



Outside the Region: Syska Hennessy Group honored by ACEC for Lotte World Tower, Seoul

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Seoul, S. Korea Although PyeongChang was the site of the recent Olympic games, Seoul is the South Korean city that Syska Hennessy Group associates with winning competitions. The international engineering firm has received a “Grand Award” from the American Council of Engineering Companies (ACEC) for its work on the city’s Lotte World Tower – the fifth tallest building in the world.

The 1,821 ft. tower was completed on April 3rd, 2017. It contains 123 floors, over 3.2 million s/f, and a variety of amenities beyond those typical of mixed-use tall buildings: a public plaza, an eight-story atrium lobby, a luxury seven-star hotel, a shopping mall, healthcare facilities, cultural facilities, offices, residences, and entertainment venues, including an observation deck and a rooftop café.

Syska’s role on the project included mechanical, electrical and plumbing engineering (MEP); information and communication technology; sustainable design; and building management systems. Other project team members included Kohn Pederson Fox Associates, Baum Architects, LERA Consulting Structural Engineers, and Lotte Engineering & Construction.

The objective of Syska’s work was to provide optimal comfort for occupants while minimizing energy and water consumption. To achieve this objective, Syska incorporated many innovative technologies into its MEP design. One of these was a displacement air and radiant floor-heating system for the lobby, which would have been a “black hole” of energy usage if traditional designs had been applied.

Among the other technologies were 100-percent outside-air units with energy recovery wheels to capture energy from spill and exhaust air; variable-frequency drives for most of the HVAC equipment; geothermal, photovoltaics and windspire turbines to provide renewable sources of energy; a supervisory control and data acquisition system to monitor and control power usage, external shading and dimming systems to control interior light levels; and water-saving features.

By using such technologies, Syska was able to achieve results that far exceeded the owner’s goals. For example, LOTTE Corporation had hoped for LEED certification; Lotte World Tower received LEED Gold certification.

The building also performs more than 22% better than ASHRAE Standard 90.1-2007, and meets the City of Seoul’s “New and Renewable” requirement of energy generation that is three percent of the

building's total energy consumption. "Such outcomes are highly unusual for supertall buildings, which are prodigious consumers of energy," notes Cyrus Izzo, co-president of Syska Hennessy.

These outcomes have further benefits, adds Gary Brennen, Syska's other co-president. "By maximizing usable area and minimizing energy usage, the MEP engineering systems address the demand for space in dense urban environments and limit the stress on utilities services."

Situated on the campus of Dubai's Museum of the Future, the 2,691-square-foot "Office of the Future" showcases the potential of 3D printing to transform the way we build, work, and live, and reflects Dubai's goal to become the global hub of 3D printing by 2030. The construction process, which lasted 17 days, entailed the printing of 2D cement modules by the world's largest 3D printer, the shipping of the modules to Dubai, and on-site assembly that took only two days.

Syska's role on the project included MEP engineering design, architectural lighting design, energy/sustainable design consulting, and information communication technology design. Other project team members included PMKConsult (owner's rep), Gensler/Killa Design (architect), and China State Construction Engineering Corporation (construction manager/general contractor).

Syska Hennessy Group is the leading global, full-service MEP, information and communication technology (ICT) and commissioning engineering firm. With more than 500 professionals across 17 offices, the company provides a full range of engineering services for projects of every size and budget. Since 1928, Syska has been designing smarter, safer, and more efficient buildings by integrating essential systems that respond and adapt to a changing world.

ACEC's annual awards program honors the year's most outstanding accomplishments in engineering. The Grand Award is given to sixteen projects of firms across the U.S., which are selected from 150 winners of state-level competitions. On the state-level, Lotte World Tower won the Diamond Award from ACEC New York in the building/technology systems category.

Syska also received a National Recognition Award from ACEC for its role in building "Office of the Future," the world's first 3D-printed commercial office building. This project also won a Diamond Award from ACEC New York in the special projects category.

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