELS



Hotel Castel | Tirolo (IT)

## All-glass constructions

Our all-glass constructions enable us to realise boldly creative spaces to the highest comfort standards - with precision craftsmanship and technical know-how.



The Dolder Grand | Zurich (CH)



Hotel Lamm | Castelrotto (IT)

## Open air at the touch of a button

We are market leaders for openable steel-glass roof constructions, with numerous built references in various forms and dimensions. Integration of sun/glare protection and PV modules into the glazing are included in our system solutions.



Hotel JW Marriott | Cannes (FR)



# VERSATILITY - OUR REFERENCES

## REVITALISATION



COAL DROPSYARD | London, UK | HEATHERWICK STUDIO

Revitalisation of a brownfield site. 565 m<sup>2</sup> graded "zigzag" glass facade with up to 8 m high double-layer glazing. 120 m<sup>2</sup> of skylights, 200 m<sup>2</sup> of stick system facades. Metal panel cladding, soffits.



10 HILLS PLACE  
London, UK  
FUTURE SYSTEMS

550 m<sup>2</sup> glass and metal office facade construction. Development and realisation of the three-dimensionally curved sheet metal facade cladding. Glass "eyes" with polished stainless steel framing.



OUTERNET LONDON  
London, UK  
ORMS

Preservation, upgrading and modernisation of a historic building facade. 75 m<sup>2</sup> of shop fronts with pivot doors. 130 m<sup>2</sup> of continuous mansard glazing with metal flashing direct to the historic oriel constructions. Connecting structure to new building as an all-glass solution in steel add-on construction.



ADLER THERMAE RESORT \*\*\*\*\*  
Bagno Vignoni, Italy  
ARC & ART ARCHITEKTEN DEMETZ

Large-format sliding leaves in spa area. 12 x 12 m cantilevered insulating glass roof, both elements completely openable. Various XL glass facades, skylights, fire doors. Entrance system. Sliding elements.



PRIVATE VILLA  
Tuscany, Italy  
STUDIO MILANI

Glass staircase in Corten steel with glass floors and railings for the library. Connecting building in Corten steel with load-bearing glass facades. Doors, sliding doors and windows in burnished bronze. Skylights.



GASHOLDERS  
London, UK  
WILKINSON EYRE ARCHITECTS

Rehabilitation of original gasholder structures built 1860-80 as luxury residential complexes: unitised facades with metal sheet curtain walls as integrated motorised folding-sliding systems. Filigree sliding leaf systems. Steel balconies. Various glass roofs, some of which are openable (motorised).



DEVONSHIRE HOUSE  
London, UK  
PLP ARCHITECTURE

New barrel roof construction for Victorian townhouse. Heavy steel structure (35 t) clad with 317 graded, diamond shape aluminium elements and various glass and metal inserts in bronze look. Custom roof drainage solution. Gable facade. 4 entrance boxes.

# VERSATILITY - OUR REFERENCES

## REVITALISATION



**FOSTER FOUNDATION PAVILION**  
Madrid, Spain  
NORMAN FOSTER FOUNDATION

160 m<sup>2</sup> load-bearing all-glass facade using five-layer laminated units. 3 t swing door in 5,6 m x 2.8 m format with glass bead blasted filigree stainless steel profiles, visible edges mirror polished.



**HOTEL KLOSTERBRÄU & SPA \*\*\*\*\***  
Seefeld, Austria  
FRENER & REIFER (technical design)

170 m<sup>2</sup> two-part glass roof construction in historic courtyard with large-format sliding leaf frames (1.1 m x 1.5 m); coated steel supporting structure and vertical connecting facades. Balcony parapet with sheet metal cladding. Bespoke drainage concept.



**PARK HOTEL VITZNAU \*\*\*\*\***  
Lake Lucerne, Switzerland  
PLANUNGSBÜRO PALAIS COBURG with Architect Christian Eck

Revitalisation of historic luxury hotel. Canopy as all-glass construction with integrated LED lighting, entrance system with automatic sliding doors. 6 custom all-glass conservatories. 3 m high all-glass fold / slide walls. Bespoke seminar room interior wall glazing in electrochromic glass.



