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LD+A

LIGHTING DESIGN and APPLICATION

Learning in Small Bites

Bridge Blazes a New Trail

Toronto Landmark Reborn

Remaking History

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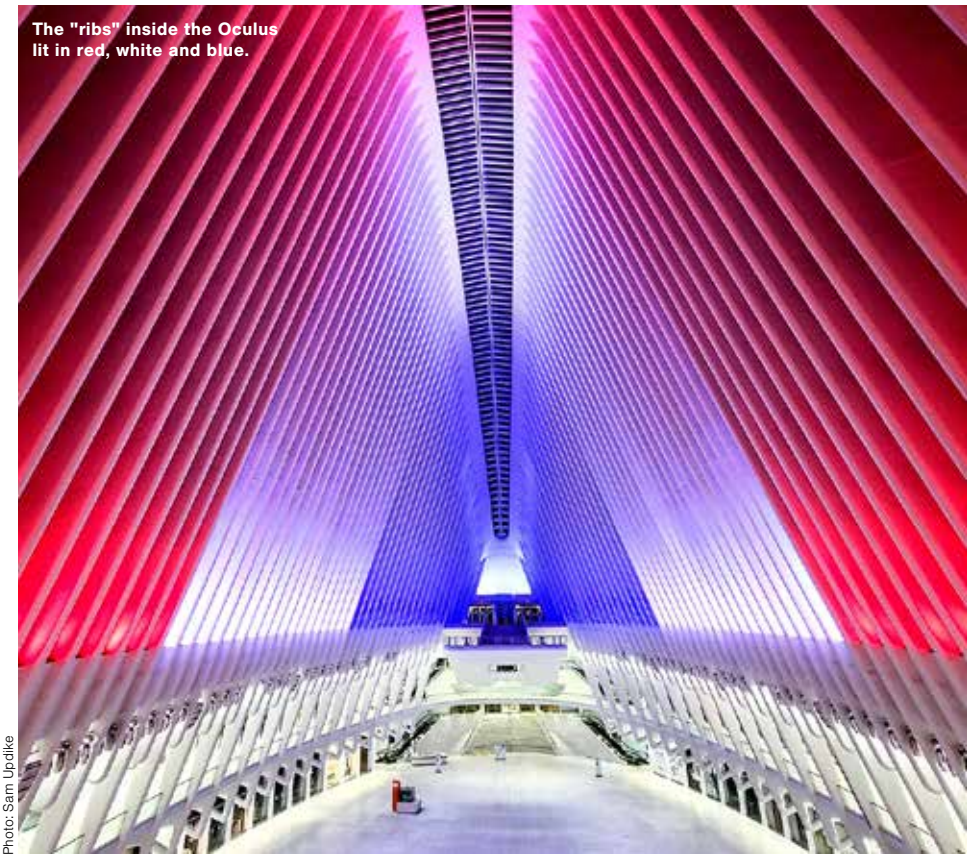
INSIGHTS

Colorful Upgrade • Circadian Study • Warehouse Retrofit



The "ribs" inside the Oculus lit in red, white and blue.

Photo: Sam Updike

Manhattan's Oculus Honors Veterans

Three years after Fisher Marantz Stone earned an IES Illumination Award of Distinction for the interior lighting at the Oculus in Lower Manhattan, the Port Authority of New York/New Jersey has upgraded the fixtures to achieve color-changing effects inside the iconic building.

Designed by Spanish architect Santiago Calatrava, the Oculus serves as a memorial to the victims of the 9/11 terrorist attacks, a retail center and a transit hub. Defined by 166 rib-shaped columns that arch over 300 ft into the air before meeting at the apex, the structure resembles a bird taking flight when seen from the outside. The new lighting system—a collaboration among ETC, FSG and Clarté Lighting—was unveiled on Veterans Day, with a red, white and blue scheme honoring men and women who have served.

The ribs were originally lit with recessed ceramic metal halide fixtures that fit into small housings. When the Port Authority and Constellation Energy decided to redesign the lighting for Veteran's Day based on a plan by FSG's Bernie Erickson and Mathle Leyes, the concept called for color-changing LED fixtures, but they didn't know of any that were up to the task. "The atrium is actually very high in the air and taller than you think," says Erickson. "You can look into the atrium from street level and it doesn't give

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Photo: Sam Updike

New interior illumination is visible from the outside.

you an appreciation for what is beneath there. You need a fixture with a lot of power to put light where you need it."

The challenge of finding an RGBW LED fixture that was powerful enough to light the ribs all the way to their apex, while fitting into the existing housing, was met by Mike Aubrey at Clarté Lighting who developed the PAR38 scale RGBW optical array in a matching retrofit kit and new fixture configuration. "We're grazing the outside of the columns, and lighting them inside and outside through the skylight, with a fixture that is smaller and has a lower profile than the previous metal halide fixtures," says Erickson. ETC and Paradigm controls allow the lights to dim or brighten according to a schedule or sensors, and enable custom looks for holidays.

$6 BILLION

Projected global horticulture lighting market by 2025, up from $2.3 billion in 2020, according to Research and Markets

Photo: Courtesy of National Grid

Upgrades to the Purina facility support its sustainability goals.

Nestlé Sweet On LED

Nestlé Purina's manufacturing facility in Dunkirk, NY, recently received an LED lighting upgrade funded by a $125,000 National Grid energy efficiency incentive. The upgrade is expected to increase productivity, create a sustainable work environment and reduce greenhouse gas emissions by 1,100 tons, which the U.S. Environmental Protection Agency says is equivalent to the annual energy consumption of 114 U.S. homes.

For the upgrade, Purina replaced nearly 1,000 fluorescent lights, which were nearing the end of their lives, with LED lighting equipped with motion-sensor controls that will provide higher-quality light, safer work spaces and reduced maintenance costs for the facility.

PNNL Uncovers Energy Impact of Circadian Design

Findings from a study conducted by Pacific Northwest National Laboratory (PNNL) and published in the journal *Energy & Buildings* show significant increases in indoor light levels and corresponding lighting energy use as the result of meeting current circadian lighting design recommendations.

The DOE-funded study evaluated the potential energy impacts of circadian lighting design recommendations detailed in WELL v2 Q2 2019, UL Design Guideline 24480, and Collaborative for High Performance Schools Core Criteria 3.0. An open office and a classroom were modeled, with the luminaire lumen output, spectral power distribution, surface reflectance distribution and desk orientation varying between the simulations.

The authors found that meeting current IES illuminance recommendations did not satisfy existing equivalent melanopic lux and circadian stimulus values for any of the office and classroom circadian lighting recommendations. In some cases, meeting the circadian metric recommendations required an average illuminance that was more than double the IES recommendations, which may negatively affect lighting quality and increase lighting energy use by 10% to 100%.

However, the authors noted that until circadian lighting design metrics and effective delivery of light stimulus are better understood in realistic settings with recognizable health and well-being benefits, the trade-offs cannot be fully expressed.

100TH

Anniversary to be celebrated this month by H.E. Williams. The company is now run by the third generation of the Williams family, and continues to manufacture products in Carthage, MO, where it was founded by Harold E. Williams one century ago