AZ AWARDS 2017

CATEGORY

DESIGN: LIGHTING INSTALLATIONS

ENTRY

#2114 COMBINING ART ARCHITECTURE AND FUNCTIONALITY

DESCRIPTION

For the Centre hospitalier de l'Université de Montréal (CHUM), integrating the massive program of a 3,000,000-SF teaching hospital into the dense urban fabric of downtown Montreal led to the challenge of connecting the main hospital with its supporting logistics tower, despite Montreal's longstanding tradition of saying 'no' to these types of above-ground connectors. The challenge quickly became one that goes beyond the need for a critical connection between the surgery department, the laboratories and the blood bank, but the creation of an art piece that could overcome the many municipal hurdles.

The Passerelle is designed as a floating lantern over Sanguinet street, marking the entrance to the hospital. The perforations filtering the daylight create an interesting experience from the inside during the day for the staff passing through. At night, it is illuminated from the inside, creating a different experience for passersby on the street below. This type of intervention brings back architecture as a human experience, despite the scale of the project. It puts forward the phenomenological qualities that an integrated architecture can present.

Copper has a long tradition in the historic architecture of Montreal – la Ville au cent clochers, or the City of 100 steeples – as testified today by its many cathedrals, basilicas and public buildings. For the hospital, this traditional material is reinterpreted as a contemporary form, a noble material to signal key moments within the design of the 1-M-SF of curtain wall, in particular to mark a public entry or major point of arrival. During the design process, the idea was to push the envelope quality using parametric design and 3-D-printed models to study options. The illuminated copper shroud's perforation pattern was derived from an iterative prototyping process of parametric design to express a symbolic arched gateway that maximizes openness at its base, while expressing the notion of centrality that City planners wished to underscore, responding to the unique fact that this object floats above the public way, a very rare instance in Montreal.

An art piece in itself, the design of the Passerelle acts as the new benchmark for the City's urban design committee to justify Montreal's longstanding tradition of saying 'no' to requests for pedestrian bridges over the public way. This bridge may be a game-changer for Montreal.

PROJECT SPECS

To create a sense of architectural lightness, the primary structural beams are concealed above, with the floor, frame and façades all suspended with the lightest of structures. The entire bridge structure is then wrapped in a series of sculpturally formed stainless steel ribs, clad with curved perforated copper panels that measure 1500mm by 1200mm each.

The 194,000 perforations in the 3mm-thick curved copper panels create a cloud of luminous rings that reflect the sun's light during the day, but at night, filter the light emanating from within the structure to create a dramatic floating arch. In addition to creating this dynamic pattern, the panels serve as the lateral bracing resulting in a complete integration of the components.

LEDs illuminate the passerelle both inside and outside. The colour temperature was chosen to match the colour temperatures in the two adjacent hospital buildings. The lighting is DMX controlled so each luminaire can be dimmed and controlled individually, allowing a permanent control. It has the ability to be programmed following multiple patterns to create event lighting. In order to meet ASHRAE + LEED, the luminaires are maximum 5W/ft. All luminaires within the structure are easily accessible and maintained via the custom catwalk assembly.

The interior is illuminated from within the bridge by recessing two rows of seamless linear LED's within the ceiling of the bridge. These lights are on a daylighting sensor to automatically dim the lights to further minimize energy usage during the day. For the exterior shell - linear wall washers with specific tight beam optics graze the upper portion and the under carriage of the exterior copper shrouding of the bridge. The luminaires are adjusted to minimize a hotspot effect and maximize the way the light catches on the perforations.