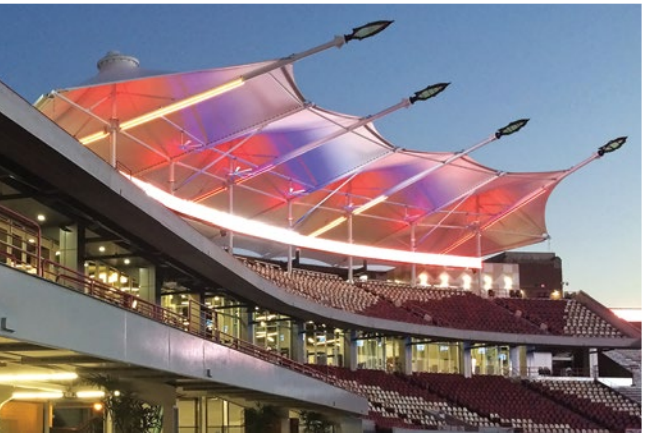
PFEIFER
FabriTec



THE SINGLE SOURCE SOLUTION FOR LIGHTWEIGHT STRUCTURES

FabriTec Structures is an award-winning lightweight structures contractor specializing in the design and construction of complex cable and custom tensile membrane structures, and building envelopes.

FabriTec Structures builds tensile membrane structures that range vastly in scope and service from massive stadiums and amphitheaters to building entryways and covered walkways. We design and develop our fabric structures from an assortment of highly engineered membrane materials including ETFE foil, PTFE, and PVC fabrics. Our support structures are forged from cold-formed carbon steel and include specially designed cables and fittings – all manufactured in-house.

FabriTec is equally adept at and has a long history of, developing tensile structure projects in both design-build and design-assist roles. We've been fortunate to work with, and learn from, the best architects, developers, and contractors in the construction industry.

Together with the PFEIFER group of companies, FabriTec Structures is part of the only vertically integrated lightweight structure specialist in the world. FabriTec Structures, PFEIFER, and Covertex have tremendous global reach, extensive human capital, and immense scale unrivaled in the lightweight structure industry. Our combined structural and manufacturing expertise in tensile membrane structures, tension fabric buildings, cable structures, retractable/moveable structures, lifting products, and building envelopes are unmatched. Our vertical integration spans the scope of the lightweight structure industry from design, engineering, steel fabrication, membrane and cable manufacturing, to project and construction management, and installation.

20+
FIFA Stadiums

150+
Tensioned Roof Structures

300+
Cable Suspended Bridges

800+
Cable Supported Structures

Moses Mabhida Stadium

Location: **Durban, South Africa**
Material Type: **PTFE**
Project Size: **505,000 sq ft**
Owner: **Ethekwini Municipality, Durban**
Architect: **GMP Architekten – von Gerkan, Marg und Partner**
Engineer: **Schlaich Bergermann und Partner, Stuttgart**
General Contractor: **WBHO/Group 5 Joint Venture**
Completion Date: **2009**

The imposing stadium body of Moses Mabhida Stadium is covered with an unconventional roof consisting of a steel arch, which spans the pitch and is stabilized by the cable structure, combined with a membrane roof.

PFEIFER´s involvement was the detailed design, material procurement and erection of the entire roof structure.

The combination of a steel cable structure and a lightweight cable net is quite unique for a wide span roof structure and was a challenging project, for both the planners and engineers as well as our installation team.

This project rightly deserves to be called one of the worlds most sophisticated steel and cable structures.

