



STRUCTURE +
MEMBRANE +
GLASS

NOVUM

ABOUT US

Novum Structures is a leading specialist envelope contractor that has been in operation for over 35 years, with offices throughout North America, Europe, and Asia. We use cutting-edge technology to create unique and innovative architectural structures, with a cohesive systems approach to glazing, structure, and ETFE that allows for seamless integration of all project elements from design to construction.

Ovo Hydro,
Glasgow,
Scotland



CONTENTS

ABOUT US 02
Welcome to Novum Structures

OUR SERVICES 05
Service Information

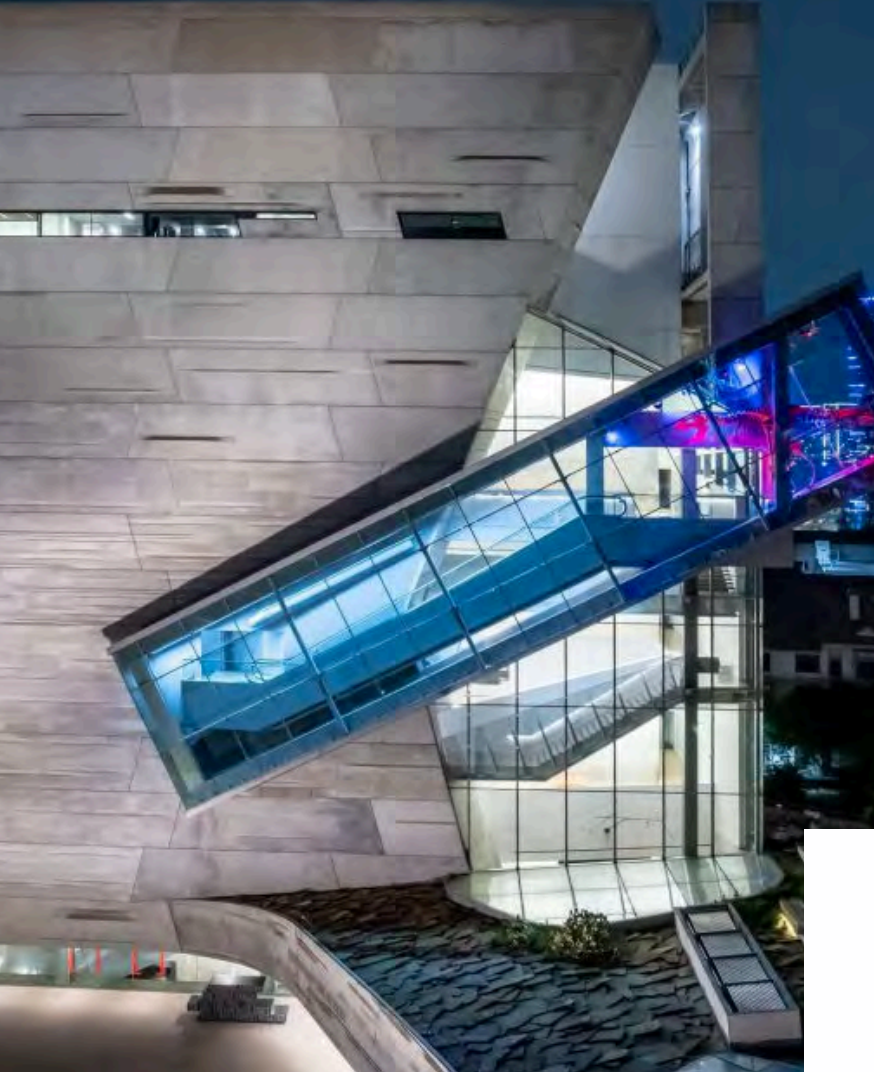
OUR SYSTEMS 06
Structural
Membrane and Glass
System Information

DESIGNER ASSIST 20
Service Information

NOVUM FACILITIES MANAGEMENT 24
An Introduction

CPD 26
An Introduction

CONTACT US 30
Offices, Locations, and Contact Details



Novum Structures is dedicated to turning dream ideas into reality, no matter how big or small they may seem. Our team is committed to helping clients bring their visions to life and making the seemingly impossible, possible. With Novum Structures, clients can trust that their ideas will be brought to life with expertise, commitment, innovation, and quality.

Perot Museum of Nature
and Science, Dallas, USA

Our mission is to bring architectural visions to life through innovative technology, engineering, and high customer satisfaction. We push the boundaries of design and construction to create visually stunning, functional, and sustainable structures, working closely with clients to ensure that every detail is perfect, and every project is delivered on time, on budget, and to the highest standards of quality.

OUR SERVICES

Pre-construction Services

By listening to our clients, we understand and prioritise their needs and identify possible solutions. Our industry-leading pre-construction services create excellent client value by quickly determining the appropriate balance between design and price. Our clients can select which services suit their individual projects from an extensive menu.

Project Execution

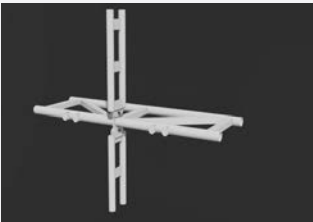
Transitioning from design to delivery requires attention to detail. Novum Structures excels at delivering project management, planning, engineering, manufacturing, sourcing, logistics, and site management which drives projects to completion on time, and within budget. As we fabricate most of our systems at our own facilities, Novum Structures have excellent control over the product quality. Our experienced site technicians ensure that installations proceed according to plan and on schedule; with high standards and workplace safety at the forefront.