**LANSERHAUS, CULTURAL CENTRE**  
Appiano, Italy  
GERHARD FORER / URSULA UNTERPERTINGER

Stick system construction as bespoke facade in minimo\_FR with 30 mm face width, custom glass panes up to max. 1.95 x 5.60 m, integrated sun protection. Facade cladding in copper sheet for main and side entrance including building connections.



**PRIVATE VILLA**  
Umbria, Italy  
STUDIO MILANI

General renovation of a historic country house with construction of a connecting building as an entrance system in glass and Corten steel, with stainless steel substructures. Windows, doors and sliding doors in bronze. Interior staircase in black steel. Walkable glass floors.



**EX-SANATORIUM, HOSPITAL**  
Bressanone, Italy  
ELISABETH SCHATZER

2 glass roof constructions with a total area of 400 m<sup>2</sup> for two historic courtyards. Cushion-shaped roof geometry with triangular glazing and cable-supported construction in stainless steel with integrated ventilation flaps. Circumferential gutter and connection constructions.



**"FÜNF HÖFE", CITYQUARTIER**  
Munich, Germany  
HERZOG & DE MEURON

A total of 5,500 m<sup>2</sup> of thermal facades in structural glazing for all shopping arcades, shop entrance doors as all-glass constructions. Suspended, point-fixed ceiling glazing in access passages. Glazed connecting bridge, roof glazing over central shopping arcade with receptacles for hanging gardens. Very large entrance gates with integrated swing doors.



**HOTEL CASTEL \*\*\*\*\***  
Tirolo, Italy  
CLEMENS + KLOTZNER ARCHITEKTEN

Curved glass front with a width of 22 m, integrated curved sliding door and window systems. 500 m<sup>2</sup> of load-bearing steel roof construction with integrated, 84 m<sup>2</sup> automatically opening steel-glass roof in F&R system technology with integrated glare protection systems. Sun and weather protection systems for the terraces.

# VERSATILITY - OUR REFERENCES

## NEW BUILD



**STEVE JOBS THEATER | Cupertino (CA), USA | FOSTER + PARTNERS**

Load-bearing building envelope consisting of just 44 curved 3 x 7 m units of 5-layer laminated glass, with no supporting structure. A large carbon fibre roof made up of 44 individual segments, with a diameter of 47.5 m and weighing 65 tons was lowered onto the envelope in one piece. 4 curved all-glass double doors.



**THYSSEN KRUPP, HEAD OFFICE  
Essen, Germany  
CHAIX & MOREL ET ASSOCIÉS &  
JSWD ARCHITEKTEN**

7,700 m<sup>2</sup> room-high primary aluminium glass facade as bespoke construction with outwardly opening, structurally glazed pivoted leaves. 7,800 m<sup>2</sup> dynamic stainless steel solar protection facade including control system as an innovative customised development.



**INTERNATIONAL OLYMPIC COMMITTEE HQ  
Lausanne, Switzerland  
3XN ARCHITECTS & ITTEN BRECHBÜHL**

Upper floors: 3,100 m<sup>2</sup> three-storey, double, multi-sloped custom facade construction, each storey consisting of 194 panels, outer shell in SSG; 2,300 m<sup>2</sup> all-glass inner facade. 24 opening leaves in the access area.



**ESO SUPERNOVA  
Garching, Germany  
BERNHARDT + PARTNER**

3,200 m<sup>2</sup> ventilated system facades clad in 4 mm aluminium panels. 550 m<sup>2</sup> steel stick system facades with a height of up to 14 m. Entrance facade with door system. 233 m<sup>2</sup> glass star pattern dome (diameter 17 m) in filigree solid steel profiles with integrated effect lighting.



**HIGH PROFILE RETAIL STORE  
Chongqing, Guotai, China  
BOHLIN CYWINSKI JACKSON & WOODS  
BAGOT**

12.5 m high cylindrical entrance facade (diameter 10 m) consisting of 12 glass fins as glass supports (laminated glass units consisting of 5 x 12 mm toughened safety glass) and 12 curved, point-fixed 2.5 x 12.5 m XXL facade panes. Circular all-glass staircase integrated into underground Show / Sales room with over 30 point-fixed glass steps and curved all-glass balustrade.