BC Place Stadium

Location: **Vancouver, British Columbia, Canada**
Material Type: **PTFE**
Project Size: **378,960 sq ft (35,205 sq m)**
Owner: **BC Pavilion Corp (PAVCO)**
Architect: **Stantec**
Engineer: **Geiger Engineering**
General Contractor: **PCL Constructors Westcoast, Inc**
Completion Date: **2011**

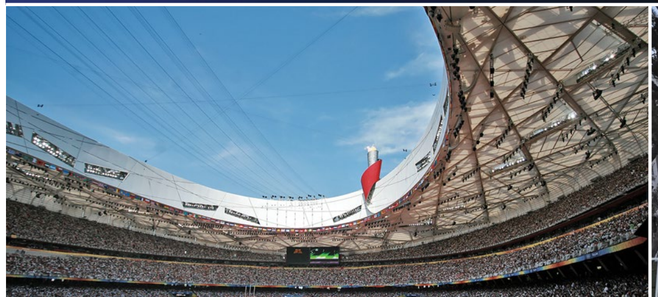
FabriTec Structures completed the installation of 36 outer and 36 inner fixed PTFE fabric panels as part of the integrated roof system at BC Place British Columbia, Vancouver, Canada. The stadium reopened to the Canadian Football League (CFL) fans in the late fall of 2011 where the home team, the BC Lions, took on the Edmonton Eskimos in the season's opener.

The purpose of BC Place's roof replacement – part of a 17-month revitalization project for the stadium – was to replace its previously air-supported dome roof with a modern retractable roof to reveal more than 25,000 square feet of blue sky. The retractable roof has turned BC Place into a year-round, open-air facility and serves as an architectural signature for the Canadian province of British Columbia.

Beijing National Stadium (The Bird's Nest)

Location: **Beijing, China**
Material Type: **Single layer ETFE**
Project Size: **392,885 sq ft (36,500 sq m)**
Architect: **Herzog & de Meuron, Basel**
Completion Date: **2007**

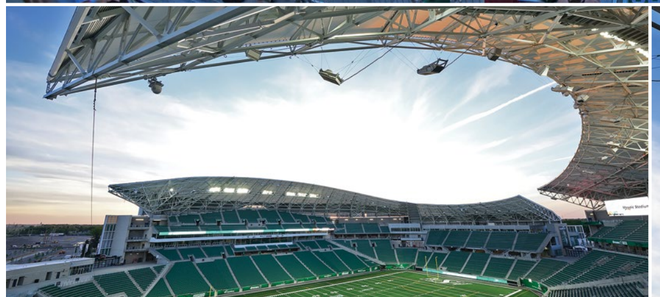
On August 8, 2008, the National Stadium, also nicknamed "The Bird's Nest," because of the shape of its structure, hosted the opening ceremonies for the Beijing Olympics. There is approximately 50,000 sf of ETFE filmed used in the construction of this complex cable and tension structure. The product that was ordered is a high-performance fluorosis "Fluon® ETFE film" (trade name "AFLEX®" in Japan). Given its superior properties, such as heat, chemical and weather resistance; superior insulation values; anti-adhesion; excellent up lighting characteristics; and transparency, the film has been used since its launch in 1975 in a wide range of fields, including electronics, aviation/space, photovoltaic cells, sound insulation bags and greenhouses. In recent years, the Fluon® ETFE film has been increasingly used especially in Europe as a building material. ETFE film has several unique features that make it an ideal building material in the construction of stadiums, amphitheaters, and other event centers. ETFE film's transparency allows for high light transmittance; it is light weight, flexible, durable, and can be colored or even printed to help control solar heat gain.



Mosaic Stadium

Location: **Regina, Saskatchewan, Canada**
Material Type: **PTFE**
Project Size: **130,855 sq ft (12,155 sq m)**
Owner: **City of Regina**
Architect: **B+H Architects**
Engineer: **Walter P. Moore**
General Contractor: **PCL Construction Management Inc**
Completion Date: **2016**

FabriTec was contracted for design and construction of a fixed PTFE tension fabric structure roof to cover grandstand seating at the new Mosaic Stadium, a 33,000 capacity multi-purpose facility, which is the first phase of the Regina Revitalization Initiative. The new stadium is expandable to 40,000 to accommodate large events such as the Canadian Football League Grey Cup championship game.