Post-construction Services

Our commitment to client satisfaction extends beyond project completion. Warranty support and optional maintenance agreements are an integral part of every project. They provide our clients with the security of knowing our care and expertise extends past project completion.

STRUCTURAL SYSTEMS

Novum Structures has developed six distinct lightweight structural products designed to address complex architectural challenges. These systems are typically fabricated in our ISO certified factories, finished, and then shipped to site safely and efficiently.



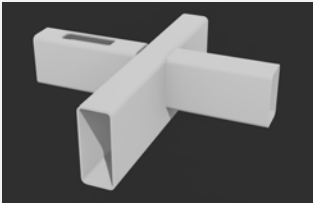
AES- ARCHITECTURALLY EXPOSED STEEL

Mechanically fastened custom precision steelwork of the finest quality. Minimal site use of welding and finishing.



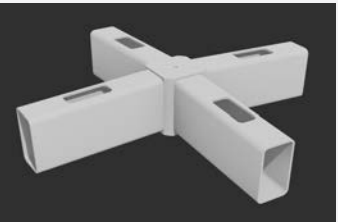
KK - KUGEL KNOTEN

The classic space frame system for double layer grids of free geometry and long spans with a very economical strength to weight ratio.



BB - BEAM TO BEAM

A systemic approach for elegant mechanically connecting beams to form efficient 3-dimensional structures without nodes.



BK - BLOCK KNOTEN

A nodal system for single layer curved structures, which for longer spans can easily be transformed into a grid shell or double layer structure.



FF - FREE FORM

The unique bolted system for connecting beams that collectively form single layer, free surface geometrics.



GG - GLASS TO GLASS

A structural system where glass is used as the primary structural element and also functions as the enclosure.

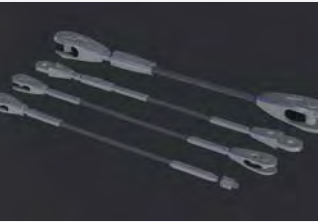
TENSILE SYSTEMS

The amount of pre-stress typically determines the type of tensile system required. Our architectural material of choice for tensile elements generally is corrosion-resistant stainless steel. The three systems are as follows:



TC - TENSION CABLE

Fully engineered cables for architectural applications, in stainless or galvanised strand, complete with pre-stress methodology.



TR - TENSION ROD

Pre-engineered stainless steel tension rod system which has a variety of sizes, capabilities and finishes.



SSF - SUSPENDED STEEL FACADE

Its primary objective is to achieve optimal transparency with minimal structural/boundary condition impact.

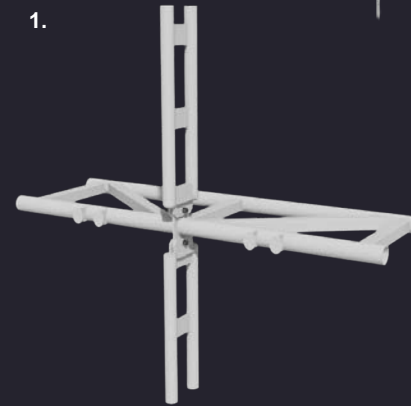
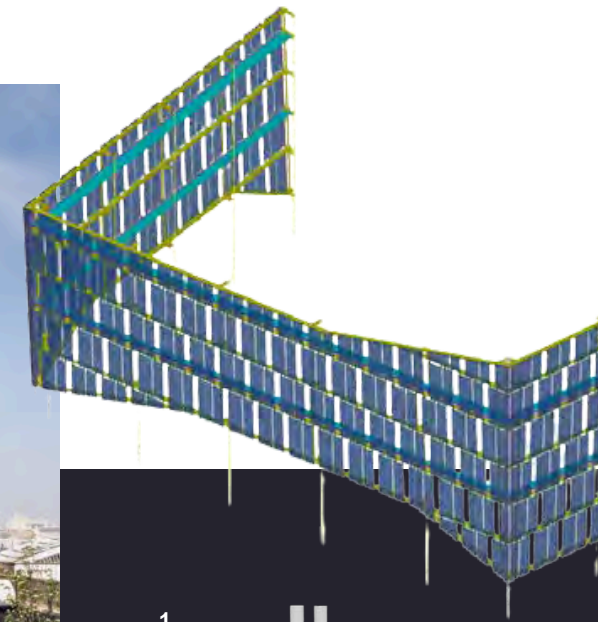
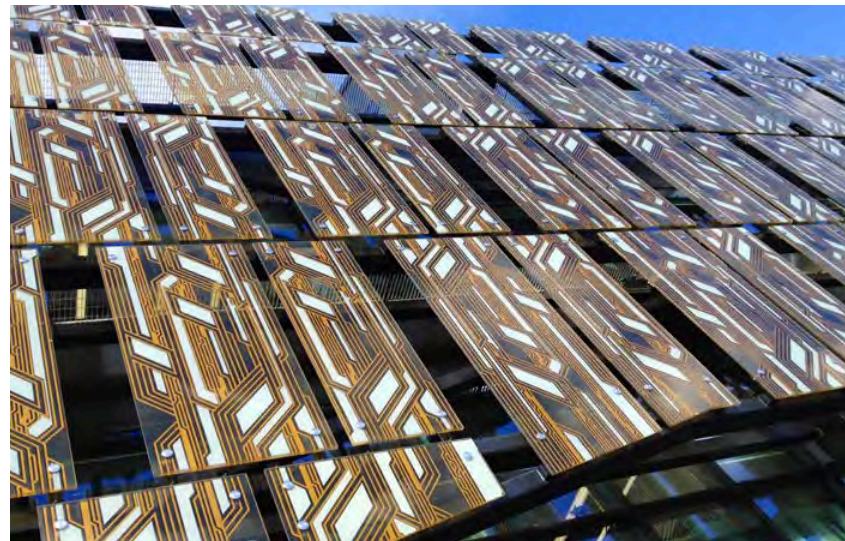
INNOVATE & ILLUMINATE