**LG ELECTRONICS HEADQUARTERS  
Englewood Cliffs (NJ), USA  
HOK ARCHITECTS**

2,200 m<sup>2</sup>, structurally bonded glass and steel facade, 17 m in height. 5 integrated, automatically sliding steel steel lifting gates measuring 4.50 x 3.90 m, 2 stainless steel entrance portals. Visual mock-up and 32 m<sup>2</sup> performance mock-up.



**SWISS RE NEXT  
Zurich, Switzerland  
DIENER & DIENER ARCHITEKTEN**

Double facade construction with a 6,475 m<sup>2</sup> outer shell in undulating glass featuring 924 double-curved laminated glass units with bespoke sun protection coating. 5,100 m<sup>2</sup> steel stick system facade with large-format glazing and continuous cladding of construction units in mirror-polished stainless steel. 580 m<sup>2</sup> of atrium roofs. 600 m<sup>2</sup> of natural stone facade. 360 t steel construction.

# VERSATILITY - OUR REFERENCES

## NEW BUILD



**FREE UNIVERSITY OF BOLZANO**  
Bressanone, Italy  
KOHLMAYER OBERST ARCHITEKTEN

13,000 m<sup>2</sup> diverse facade typologies: Inner and outer structural facades with integrated parallel-extending leaves. Ring facade on both room and corridor sides. Skylights as SSG facade. Glass floors. Continuous rooflights. Double-skin internal glass partition walls as custom construction. All-glass doors as external closures and to interior of seminar rooms. Fire protection doors. XL concealed doors in concrete look. All-glass balustrades. Stainless steel sun protection system.



**BERLINER BOGEN**  
Hamburg, Germany  
BRT - BOTHE RICHTER TEHERANI

One of the largest glass roof structures in Europe: 15,700 m<sup>2</sup> parabolic, point-fixed glass-steel roof. 7 tip-up glass doors. North facade as point-fixed thermal glass facade. Glazed pump house including steel structure and sun protection system. Floor glass suitable for vehicles.



**PRIVATE OFFICE BUILDING**  
Münster, Germany  
ALLMANN SATTLER WAPPNER

Large format sliding leaf construction with glazed profiles and integrated sun protection lamellas in the air gap. Terrace facade with minimo\_FR filigree profile system and gold reflecting glass. Staircase with ascending curved glass balustrades.



**WILDSPITZBAHN**  
Pitztal Glacier, Austria  
BAUMSCHLAGER HUTTER PARTNER

Building envelopes for 2 mountain stations in the highest glacier ski area in Austria: mountain station at 3,440 MASL (1,650 m<sup>2</sup>), valley station at 2,840 MASL (1,250 m<sup>2</sup>). Lead contractor, in charge of project planning for facade construction and steel construction (partner Bitschnau Metallverarbeitung GmbH). Shape-defining steel construction with free-form large-scale aluminium roof cladding elements and custom sealing system. Curved panoramic glass facade as terrace closure, height 2.20 m.



**QUELLENHOF LUXURY RESORT \*\*\*\*\***  
Lazise, Italy  
STEFAN MARX / ELKE LADURNER

970 m<sup>2</sup> steel and glass atrium facade in stick system construction. 500 m<sup>2</sup> roof construction, 220 m<sup>2</sup> of which is an automatically opening glass roof.



**EWO LICHTTECHNIK HEAD OFFICE**  
Cortaccia, Italy  
MARKUS TAUBER ARCHITEKTEN

Entrance glass facade (264 m<sup>2</sup>) as custom construction with suspended glass fins as a structural element. Various ribbon windows. 620 m<sup>2</sup> of ventilated curtain wall, black ceramic curtain wall in large elements 1.3 x 3.5 m.



**HOTEL SAS RADISSON \*\*\*\***  
Cologne, Germany  
ARCHITEKTENPARTNERSCHAFT GRIMBACHER

500 m<sup>2</sup> atrium roof with cable-supported roof glazing (400 m<sup>2</sup> of insulating glass, 100 m<sup>2</sup> of single glass) incl. steel load-bearing structure. 433 m<sup>2</sup> of vertical facades.