Green Point Stadium

Location: **Cape Town, South Africa**
Owner: **City of Cape Town**
Architect: **GMP Architekten – von Gerkan, Marg und Partner**
Engineer: **Schlaich Bergermann und Partner, Stuttgart**
General Contractor: **Murray Roberts**
Completion Date: **2009**

Construction of a new showcase stadium in Cape Town was prompted by FIFA's decision to grant 2010 World Cup to South Africa, first-ever host from this continent. But as the city didn't need a venue of that size, it had numerous opponents from the very start.

German architects Von Gerkan, Marg und Partner were assigned to design it with the biggest challenge being to fit a 70,000-capacity stadium in the selected location. On one hand, Green Point district is a residential district without high-rise architecture, one the other there's see and Table Mountain in the background, depending on point of view. To make the stadium merge with its surroundings rather than spoil the unique landscape, the simple and elegant form was selected, with facades covered by a membrane.

London Olympic Stadium

Location: **London, United Kingdom**
Material Type: **LDPE**
Project Size: **206,880 sq ft (19,220 sq m)**
Owner: **LOGOC**
Architect: **Populous**
Engineer: **Buro Happold**
General Contractor: **DOW Chemical Corp**
Completion Date: **2012**

FabriTec Structures was a key player in the design detailing and final engineering of the banner wrap.

The team also furnished the component hardware, steel frames, brackets, and cables and installed the banners on an accelerated schedule. The wrap encircled an area of over 200,010 square feet and included 306 panels; each twisted 90 degrees from top to bottom in the form of a helix, and each spanning 8 ½ feet wide by 80 feet in height. The panels were white from the outside (exterior lighting at night changed their colors) but viewed from the interior, they were colored with all colors of the spectrum arranged to match the color scheme in the stadium. FabriTec worked on the project as part of a team that included the Dow Chemical Company, the Cooley Group, Rainier Industries and Spartech.

After the conclusion of the Olympic games, Pfeifer FabriTec completed a series of renovations to transform London Stadium into a multi-purpose venue for both Westham United Football Club and British Athletics. A key element was to strengthen the steel structure to provide support for the new tensile roof that covers the stadium's 60,000 capacity seating areas. With a span of 80 meters, it is the world's largest cantilevered roof delivered in this technology.

Silesian Stadium – Stadion Slaski

Location: **Chorzów, Poland**
Material Type: **Polycarbonate**
Project Size: **484,380 sq ft (45,000 sq m)**
Owner: **Wojewodztwo Slaskie, Katowice, Voivodship of Silesia**
Architect: **GMP Architekten – von Gerkan, Marg und Partner**
Engineer: **SBP GmbH Schlaich Bergermann & Partner, Stuttgart**
General Contractor: **PFEIFER Group**
Completion Date: **2016**

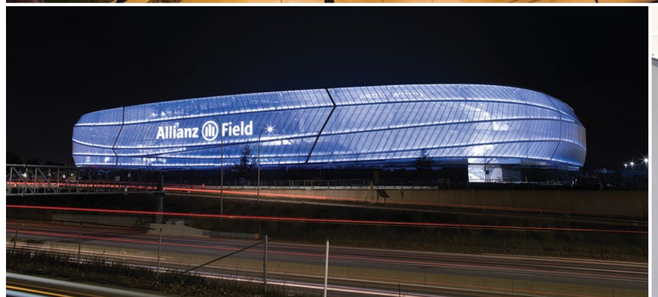
The 45000 sq m roof contains two compression rings, one tension ring, and radial cable girders. PFEIFER supplied 600 tons of steel structure, cables, and connections, 45,000 sq m of polycarbonate consisting of 360 sheets and a monitoring system for maintenance reasons.

Allianz Field

Location: **Saint Paul, Minnesota**
Material Type: **Translucent PTFE**
Project Size: **93,540 sq ft (8,690 sq m)**
Owner: **Minnesota United FC**
Architect: **Populous**
Engineer: **Walter P. Moore**
General Contractor: **Mortenson Construction**
Completion Date: **2019**

Allianz Field is the 19,400 seat capacity soccer stadium built in Saint Paul, Minnesota, for Minnesota United FC, the city's Major League Soccer club. The $250 million stadium was designed by the renowned sports architecture firm, Populous, along with the engineering firm Walter P Moore. FabriTec's scope of work on the stadium involved the fabrication and installation of the 93,540 square foot tensile membrane façade.