SENSOR CITY

Sensor City
Location: Liverpool, England
Size: 645 sq m / 6,950 sq ft
Architect: IBI Group, Inc.

Design Solution

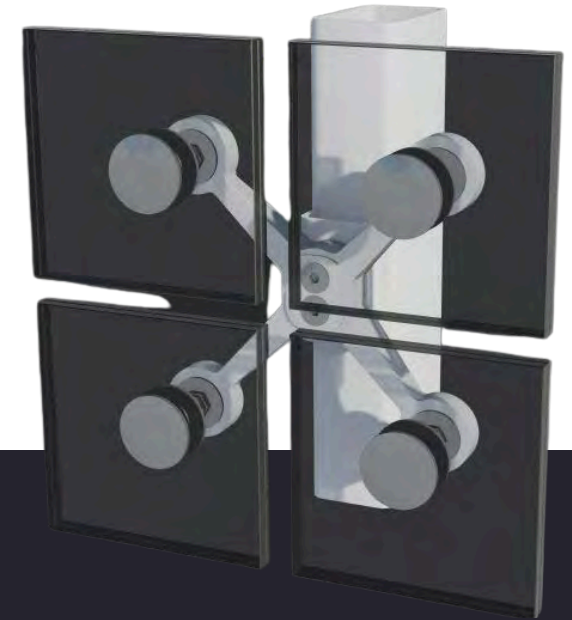
Novum was contracted to design, supply, fabricate and install a stunning glass veil which wraps around three side elevations of Sensor City. The project utilises Novum's Architecturally Exposed Steel System and Point Supported Glass System adding an extremely high-end aesthetic to the building. The custom silk screen print is intended to replicate sensors with the idea being to promote and represent the cutting edge technologies and areas of study going on behind the veil, where they are pushing the boundaries of sensor innovation.



1. Structural

AES: Novum's Architecturally Exposed Steelwork was connected to the building's primary steel frame and supported both the 645m² area of glass and maintenance access walkaways located behind the glass veil. All steelwork was factory fabricated and delivered to Liverpool and mechanically fastened on-site without the requirement for site welding.

2.

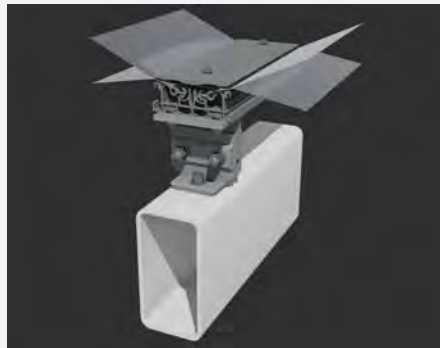


2. Glazing

PSG: Bespoke double-layer screen printing on laminated, toughened, single-glazed panels with Saflex DG41 structural PVB interlayer provided enhanced structural protection. To protect the building envelope from high wind loads and increase impact resistance, Novum applied its HG-01 impact-tested point supported glass system. The façade design was created by artist Julian Stocks. It was felt that his 'Fields of Gold' design represented the flow of sensor data in digital and analog formats. The enamel silk screen print uses a pallet of gold; reflective metallic enamels are paired with a transparent gold interlayer which supports the ivory and black enamels. The panels protect occupants from UV radiation and modify the interior light levels. Novum installed the 299 custom panels using stainless steel

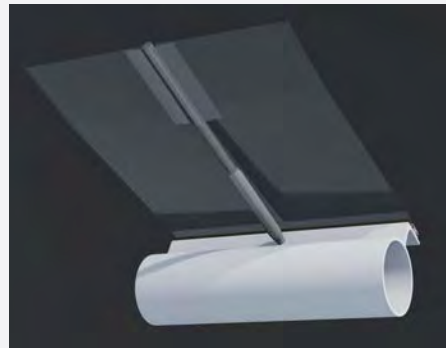
MEMBRANE SYSTEMS

Novum offers three unique system products perfectly tailored for constructing architectural membrane enclosures. Our company's core competencies lie in, in-house design and patterning, and we boast a state-of-the-art membrane production facility in Germany where we craft a wide array of materials. While the majority of our projects involve ETFE, we also work with materials like Tenara, PTFE, and PVC. Each system possesses distinct aesthetics and employs a different method to achieve the required surface tension.