**ACADEMY OF FINE ART**  
Munich, Germany  
COOP HIMMELB(L)AU

5,000 m<sup>2</sup> of facade cladding in hot-rolled, untreated stainless steel sheets. Large format sliding windows (max. size 2.17 x 5.05m). 2 atrium glass roofs. Glass sign, entrance facade. Entrance facades, partly with ventilation louvres. Ribbon windows.

# VERSATILITY - OUR REFERENCES

## NEW BUILD



**FIFTYNINE STRANDKAI**  
Hamburg, Germany  
HADITEHERANI

2,970 m<sup>2</sup> of stick system glass facades including highly weather-resistant sliding windows and integrated acoustic ventilation windows (Hamburg harbour standard). 1,974 m<sup>2</sup> of opaque, thermal facades with sheet metal cladding. A further 2,800 m<sup>2</sup> of sheet metal cladding (soffits, parapets). 1,800 linear metres of glass railings. 1,693 m<sup>2</sup> balcony flooring (bamboo wood) including sealing work.



**GARE SAINT DENIS PLEYEL**  
Paris, France  
KENGO KUMA AND ASSOCIATES

Station hall construction up to 24 m in height with 3,750 m<sup>2</sup> double-skin steel and glass facade, frontally-located wooden lamellas and integrated entrance portal. 1,000 m<sup>2</sup> cantilevered canopy construction with all-round soffit cladding in aluminium. Roof level facades. Glass railings.



**FONDATION JÉRÔME SEYDOUX-PATHÉ**  
Paris, France  
RENZO PIANO BUILDING WORKSHOP

Multi-layered, complex free-form building envelope made of 7,500 curved, perforated aluminium lamellas with steel supporting structures. Glass dome featuring approx. 800 m<sup>2</sup> of double-curved insulating glass panes. Glass facade to ground floor and entrance construction in filigree steel stick system design with minimo\_FR, partly with curved insulating glazing.



**HAUS DER ASTRONOMIE**  
Heidelberg, Germany  
BERNHARDT + PARTNER ARCHITEKTEN

Education and outreach centre on the Max Planck Institute for Astronomy campus. The building's shape represents a spiral galaxy in the form of a 2,540 m<sup>2</sup> aluminium panel facade with perfect edge progression of the two dimensionally curved, multi-buckled (max. fivefold) parapet panels. 850 m<sup>2</sup> of ribbon window in filigree construction minimo\_FR. Integrated sun protection system with stainless steel louvres.



**INVESTCORP BUILDING**  
Oxford, UK  
ZAHA HADID ARCHITECTS

850 m<sup>2</sup> double curved stainless steel sheet facade with electropolished surface, minimo\_FR stick system glass facade in various geometries, drop-shaped skylights.



**MENIL DRAWING INSTITUTE**  
Houston (TX), USA  
HERZOG & DE MEURON

The first independent art school in the United States to focus exclusively on modern and contemporary painting: 300 m<sup>2</sup> stick system exterior facade, 150 m<sup>2</sup> atrium facade, aluminium sliding door systems in custom formats.



**"VERTIKALE" CLIMBING HALL**  
Bressanone, Italy  
WOLFGANG MERANER /  
MARTIN MUTSCHLECHNER

Facade construction in stick system design with a maximum height of 16.5 m. Sun protection: sheet metal curtain wall consisting of 3D-formed perforated panels with concealed fasteners.



**HOTEL AND RETAIL ON  
JOACHIM-ERWIN-PLATZ 1**  
Düsseldorf, Germany  
INGENHOVEN ASSOCIATES

1,270 m<sup>2</sup> stick system glass facade, 1,150 m<sup>2</sup> double facade as oak window construction with wooden pilaster strips and glass screen wall. Inner courtyard facade with wood / aluminium windows, zinc sheet roofing and trellis for subsequent green facade.

