

A COOL HAVEN FOR ART



LOUVRE ABU DHABI UAE

Located in the proposed new Cultural District of Saadiyat Island, off the coast of Abu Dhabi, the new Louvre will provide inspiring, high-quality exhibition spaces for stunning works of art from around the world, many on loan from the Louvre in Paris. BuroHappold Engineering is providing full core and specialist engineering services on this venture which is one of the most innovative and challenging museum projects to be built in recent times.

The Louvre buildings appear to float in the shallow inshore waters of the island's coastline. In fact, there will be two basements housing support facilities that lie beneath the waterline, with the galleries and exhibition halls above water. The museum complex takes its inspiration from the layout of a traditional Arabian souk. Standing on piles founded in bedrock 20m below, its imposing form is topped by a 185m diameter shade canopy supported on four perimeter pillars. The canopy design incorporates multi-layered and perforated external cladding allowing

sunlight to rain into the space below, with ambient temperatures in which visitors can enjoy the public space and external artwork exhibitions.

The iconic 'desert Louvre' has to be designed to withstand Abu Dhabi's extreme climate, which means aggressive airborne dust and sand, high salinity, humidity and the occasional sandstorm. Visitor comfort is also vital, but difficult to achieve in 40° heat. Our building services engineers and specialists have integrated low-profile but effective passive energy systems into the design to naturally enhance the cooling of the buildings and optimise water use. Using passive design techniques our team has also improved sheltered outside conditions and ensured that visitors arriving at the museum and moving under the dome roof, will experience the beginning of the gradual transition from an uncontrolled outside to a controlled inside environment.

CLIENT

The Tourist Development and Investment Company of Abu Dhabi (TDIC)

ARCHITECT

Ateliers Jean Nouvel (AJN)

PROJECT VALUE

€ 450 million

DURATION

2007 - 2017 (Currently under construction)

SERVICES PROVIDED BY BUROHAPPOLD

Structural engineering, mechanical and electrical engineering, infrastructure engineering, marine and coastal engineering, ground engineering, environmental engineering, security, ICT & communications, acoustics, fire engineering, project design management, LEED assessment, facade engineering, SMART solutions

BUROHAPPOLD ENGINEERING

The building has been designed under UAE sustainable guidelines in the spirit of the LEED green building rating system.

To reflect its maritime location, our experts worked in tandem with the AJN to evaluate various ways to bring the element of water into the building. The team finally settled on the inclusion of tidal pools that reflect the light that filters through the glazed roof in dappled patterns on the interior walls, creating gentle movement that correlates and responds to the museum's unique natural setting. Our water team provided specialist advice on the construction of these pools, using empirical, numerical and physical scale modelling to ensure the tidal flow and water quality augmented the aesthetics of the building without risk of flood or damage.

With VIPs and visitors arriving by boat, mooring facilities had to seamlessly integrate an impression of drifting into the gallery on the sea with vital safety and security measures. Our team responded with intelligent design solutions that included the dual use of offshore breakwaters to attenuate the power of the waves, taking in to account the potential impact of future climate change, and serve

as a vessel security barrier. By collaborating closely with the wider design team, we were able to incorporate these large structures into the architectural concept so they extend out from the building into the sea as if to welcome new arrivals.

It is features such as these, realised through the strategic yet sympathetic design so typical of BuroHappold, that give the stunning new Louvre Museum the appearance of a building effortlessly at one with its surroundings, anchoring in the minds of visitors for years to come.

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