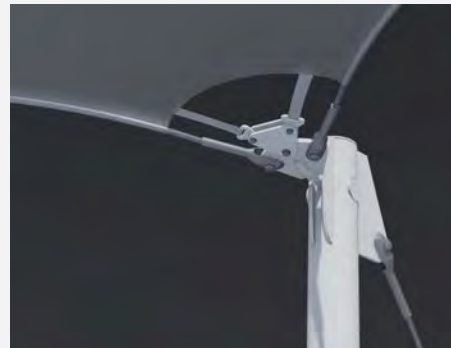
AFP - AIR FILLED PILLOWS

Uniquely shaped air filled pillows, with a fully integrated perimeter, create a highly efficient and economical panel system.



SSM - STRESSED SKIN MEMBRANE

A single layer membrane is post-tensioned and discreetly supported by thin, lightweight cables.

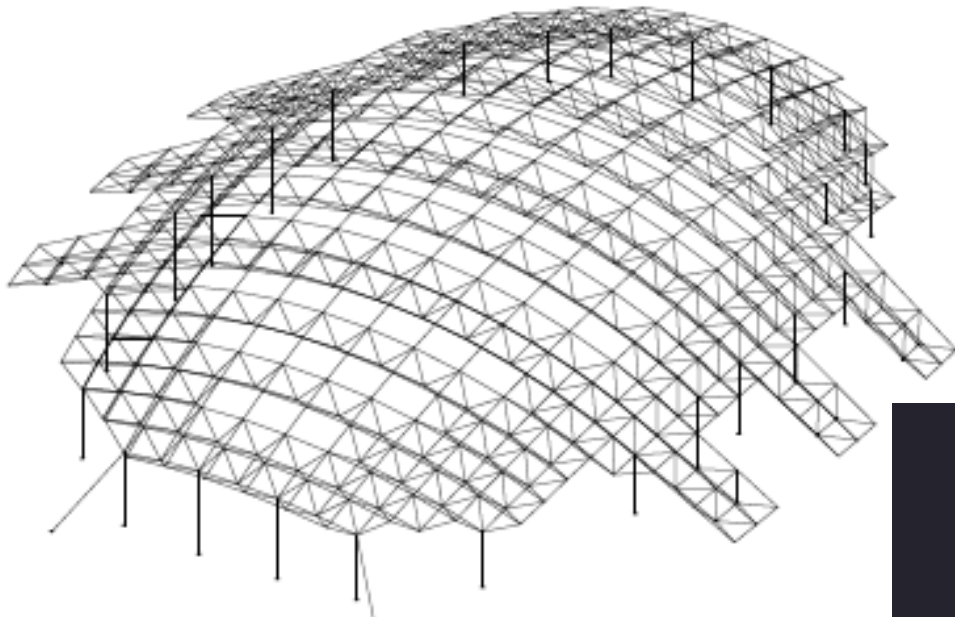


CTF - CABLE TENSIONED FABRIC

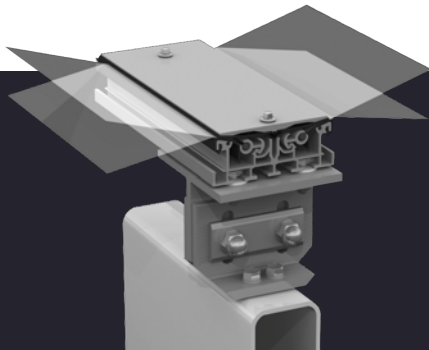
Multiple materials are available to create free form surfaces by the biaxial tensioning of a single layer of fabric.



SERENDOME REDEFINING ADVENTURE



Novum collaborated with Holder Mathias Architects to bring the adventure activity Serendmoe to life at Bluestone Resort in Wales. The concept behind this remarkable dome was to offer a unique outdoor experience under a colossal “umbrella” allowing families to savour outdoor adventures regardless of the weather conditions. This innovative design seamlessly integrates Novum’s KK and BK Systems, resulting in an expansive spaceframe structure featuring a transparent, double-layered ETFE AFP roof. Within the dome, visitors can explore a vibrant hub of entertainment, including a 400-seat amphitheater and an awe-inspiring vertical adventure course.

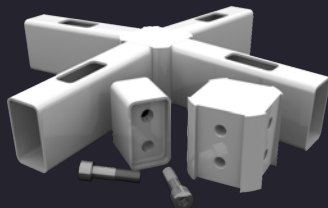


AT BLUESTONE RESORT

Bluestone Resort
Location: Wales, United Kingdom
Size: 8,000 sq m / 86,120 sq ft
Architect: Holder Mathias Architects

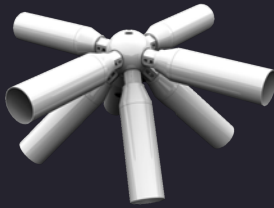


1.



1. In this project, Novum's BK tubes were employed in both single-layer and double-layer spaceframe applications, serving as the preferred choice when dealing with geometries closely aligned with orthogonality to maintain compact nodes. For single-layer applications, the BK node was utilised, while for double layer grids, the HK node (half-spherical) seamlessly integrated BK tubes with KK tubes, creating robust chord members capable of withstanding bending on spatial grids.

2.



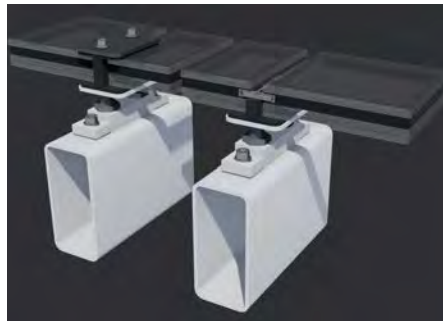
2. Novum's KK-System, this system excelled in creating lightweight structures with extended spans, intricate smaller spaces, structures with irregular support layouts necessitating two-way and three-way truss action, as well as stepped and folded roofs and walls with seamless structural transitions at the intersection of different planes. trol.