The membrane wrapping around the stadium is a uniquely developed PTFE membrane material that reflects sunlight and appears silver during the daylight yet appears translucent at night. The steel support structure behind the building envelope includes 1,700 embedded computer-controlled LED lights capable of displaying dynamic light shows on the membrane façade.



Toyota Stadium

Location: **Frisco, Texas**
Material Type: **Sheerfill II PTFE**
Project Size: **24,750 sq ft (2,299 sq m)**
Owner: **Frisco Soccer LP**
Architect: **HKS**
General Contractor: **Manhattan Construction**
Completion Date: **2018**

FabriTec Structures in association with Manhattan Construction, completed construction of several tensile membrane structures at Toyota Stadium in Frisco, Texas. The tensile membrane structures built for the project include a cantilevered grandstand structure covering the south end of the stadium, and two new canopy fabric structures on the south end of the stadium.

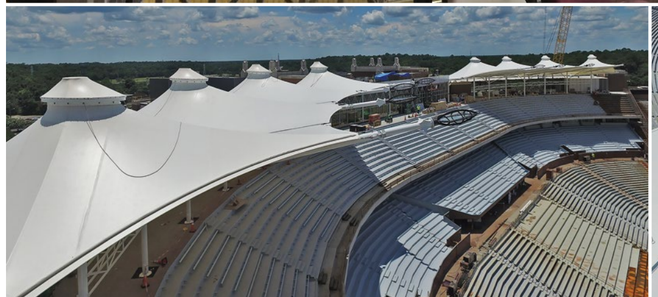
The 433-foot-long by 80-foot wide cantilevered grandstand tensile membrane structure at the south end of Toyota Stadium is designed to cover nearly 3,000 premium seats. The extensive grandstand fabric structure covers an area of approximately 24,750 square feet.
The two canopy structures positioned in the southeast and southwest corners of the stadium, adjacent to the grandstand, cover additional premium seating areas. A uniquely contoured 273-foot-wide long by 34-foot wide mast supported tensile membrane structure is positioned atop the National Soccer Hall of Fame. Each of the tensile membrane structures consists of engineered steel support structures covered with Sheerfill II PTFE membranes.

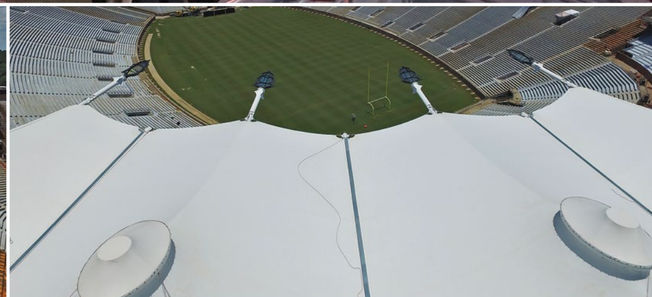
Florida State University Doak Campbell Stadium

Location: **Tallahassee, Florida**
Material Type: **PTFE**
Project Size: **24,930 sq ft (2,315 sq m)**
Owner: **Florida State University**
Architect: **EMI Architects**
General Contractor: **Childers Construction**
Completion Date: **2016**

FabriTec was contracted to design, engineer, fabricate, supply and install two identical tensile membrane canopies supported by steel and cables in accordance with the University's plans to build a premium club seating section at the south end of Doak Campbell Stadium. The tension structures are PTFE Chukoh Skytop 800 architectural membrane and cantilever out over the stadium seats from columns located on a new club level deck. The new deck area adds 6,000 premium seats and hosted services. The total fabric plan area covers 24,930 sq ft.

Renovations to the Seminoles south end zone were completed in time for the home opener in 2016.





