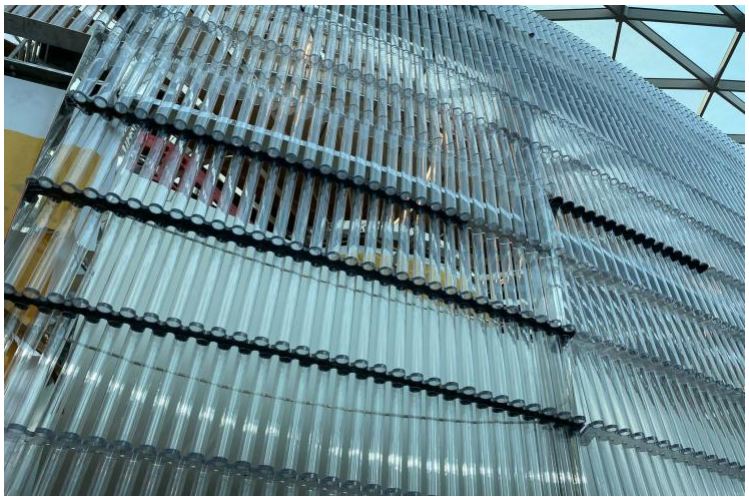






Louis Vuitton Boutique – North Node, Doha Airport

Location : Doha Airport

Architect : Esa Engineering

Client : Louis Vuitton

Package : Stainless Steel Structure and Polycarbonate Tube Cladding of the Envelope

Scope : Design of the Structure and Envelope Cladding, Technical Assistance for Execution

Date : 2022 - 2023

T/E/S/S supported Louis Vuitton in the geometric studies and design of the North Node boutique at Doha Airport. Based on the geometry defined between Louis Vuitton and the airport, our mission involved optimizing this geometry to meet project requirements, designing and optimizing the supporting structure, adapting the construction system developed for the Louis Vuitton Doha South Node to the specific constraints of the North Node, and assisting Louis Vuitton in integrating material choices and assessing design modifications throughout the project.

The boutique's envelope maintains the aesthetic of the South Node, ensuring architectural consistency while meeting the demands of a tight schedule, with a total project duration of just over seven months.

The structure follows the curved geometry of the envelope. Designed to be highly slender, it minimizes the number of support points on the main structure. It consists of 20-meter-long curved columns, anchored at the base to the primary structure and at the top to a cantilevered edge beam. The zenithal oculus defines the structure, while crossbeams connect the curved columns to ensure structural integrity. Bolted connections were designed to be as invisible as possible. Transportability was a key consideration, with the structure designed to be airfreight-compatible.

The envelope consists of over 20,000 transparent polycarbonate tubes, supported by horizontal polycarbonate templates, each featuring a unique geometry. The assembly was prefabricated in a workshop before being installed on-site using an adjustable system to ensure the precise positioning of each tube. The envelope is completed by curved glass display windows and mirror-polished stainless steel lintels.

The structural design was intrinsically linked to the nature and pattern of the cladding. Several options were explored, each leading to fundamentally different structural concepts. A key challenge was to evaluate these options and develop the chosen solution within a very short timeframe: seven months from project launch to delivery, including only two months for technical design and tender documentation.

The Louis Vuitton North Node boutique at Doha Airport was inaugurated during the 2022 FIFA World Cup in Qatar. The project spans two interior levels, with a boutique on the ground floor and a café on the mezzanine level (R+1). This double-height volume is enclosed by an ellipsoid-shaped envelope, composed of a stainless steel structure and a porous cladding of cylindrical polycarbonate tubes, covering an area of approximately 1,000 m². The mirror-polished stainless steel structure blends behind the translucent cladding, creating a luminous and elegantly designed space.

Several challenges were met throughout this project. The high expectations for finishing quality and detailing required meticulous precision in both structural and cladding design. Addressing seismic constraints on a lightweight, minimally braced structure was a major technical challenge. The interaction between the structure and cladding required tight tolerance control to ensure seamless integration of all components.

This project highlights T/E/S/S's expertise in geometric optimization, structural design, and the development of innovative technical solutions for complex and iconic architectural projects.