3.

3. Novum's AFP-System offered a range of possibilities, from traditional rectangular pillows capable of exceeding lengths of 200 feet (60 meters) with variable widths tailored to environmental loadings, to pillows of various shapes, including triangular, octagonal, and more. This system had been successfully applied to create intricate freeform structures, showcasing its adaptability and engineering prowess in complex architectural designs.

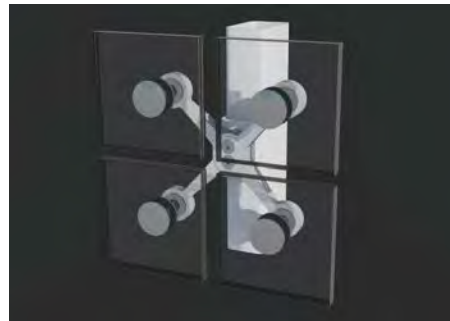
GLAZING SYSTEMS

Novum Structures offers a comprehensive selection of six distinct glazing systems, catering to a wide spectrum of architectural glazing requirements, encompassing aesthetics, complexities, and functional demands. These systems are universally compatible with various glass types, including monolithic, laminated, and insulating glass. Weatherproofing is typically achieved through the use of silicone and silicone gaskets.



ECG - EDGE CLAMPED GLASS

An economic system which supports glass panel edges and is ideally suited to glazing any surface geometry.



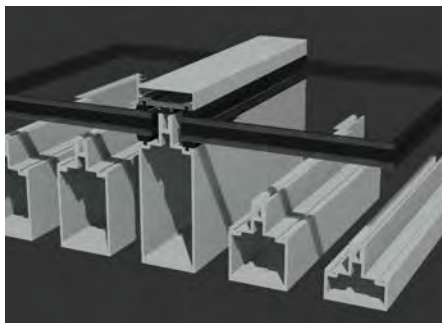
PSG - POINT SUPPORTED GLASS

The ultimate structural glazing technology with a broad range of complementary and well engineered accessories.



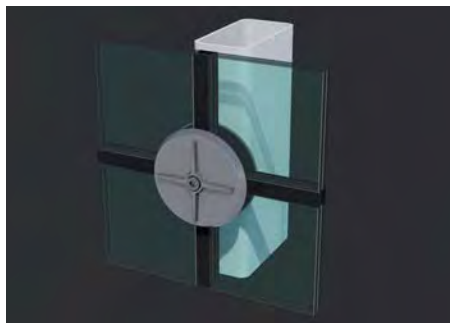
LSG - LINEAR SUPPORTED GLASS

A nominal depth glazing system developed to attach glass directly to high precision primary structures.



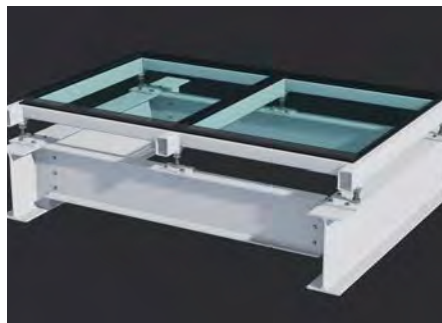
ASG - ALUMINIUM SUPPORTED GLASS

A traditional aluminium framing system which economically captured all varieties of glass cladding with optimal capping.



CCG - CORNER CLAMPED GLASS

Cast clamps capture structural glazing panels at the corners, allowing great transparency and expression.