Hartsfield–Jackson Atlanta International Airport

Location: **Atlanta, Georgia**
Material Type: **ETFE Cushions**
Owner: **City of Atlanta**
Architect: **HOK, Stanley Love-Stanley, & Chasm Architecture**
General Contractor: **New South Construction, McCarthy Building Companies, & Synergy Development Partners**
Completion Date: **2019**

FabriTec built a pair of massive ETFE canopies for the ATLNext Central Passenger Terminal Complex project at Hartsfield-Jackson Atlanta International Airport. FabriTec's scope of the project consists of the fabrication and installation of 345,500 square feet of ETFE cushions on the two massive 874-foot long canopy structures covering the arrivals and departures area of the airport. With an enormous span, the canopies cover eight lanes of traffic along with bus lanes and stations. The pressurized double-layered ETFE cushions are mounted on framework created with 3,500 tons of steel. The canopies are embedded with thousands of computer-controlled LED lights capable of projecting a dynamic light show on the ETFE cushions.

The ATLNext Central Passenger Terminal Complex project is part of a $7.5 billion Atlanta airport renovation program scheduled for completion by 2030.

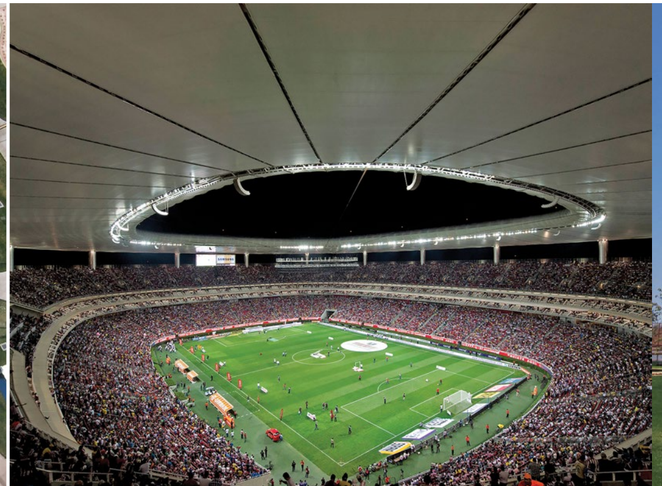
Guangzhou South Railway Station

Location: **Guangzhou, China**
Material Type: **ETFE Cushions & Single Layer ETFE**
Project Size: **213,345 sq ft (19,820 sq m) Total Envelope, 163,830 sq ft (15,220 sq m) ETFE Cushions, 49,515 sq ft (4,600 sq m) Single Layer ETFE**
Owner: **Chinese Ministry of Railways**
Architect: **TP Farrells LTD**
Engineer: **Schlaich Bergermann**
Completion Date: **2010**

Guangzhou South was built as one of four new hubs serving China's rapidly growing high-speed rail network. To accommodate heavy patronage — anticipated to reach 300,000 passengers daily by 2030 — a clear vertical organization strategy was adopted. As mentioned by TP Farrells, at the uppermost level, a linear pedestrian concourse serves as a central unifying element, helping passengers orient themselves within the massive station. In an emphatic display of structural tectonics, the station's expansive interior concourse is bathed in daylight courtesy of a wide-spanning skylight, flanked on either side by a vaulted roof, equally monumental in scale. The convex structure is broken up by openings that allow soft natural light to filter into the waiting areas and railway platforms.

