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WORLD CLASS

*Lighting by David Atkinson
Lighting Design for the UAE
Pavilion, Expo 2015, page 76*





LIGHT + TECH

WORLD CLASS

WORDS BY
JILL ENTWISTLE

Jill Entwistle looks at the lighting scheme for two of the pavilions at the 2015 World Expo, both by UK lighting designers

Above The UAE Pavilion, lighting design by David Atkinson Lighting Design, at Expo 2015 in Milan

UAE PAVILION

Lighting design:
David Atkinson Lighting Design (DALD)

Foster's structure, designed to evoke sweeping sand dunes, is a €60m statement and a half. From a lighting point of view it runs the full gamut from landscape and architectural through to theatrical. It is right up David Atkinson's souk in lighting terms, as the man who has designed for Sky at The O2, the Commonwealth Park Gibraltar and the British Music Experience among many exhibition, immersive and architectural schemes.

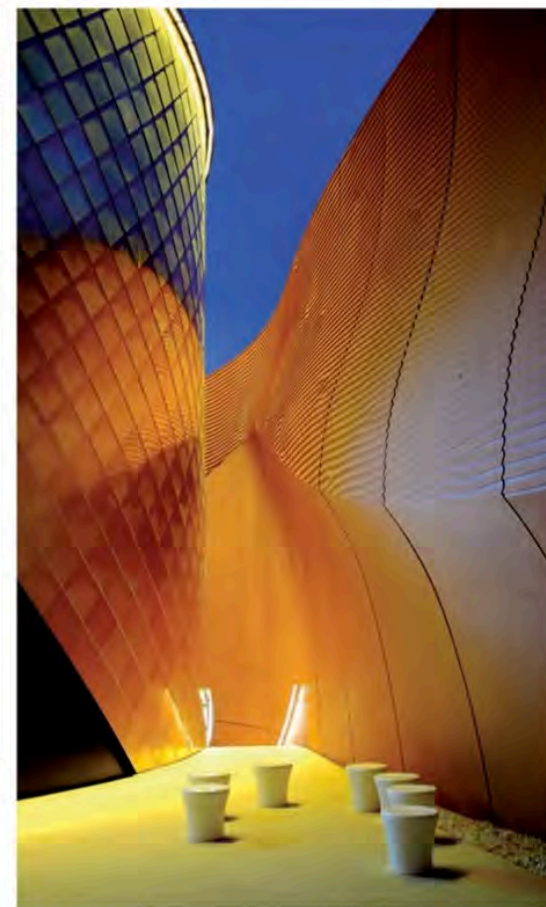
The pavilion occupies a 4,386 sq m site close to the centre of Expo. Visitors are drawn into the mouth of a canyon-like ramp space (shades of Indiana Jones and the Last Crusade), defined by two undulating 12m-high walls made from GRC (glass-fibre reinforced concrete). These continue through the site in a series of parallel waves to unify the various visitor spaces.

The drama of the walls is accentuated by the uplighting. Atkinson carried out extensive lighting trials with samples of the GRC wall material before arriving at the solution, which involves adjustable buried fixtures with 2700K LEDs, and fitted with light straw filters and spreader lenses. 'These subtly create soft, warm brushstrokes of light across the undulating surface, complementing the wall pigment,' says Atkinson.

The visitor then walks past dynamic interactive displays, including tiny holograms. These are housed in cubes supported by glass fins with a dot manifestation, which is edge illuminated. 'This creates an interesting ethereal contrast between the spine of the ramp and the walls,' explains Atkinson.

As the path continues, small custom-designed buried 2700K LED fixtures, fitted with a diffusion film, uplight the walls at the pinch points, 'effectively creating an interesting perspective vista at night through the canyon-like space'.

The path rises to a large drum structure that houses a state-of-the-art auditorium and interactive post-show space. 'The external lighting of the drum plays an important part in creating a dramatic focal point to the pavilion,' says Atkinson. In an enlightened, early stage collaboration, extensive lighting trials were carried out in Italy with Foster + Partners to establish what cladding material and light source should be used for the drum. Tecu Gold, a copper-aluminium alloy, was chosen along with a high-output linear LED strip fitted with an amber filter. These strips are positioned at the top of the drum, grazing uniformly down the facade while avoiding any glare for the approaching visitors. In turn the light reflects off the drum and on to the surrounding GRC walls and perimeter



PHOTOGRAPHS: NICK WOOD / BIOFEATURES / FOC MEDIA / CLAY INTERACTIVE

staircase, creating an ambient depth.

Within the drum is an auditorium, with a 360-degree perimeter screen. As the space was not only a cinema, but also an immersive experience, DALD chose to use a combination of automated LED wash lights and spots. The automated lighting fixtures are positioned off a large circular truss, which allows for multiple lighting positions for illumination of the perimeter screens, suspended casement roof and the tiered audience seating block. Perimeter staircases are edge illuminated by custom lengths of LED strip set within an extrusion.

After the screening of the film, the screen itself rises dramatically and visitors enter the post-show area, which features a large holographic experience. Automated lighting is again used here to add to the immersive quality of the space.

Visitors move to the external Oasis area, linking the first-floor level with the ground floor, which features desert flora planting as well as two large palm trees. By night the space is lit by a combination of sources, including the projection of dappled palm leaves and low-level accent spots set behind planting, creating a sense of intimacy.

PROJECT INFO

Client
National Media Council

Architect
Foster + Partners

Collaborating architect
Marco Visconti

Lighting programming
Stewart Parker and Matt Simpson

Lighting management
Lighting Assist

M&E
Foster + Partners

Project management and quantity surveyor
Fraser Randall

Landscape design
WATG

Visitor experience design
Land Design Studio

Interactive design
CLAY Interactive

Media/film production
FQC Media

SUPPLIERS

Atrium
iGuzzini
Lightworks
Lighting Assist
Luce and Light
Martin Professional
Modular
MJ Lighting
Robe
The Light LAB
Tryka
UFO

Influenced by ancient planning principles, the pavilion's interior recalls the narrow pedestrian streets and courtyards of the traditional desert city, and its contemporary reinterpretation in the sustainable Masdar masterplan in Abu Dhabi (also a Foster project).

The first floor level features an exhibition of cultural objects, discreetly lit by small linear fittings (iGuzzini Laser Blades) recessed between dark ceiling slats that are almost invisible off axis, a detail which is used throughout the pavilion. A 3000K LED source was chosen to complement the interior terracotta wall colour.

All the curved staircases throughout the pavilion are illuminated by custom-designed side-emitting diffused LED strips set within the handrail, which when viewed from below appear homogenous.

An exhibition on the ground floor of the main drum celebrates Dubai as host city for the 2020 Expo, and graphics and design details are lit by a variety of RGB and single-colour LED fittings.

'Although the pavilion is large,' says Atkinson, 'the lighting design approach was minimalistic, stretching the light sources to their maximum potential.'

Above Exterior and interior views of the UAE Pavilion at night.