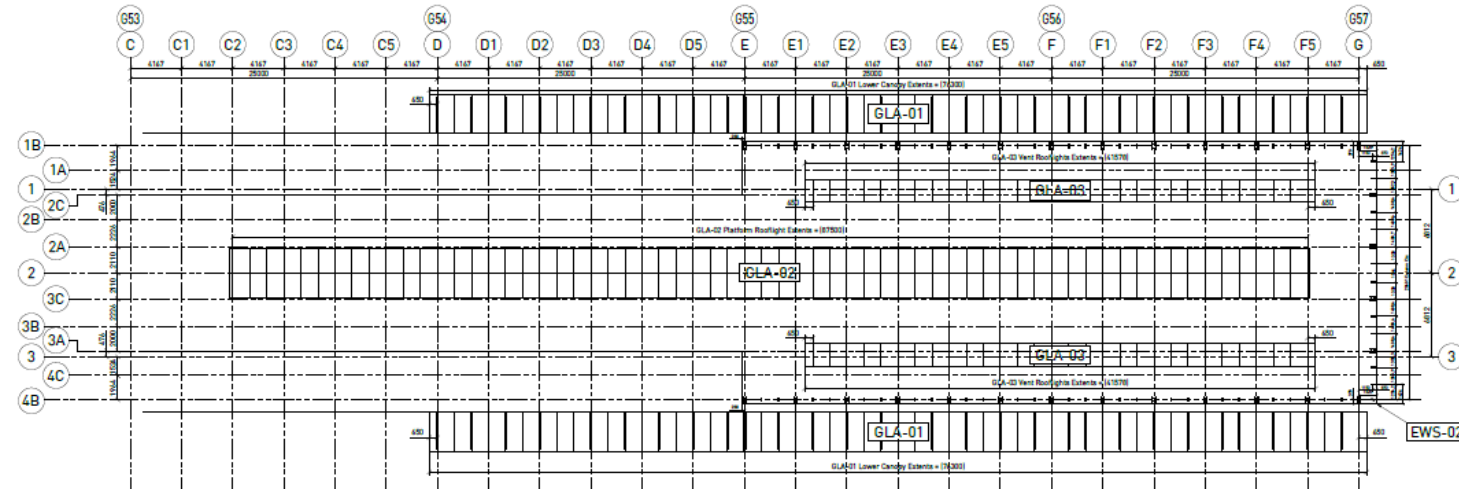


WSG - WALKWAY SURFACE GLASS

A highly engineered glass system for walkway surfaces and stairs.



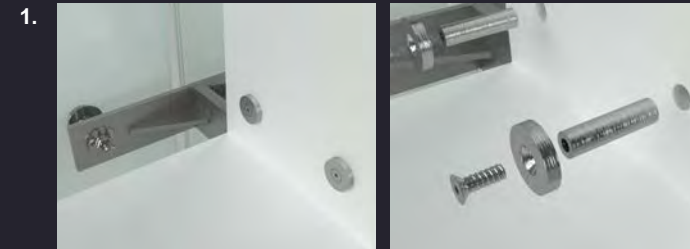
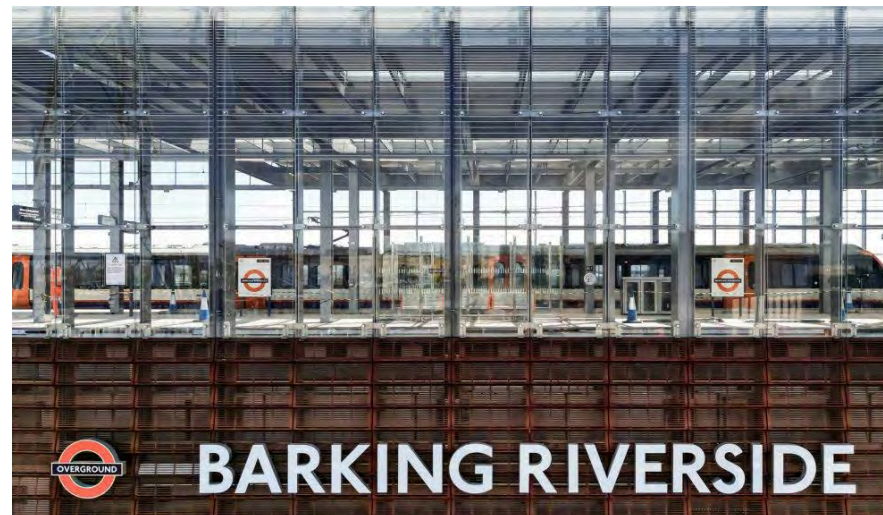
THROUGH THE LOOKING GLASS



In partnership with Morgan Sindall and VolkerFitzpatrick, we were involved in the construction of the Barking Riverside train station. This new station was created to facilitate a burgeoning local housing development and represents the first expansion of the London Overground network since 2015. Our responsibilities encompassed several crucial aspects of the project, including the installation of a glass facade for the station box, glazing for the platform roof, construction of the lower platform canopy, establishment of a platform waiting room, and installation of escape stairs. The strategic use of glass in these elements not only floods the station with natural light but also offers stunning vistas of the picturesque River Thames.

A STUNNING GLASS OASIS

Barking Riverside Station
Location: London, England
Size: 1,301 sq m / 14,004 sq ft
Architect: Weston Williamson &
Partners



1. Among the systems employed in this project is the PSG-System, a technological marvel that delivers remarkable transparency with minimal structural support, making it invaluable for the creation of complex facades. Novum's extensively tested PSG-System has proven its mettle in numerous projects, including those located in regions prone to heavy snowfall, seismic activity, and hurricanes.



2. Additionally, our project featured the Linear Supported Glass system, which finds application in scenarios where close coupling of glass to the structure is essential or when building codes or client specifications mandate a secondary backup to the silicone glass joint. This system achieves an elegant and continuous support for the glass elements.

PACKAGED SOLUTIONS

Affordable elegance is achieved by utilising a packaged solution of pre-engineered Novum Systems.

Based upon the German word for "design type" and "type of construction", which is similar to "Bauhaus" - the architectural movement created by Gropius – we have derived a name for our solution that is easily recognisable by architects around the world. Therefore, we are pleased to introduce “Novum BauArt.” Novum offers a suite of economical packaged solutions for structural glass facades utilising architecturally exposed steel achieving a transparent look at an affordable price.



Black & Veatch World Headquarters
Location: Overland Park, Kansas, USA
Size: 705 sq m / 7,560 sq ft



NOVUM BAUART



BauArt Advanced Steel

Sleek advanced steel profiles are laser welded with sharp corners and optimise a wide range of glass panel sizes with minimal structure.

BauArt Suspended Girt

The primary components are mild steel horizontal girts. The horizontal girts are typically rectangular and can be standard HSS tubes, solid steel bars, or custom-built pre-engineered laser-welded sections. The secondary components are vertical tension rods.