# VERSATILITY - OUR REFERENCES

## NEW BUILD



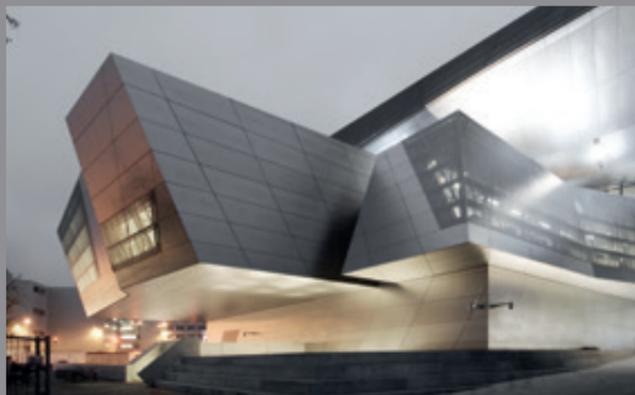
**SÜDWESTMETALL HEAD OFFICE**  
Reutlingen, Germany  
ALLMANN SATTLER WAPPNER

2,900 m<sup>2</sup> ventilated stainless steel building envelope including roof. Integrated dynamic sun protection shutters. 1,100 m<sup>2</sup> glass facade: floor-to-ceiling window elements, insulated wall panels, 3 all-glass bridges, roof glazing.



**DOCKLAND**  
Hamburg, Germany  
BRT - BOTHE RICHTER TEHERANI

3,750 m<sup>2</sup> double-skin glass facade. All-round aluminium cladding, 1,000 m<sup>2</sup> and west facade projecting by over 40 m, top floor facades. Entrance portal, glass railings, sun and glare protection systems.



**BMW WELT**  
Munich, Germany  
COOP HIMMELB(L)AU

16,000 m<sup>2</sup> of exterior and interior sheet metal facades, of which 14,500 m<sup>2</sup> in 3 mm stainless steel sheets. 1,600 m<sup>2</sup> of glass facades in stick system construction. Glass and metal work, e.g. electrically driven maintenance flaps 1.5 x 4.8 m.



**THERME MERAN AND HOTEL**  
Merano, Italy  
MATTEO THUN

Large steel/glass cube for swimming pool as a double-skin 48 x 48 m construction, including 180 t steel framework. 2,300 m<sup>2</sup> of roof glazing, 1,650 m<sup>2</sup> exterior and 2,200 m<sup>2</sup> interior facade with suspended glass ceiling. 180 wooden windows with sliding sun protection louvres. Stick system construction for hotel in filigree design with minimo\_FR incl. entrance system. Large conservatory facade.



**PARISH CHURCH  
DIVES IN MISERICORDIA**  
Rome, Italy  
RICHARD MEIER & PARTNERS

3 steel/glass roof constructions above the church hall (710 m<sup>2</sup>) on curved marbled concrete shell with custom connections (highly efficient damping system) incl. earthquake damping system and steel trusses. 550 m<sup>2</sup> stick system facade with steel framework. Windows, doors. Point-fixed glass pulpit. Glass elements.



**VITRAHAUS, SHOWROOM**  
Weil am Rhein, Germany  
HERZOG & DE MEURON

1,000 m<sup>2</sup> end facades, external facades and internal facades executed using minimo\_FR system with a face width of 30 mm. Custom design of facade construction (component movements +/- 3 cm).



**ACTELION BUSINESS CENTER**  
Allschwil, Switzerland  
HERZOG & DEU MEURON

12,500 m<sup>2</sup> office facade with triple-layer insulating glazing, partly inclined by 10° to inside / outside with integrated gathered-louvre storage system. Ground floor facade in minimo\_FR. Triple thermal insulation glazing.



**TORONTO COURT HOUSE**  
Toronto, Canada  
RENZO PIANO BUILDING WORKSHOP

First FRENER & REIFER Project in Canada: 840 m<sup>2</sup> large atrium facade with bomb blast protection, as a double, internally and externally guided cable facade construction.

# VERSATILITY - OUR REFERENCES

## MOCK-UP & INNOVATION



**SUN PROTECTION SYSTEM** | Project: Thyssen Krupp HQ, Essen (DE)

New development of a motor-driven sun protection system consisting of 3,000 stainless steel trees that can be interlocked in opposite directions. The approx. 380,000 horizontal lamellas have approx. 1.6 million fastening and connecting parts and automatically follow the course of the sun during the course of the day.



**ALL-GLASS CONSTRUCTION**

Project: Parkhotel Vitznau, Lucerne (CH)

Design and realisation of a canopy as a custom-made, load-bearing all-glass construction (VSG / laminated safety glass). Glass pane dimension and build-up: 2.64 x 8.5 m (3 x 12 VSG, G= 2 t / pane). Beams 8.5 m in length (6 x 12 VSG). 6 m high supports (8 x 15 VSG).



