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ARCHITECTS AND engineers in Culver City, California, are turning an aging warehouse complex and industrial printing press into a vibrant, modern work space with two unusual towers that offer opposing takes on what a traditional tower should look like. Designed by Culver City-based Eric Owen Moss Architects, the Waffle and the Cactus Tower are each 55 ft tall, and they complement a remodeled one-story warehouse that provides office space for two businesses.

The two towers are identical in height and volume but drastically different in appearance. The Cactus Tower, which was completed in January 2012, has a bared steel frame and features 28 Mexican fence post cacti suspended 30 ft above the ground as a “flying

STRUCTURES

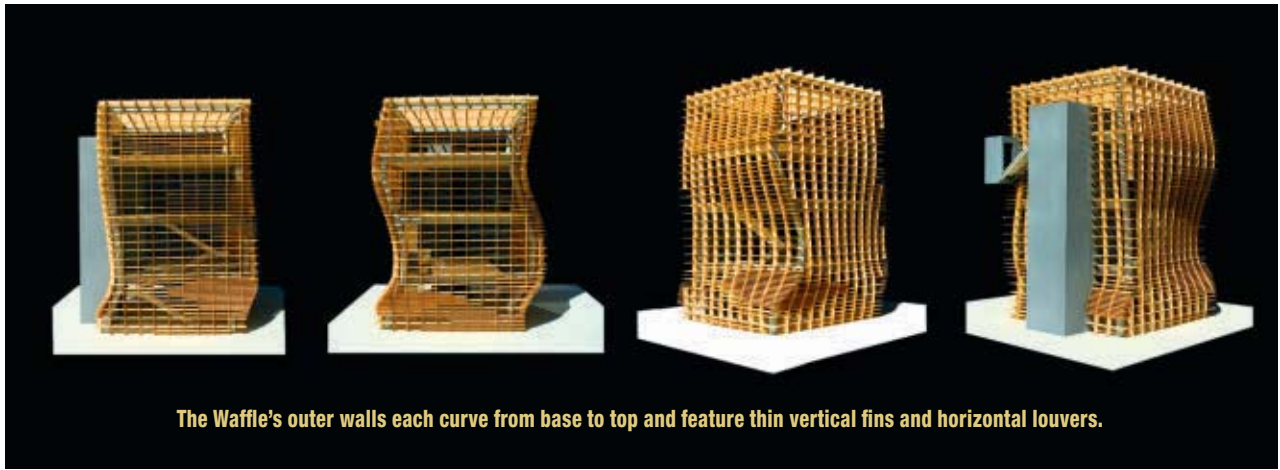
California Towers Bring New Twists to Culver City Skyline

The 55 ft high Cactus Tower is outfitted with 28 Mexican fence post cacti in pots that are part of a space truss that supports the plants' weight.

garden in the sky” to be enjoyed by office workers and nearby residents of the city, which is surrounded mostly by Los Angeles and is home to nearly 40,000 people. The Waffle, which is expected to be completed by the end of this year, will serve as a four-story meeting space and additional focal point for the complex thanks to its unique shape, for its exterior walls curve from base to top and feature thin steel vertical fins and horizontal louvers.

Both towers took more than a decade to plan, and each incorporates innovative engineering approaches devised by Hooman Nastarin, P.E., of Los Angeles-based NAST Enterprises Corp., that evolved over time as the design was finalized. The Cactus Tower's 28 plants sit in steel pots that are also members of a space

ERIC OWEN MOSS ARCHITECTS, ALL THREE



The Waffle's outer walls each curve from base to top and feature thin vertical fins and horizontal louvers.

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truss that supports their own weight, while the Waffle is supported primarily by moment-resisting frames that share the steel columns at each corner of the building. These frames curve and bend along with the exterior walls and at no point are truly vertical.

"It is a concept that I would say is a juxtaposition of type," says Eric Owen Moss, FAIA, the principal and lead designer for his firm, which he founded in 1973. "The truth may be one, or the truth may be the other, or the truth may be the tension between the two. This is really more a conceptual discussion of what is a tower and how to make it."

The owners and clients on the project are Frederick Samitaur-Smith and his wife, Laurie Samitaur-Smith, who together have commissioned numerous projects, many of them designed by Moss's firm, aimed at bringing adventurous new buildings to urban and industrial neighborhoods in the Los Angeles area. The Culver City project is located in one such area, on a lot that was formerly home to a warehouse and an industrial press dating from the

The Cactus Tower and the Waffle act as opposite focal points of a complex that also includes a renovated warehouse from the 1940s that provides office space.

1940s. The Samitaur-Smiths first approached Moss Architects and **NAST Enterprises** in the late 1990s and began crafting a plan to refurbish the warehouse space, repurpose the steel frame of the 55 ft tall press as a hanging garden, and erect a tower that would provide additional meeting space. The architects say they went through years of design studies and early proposals before settling on a final vision.

Renovation of the warehouse was completed in 2011, and the 25,000 sq ft office space is now used by two tenants for media production and design purposes. The L-shaped building straddles the Cactus Tower, which sits just yards away and was completed early last year. The tower inherits its frame from



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the stripped-down press tower, and the architects added a ground-level concrete wall to provide shade for an informal meeting place beneath the canopy of plants. Each row of cactus pots in the

trusses serves as a series of compression struts sitting atop a steel cable that runs from one side of the tower to the other.

While the Cactus Tower was designed with traditional orthogonal sides, the Waffle will have a more complex and demanding design. It will have consistently square dimensions on each of its four floors, but the build-

ing's sides will rotate slightly counterclockwise near the base and clockwise near the roof in what the architects describe as equal and opposite "pushing and pulling" effects. The tower is like "your typical kind of vertical notepad with square pieces of paper, if you take that and twist it a bit," says Dolan Daggett, who as a project director for Eric Owen Moss Architects has overseen the project. "The idea is that anywhere you cut a plan section of the building, you get a perfect square."

In designing the Waffle to have undulating walls and sloping support columns, the engineers considered far more complex load interactions than are seen in traditional buildings, says **Nastarin, the president of NAST Enterprises.**

In keeping with the architectural design intent and style, the engineers utilized circular columns 18 in. in diameter as moment-resisting frames, three of which contain additional steel tubes to reduce deflection. The outer shell of the building is made up of vertical fins and horizontal louvers that respectively are only $\frac{3}{8}$ in. and $\frac{1}{4}$ in. thick but are partially reinforced and filled in with glass panels. The shell places additional, uneven forces on the frame that engineers had to consider during the design process, **Nastarin** says.

"We found out that [the building] performs very differently when you add the exterior shell to it. There were quite a few iterations to make it work," he says. "You should have an open mind and be willing to find new ways to accommodate the client's vision."

The architects hope that the complex will turn heads in Culver City, where they have designed a number of unique towers, performance venues, and business facilities. Both Moss and **Nastarin** say the project has benefited from years of cooperation on the part of developers, architects, and engineers who planned carefully and deliberately but were also willing to explore new and creative design techniques.

"A lot of these projects, they take a lot of different hands and a lot of intelligence," Moss says. "Dolan is doing a great job—he has a terrific team of characters working with him—and **Hooman** has done a great job, and the client is great." —DAVID HILL



The Cactus Tower uses the steel frame of a former printing press tower that stood on the property.

TOM BONNER PHOTOGRAPHY

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NAST ENTERPRISES CORP.

Consulting Structural Engineering Services
1436 S. La Cienega Blvd., Suite 101
Los Angeles, CA 90035
Tel. (310) 268-9419