BauArt Glass Fin

BauArt Glass Fin extends the traditional role of glass as cladding to structural glazing with braced glass fins used as the primary structure.

NOVUM DESIGN AND DEVELOPMENT

Novum Design and Development is a value-added service that has become increasingly popular with clients, architects, main contractors, and consultants. Our program consists of a collaborative process that achieves the design intent within well-defined cost parameters.

Novum works with the entire construction team in the development of technical solutions that preserve aesthetic and performance objectives, whilst being respectful of cost. As solutions are being developed, Novum provides real-time budgeting which enables the architectural team to investigate ideas for change with the added benefit of immediate feedback on pricing. As a single-source specialist envelope contractor, we are very well-positioned to give you the most accurate pricing for the construction of your project.

A beautiful high-performance design is created and built while eliminating the need for value engineering later in the project life cycle

Lexicon
Location: Bracknell, England
Size: 2,020 sq m / 21,750 sq ft





THE 4 PHASES OF NOVUM DESIGN AND DEVELOPMENT + STEPS TO FINAL EXECUTION

Schematic Design Phase

1. Identify the location of the building for high-value architecture
2. Create an architectural form for specialty glazing elements
3. Establish a budget specifically for the specialty glazed elements

Design Development

1. Create structural grid options on architectural form
2. Develop system solutions for the grid options
3. Provide pricing for the design/supply/installation of the various system solutions.
4. The preferred option is selected.
5. Obtain full commitment from the construction team for the option selected and pricing provided.

Construction Development

1. Develop preliminary engineering of glass/steel.
2. Use visualisation techniques to study key areas.
3. Develop preliminary details.
4. Develop specifications for specialty glazed elements.
5. Provide final sum pricing for specialty elements.
6. The construction team then decides whether to enter into a design/build agreement.

Contract Execution:

1. Final engineering
2. Fabrication drawings
3. Sourcing
4. Manufacturing
5. Installation

NOVUM FACILITIES MANAGEMENT

Novum Structures' has its own in-house team operating primarily in Europe and provides our facilities management service.

The Novum Facilities Management (NFM) team provides tailored maintenance and repair services to a diverse set of clients and building owners on their existing facilities.

Each project is carefully considered on a case-by-case basis by one of our expert technicians.

Our team understands that your business comes first and plans each project to ensure minimal interruption to your everyday operations.

Our bespoke services include but are not limited to; ETFE and membranes (repairs, surveys, replacements and cleaning) glass replacements and maintenance, silicon resealing on facades, roof areas and structures, painting, general cleaning, bird protection, and more.



Maintenance and Repair

At some point during its life cycle, it is inevitable that your building will require maintenance and repair, whether that be general wear and tear, neglect, or climatic conditions. Our team offers several bespoke maintenance and repair services tailored to your individual needs:

- Rapid response and 24-hour service
- Membrane maintenance
- Membrane replacement
- Cleaning of ETFE, PTFE, and PVC
- Flashing replacements
- Glass replacements
- Building repairs
- Window maintenance and cleaning
- Sealant replacement
- Gutter cleaning and repair
- Vegetation growth removal
- Service contracts
- Inspection

Novum Facilities Management is pleased to provide a comprehensive inspection service that can be tailored to suit individual project requirements and budgets.

- NDT, MPI sonic testing, and corrosion inspection
- Paint inspection

CPD TRAINING

Novum Structures is pleased to offer comprehensive CPD (Continuing Professional Development) sessions tailored to architects, design professionals, engineers, façade consultants, cost consultants, and main contractor procurement teams. Our sessions cover a wide range of topics related to structural engineering and construction.

Our CPD sessions aim to provide you with valuable insights into preconstruction support services.

We delve into various applications where Novum Structures' expertise can make a significant difference in your projects.