**FREEFORM FACADE MOCK-UP**

Project: Wildspitzbahn, Pitztal Glacier (AT)

Design and realisation of a bespoke facade mock-up: Edge finish for building envelope of mountain station at 3,440 m. The cladding is handcrafted from 3 mm aluminium sheets with special attention to precise shape fulfilment as per the 3D plans of architects Baumschlager Hutter. Approved by satisfied architect and project manager Oliver Baldauf.



**GLASS STAIRCASE PROTOTYPE**

Project: Flagship Retail Store, Beijing (CN)

Prototype of a self-supporting, spiral glass staircase according to a patented design specification including glass balustrade. Challenges: high earthquake requirements for design and materiality and first-time use of chemically tempered glass.



**SMART STRUCTURE**

Research Project: Stuttgart University

Development and realisation of a parametrically defined component consisting of three interpenetrating surfaces that can be unwound. These take on a three-dimensional nominal shape when joined together, forming a light, self-stiffening spatial structure. Several of these components can be combined to form a multifunctional facade element for sun protection, glare protection and light redirection.



**PHOTOVOLTAICS AND SUN PROTECTION**

Project: Tobias Grau Office & Production Hall, Rellingen (DE)

Early adopters: use of contemporary technology over 25 years ago. Realisation of facade with integrated photovoltaic system and development of a new sun protection system with curved glass louvres.



**FACADE MOCK-UP**

Project: adidas, Herzogenaurach (DE)

Planning and realisation of a visual mock-up for design purposes. 76 m² self-supporting steel construction with 3 glass facade elements and sun protection louvre system, multi-edged and welded from perforated aluminium louvres.

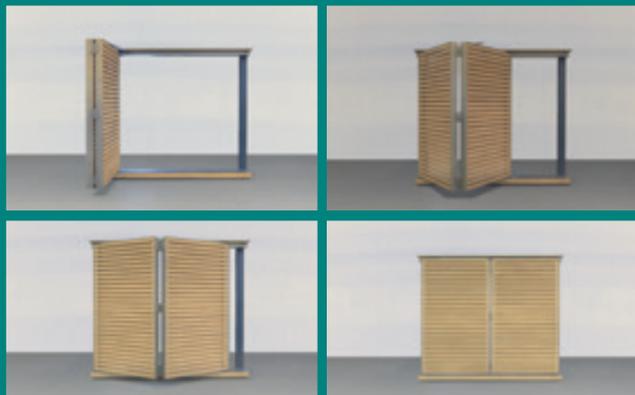
# VERSATILITY - OUR REFERENCES

## MOCK-UP & INNOVATION



**SOLARTHERMIE**  
 Research Project: Stuttgart University  
 Ritter Energie and Wicona

Further development of semi-transparent solar-thermal facade collectors: vacuum tube collectors integrated into the facade, modularly adaptable. The water heated by the solar warmth in the collector can flow into the building at a high temperature via a pipe system and is available there as drinking, hot or heating water and for solar cooling. System USP: combination of solar energy generation and sun protection with simultaneous visual transparency.



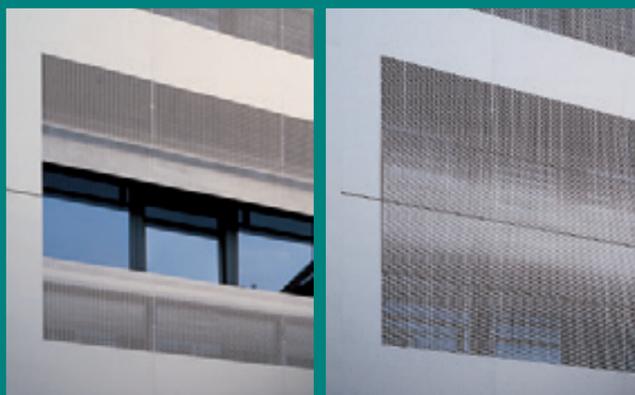
**MOTORISED FOLD-SLIDE DOOR MOCK-UP**  
 Project: Private Villa, Hawaii (US)

A 5.6 m wide, motorised folding-sliding door as sun and glare protection was completely redeveloped in terms of drive and profile geometry as an underfloor system. Smooth synchronisation for the wooden climate-proof folding leaf system with minimised installation dimensions, both leaves in a rough-ground stainless steel look with beechwood slats. After a successful function test in Bressanone, the system, together with the large-format glazing was transported to the "Big Island" and installed.