Arvest Ballpark (top), Darling Tennis Center (bottom left), Estadio Chivas (bottom right)

Cynthia Woods Mitchell Pavilion (top), Central Park at Playa Vista Bandshell (bottom left), Capital City Amphitheater (bottom right)

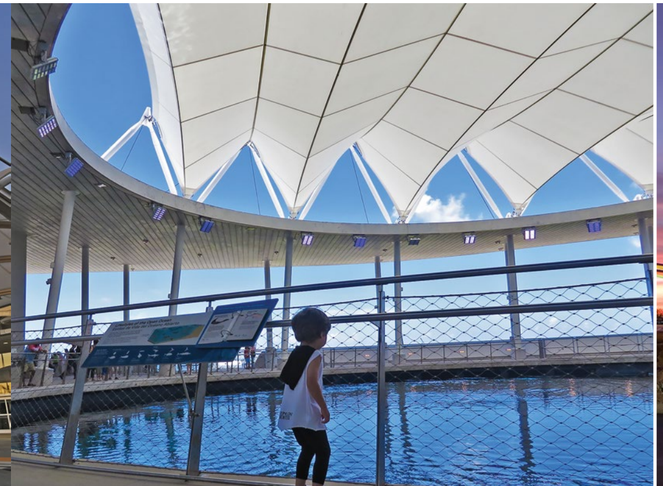


MGM CityCenter People Mover Stations (top left), Rosa Parks Transit Center (top right), El Monte Bus Station (bottom left), Vallejo Transit Center (bottom right)

South San Francisco Ferry (top left), Stockton Waterfront Marina (top right), RTC Sunset Maintenance Facility (bottom left), Transbay Temporary Terminal (bottom right)

San Diego International Airport (top), Austin-Bergstrom International Airport South Terminal (bottom left), Tulsa International Airport (bottom right)

Urban Center Guadalajara (top), Frost Museum of Science (bottom left), Gila River Lone Butte Casino (bottom right)



Abdali Mall (top), The Shops at Summerlin (bottom left), Premium Outlets Las Vegas (bottom right), ASU SkySong Innovation Center (opposite page)

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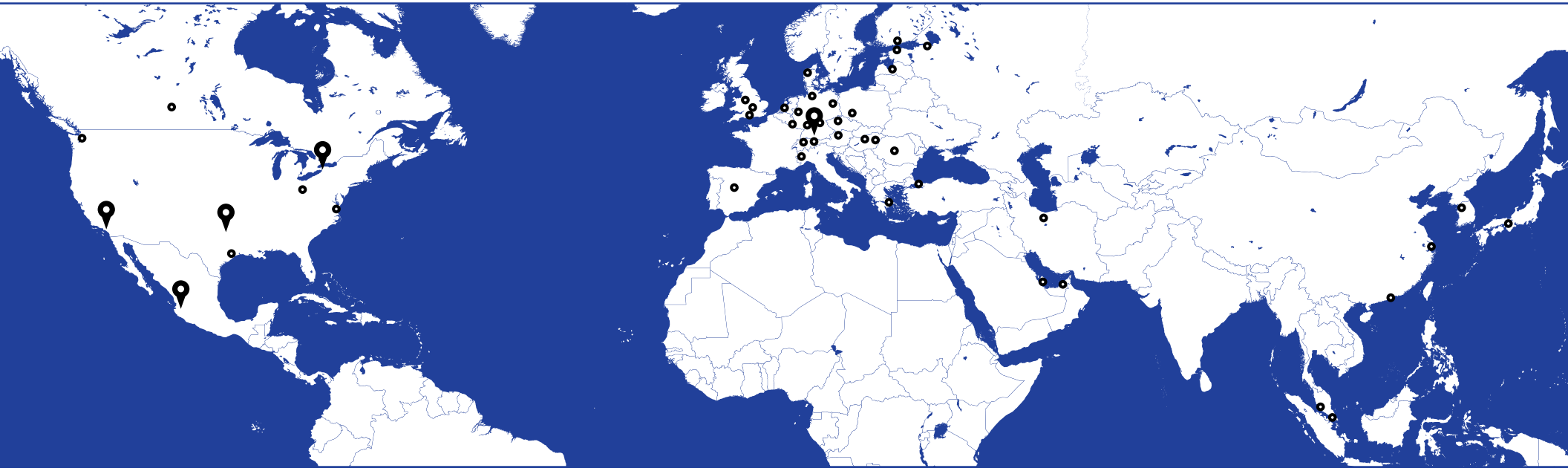

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