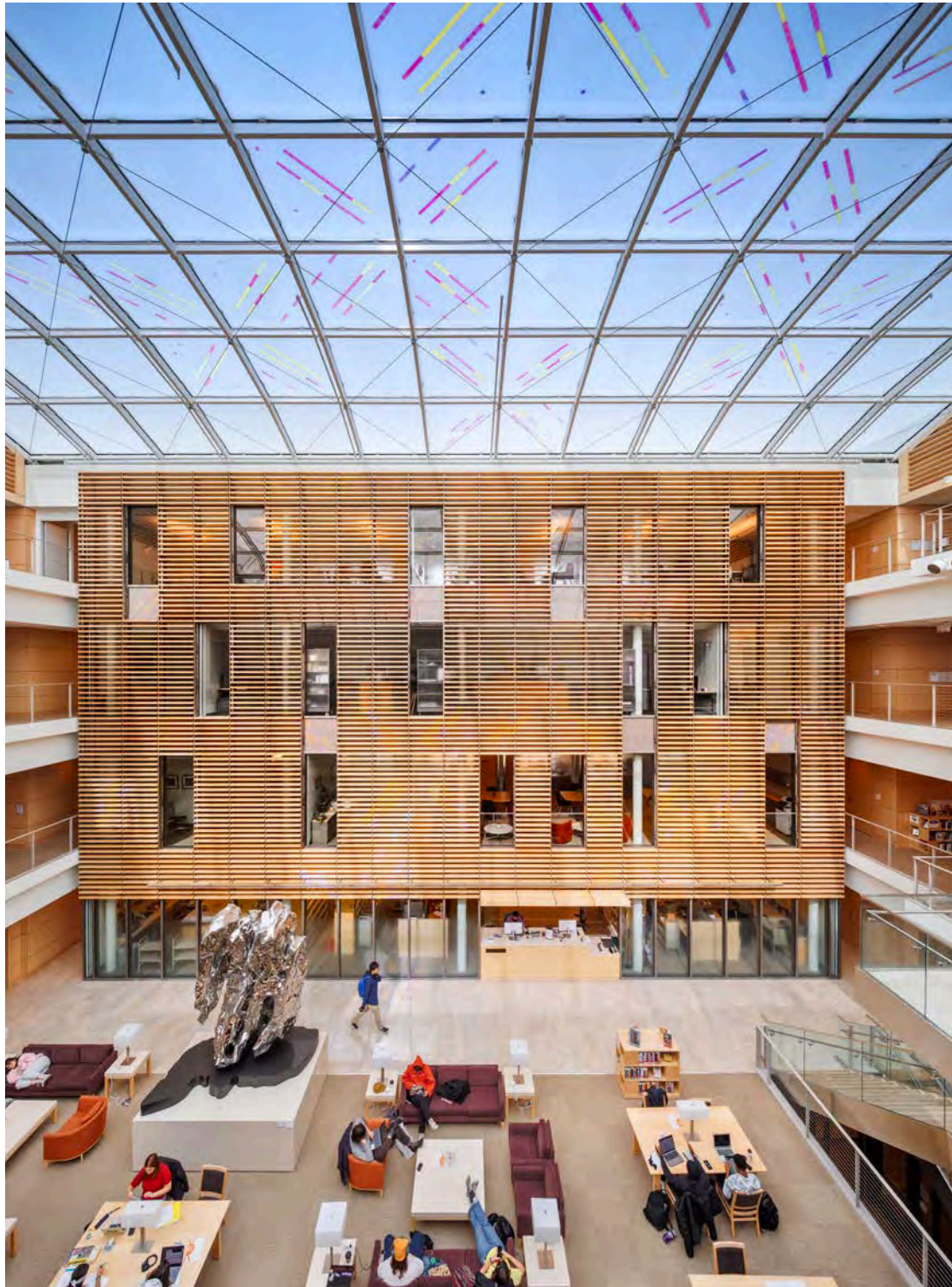


EACH SESSION WILL COVER:

- Preconstruction Design Support / Designer Assist / Design Development.
- Engineering and detailing.
- Product and system selection to drive added value.
- Specification options and opportunities.
- Sustainability.
- Fabrication and procurement.
- Project management and site installation.
- Facilities management/maintenance post-completion.
- Project Typology :
 - Facades
 - Roofs
 - Atriums
 - Freeform
 - ETFE systems
 - Canopies
 - Interiors

Each session lasts approximately 1 hour, and Novum Structures is delighted to provide lunch for all participants.

Please don't hesitate to reach out to our CPD team for more information or to book your free session: Email: CPD@novumstructures.co.uk





Europe

Novum Structures UK Ltd.

Corporate Headquarters
14 Hopper Way
Diss, Norfolk IP22 4GT
T +44 1379.640040

Camberley

Arena Business Centre
Riverside Way Watchmoor Park
Camberley, GU15 3YLT
+44 1379.640040

Novum Structures GmbH

Schleehofstrasse 12
97209 Veitshoechheim Germany
T +49 931.30476.0

Membrane Fabrication Facility

Novum Membranes GmbH
Edersleben, Germany
T +49 3464.58988.0

Novum Structures A.S

Gebze VI (IMES)
Kucuk Sanayi Sitesi Cerkesli
OSB Mahallesi 17. Cadde, No. 13
Dilovasi, Kocaeli, Turkey
T +90 262.502.1633

Steel Fabrication Facility

Dilovasi, Turkey
T +90 262.502.1633

E info@novumstructures.co.uk

Novum Structures LLC

Corporate Headquarters

W126 N8585 Westbrook Crossing
Menomonee Falls, WI 53051
T +1 262.255.5561

Steel Fabrication Facility

Menomonee Falls, WI
T +1 262.255.5561

California

32950 Alvarado-Niles Road
Suite 510
Union City, CA 94587
T +1 510-277-2621

Florida

1962 Main Street
Suite 400
Sarasota, FL 34236
T + 1 941-926-6493

Texas

2020 W Northwest Highway
Suite 102
Grapevine, TX 76051
T +1 469-258-0008

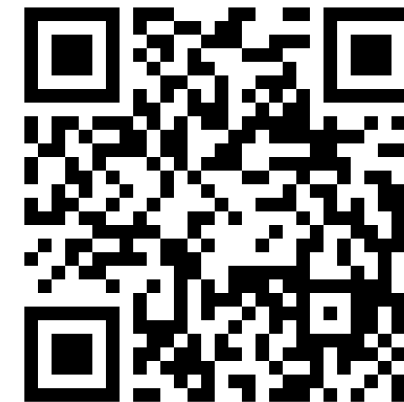
Novum Structures Canada Ltd.

1 Eva Rd, Suite 205
Toronto, ON M9C 4Z5
T +1 416.906.4685

E info@novumstructures.com

No Concept Is Too Small

We're here to help you bring your dream ideas to life, no matter how out of reach they might seem.
Let's make it happen.





NOVUM