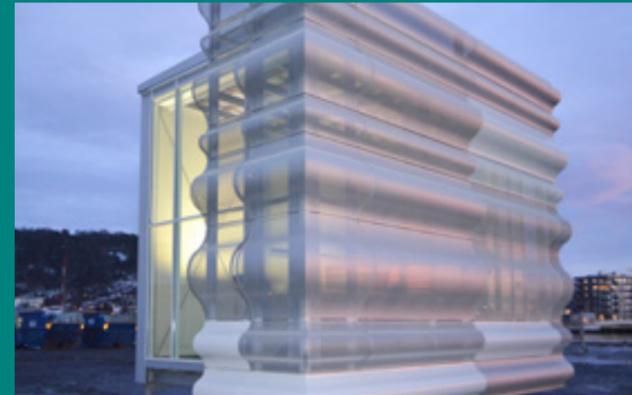
**GLASS ART INSTALLATION**  
 Project: Morland Mixité Capitale, Paris (FR)

Development and realisation of a glass art installation based on the designs of Olafur Eliasson and Sebastian Behmann (Studio Other Spaces). 32 glass cubes installed on the roof - each consisting of 4 fully mirrored lateral glass panes and a curved upper pane - create the optical effect of a kaleidoscope. Glass facades with graduated Ipachrom coating, glass balustrades with special anti-reflective coating, ceiling soffits with mirrored stainless steel sheets.



**SUN PROTECTION**  
 Project: Südwestmetall HQ, Reutlingen (DE)

Development of several electromechanically driven and upwardly/downwardly movable sun protection shutters in 4 mm thick stainless steel sheet with laser-cut rectangular perforations. New development of mechanism for flush view when movable components are closed. Construction in durable and low-maintenance stainless steel materials. The systems are part of a building ensemble, the monolithic-looking shells of which are made entirely of stainless steel.



**FACADE MOCK-UP**  
 Project: Munch Museum, Oslo (NO)

Design, fabrication and installation of a visual mock-up in original materials with perforated, undulating aluminium envelope, based on an architectural design by Jens Richter. Installation directly on site in Oslo.



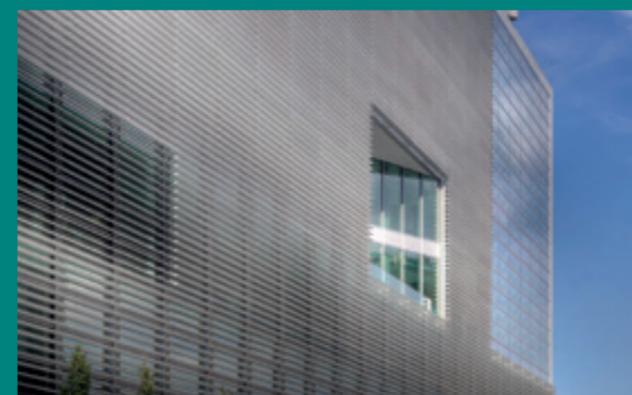
**OPENABLE STEEL / GLASS ROOF**  
 Project: Adler Thermae, Bagno Vignoni (IT)

Design and development of a two-part openable, cantilevered insulating glass roof over the restaurant of a 5-star thermal spa hotel. Electromechanical drive of the two roof leaf with low-noise guide system



**ALL-GLASS BRIDGE**  
 Project: Sporthaus Karstadt, Dortmund (DE)

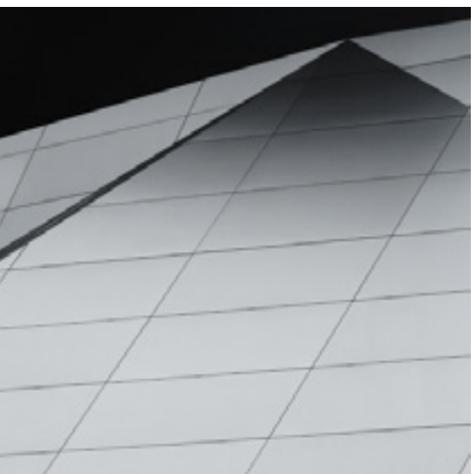
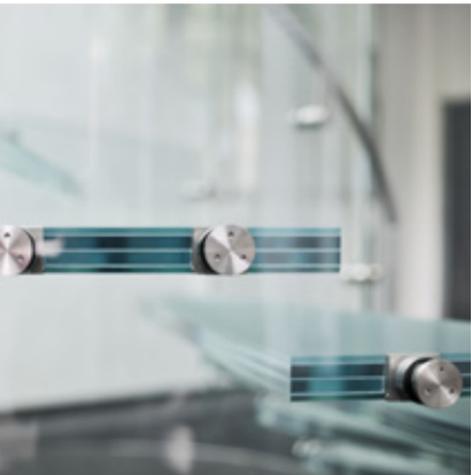
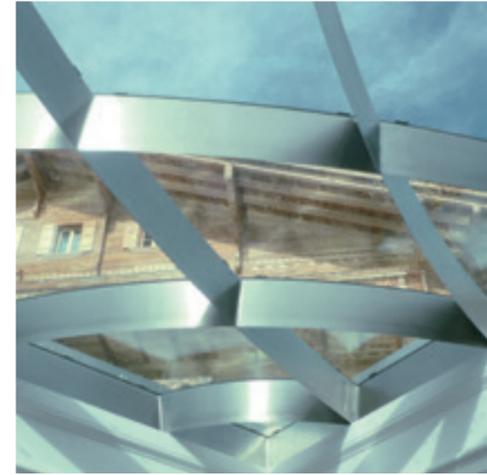
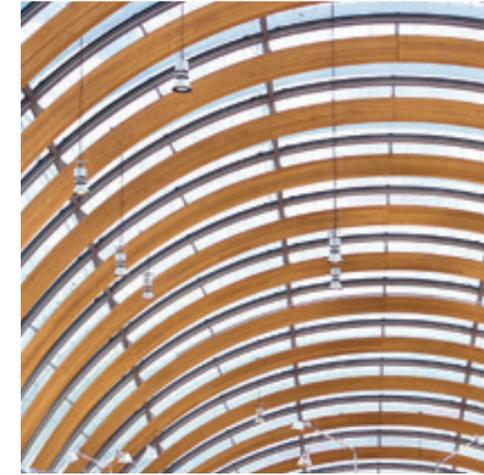
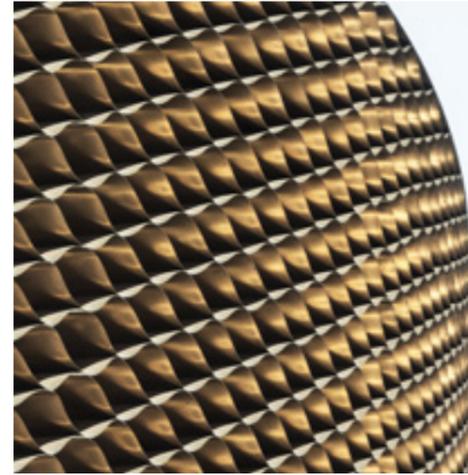
One of the world's first all-glass bridge constructions: a 13 m glazed connecting bridge. First application of glass panes held in place by means of an undercut anchor in the glass composite. Floor slab as welded grating using round hollow steel sections and stainless steel tension rods. Connection to one of the existing buildings achieved via decoupled glass and stainless steel passageway structure.



**LIGHT PROTECTION AND CONTROL**  
 Project: Ando Building, Novartis Campus, Basel (CH)

Completely new development and realisation of an intelligent light directing system in unitised construction made of horizontal aluminium louvers. Each unit is divided into 3 zones that can be controlled individually to meet the special requirements of users. A total of 2,500 m<sup>2</sup> was realised as part of a complete building envelope.

EXPERT CRAFTSMANSHIP  
AND PRECISION  
DOWN TO THE SMALLEST DETAIL.



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