

Academy Museum of Motion Pictures

The Saban Building and David Geffen Theater—the multifaceted use of structural shotcrete

By Lawrence Klein

The uniqueness of the David Geffen Theater and the May Company building, the Saban Building, dates back to 1939. The film and music industry were starting to gain steam as lucrative artistic outlets. However, it wasn't until 2012 when the iconic May Company building became available for the true transformation of what currently stands as the Saban Building to begin. To mimic the historic appearance, limestone used on the original structure was sourced near Austin, TX, where the previous stone was obtained for the store back in 1939. The theater bears the name of the renowned music and film executive David Geffen. Geffen donated an astounding \$25 million to see this long-standing dream materialize. Geffen has also vastly contributed to other philanthropic endeavors surrounding the film and music industry, such as the Geffen Playhouse, the Geffen Academy, Los Angeles County Museum of Art (LACMA), and David Geffen Hall at Lincoln Center in New York, NY. Haim Saban, a film and music veteran in his own right and also the creator of the

Mighty Morphin Power Rangers, along with his wife Cheryl, donated a wondrous \$50 million to the Academy Museum, thus making them the new namesake for what soon became one of the most prominent construction projects in Southern California.

PROJECT DETAILS

Located in the heart of Los Angeles, CA, this project shares the zip code of other famed attractions such as LACMA and the La Brea Tar Pits and Museum. The owner, the Academy of Motion Picture Arts and Sciences, worked collectively with renowned architectural firms Renzo Piano Building Workshop and Gensler, and engineering firm BuroHappold Engineering to create a space dedicated to the admiration and legacy of the film industry. With over 290,000 ft² (27,000 m²) including galleries, exhibit space, theaters, and a special event space, the concept for the Academy Museum of Motion Pictures began to take shape. The complex project required a team of highly skilled construction professionals. Superior Gunite was honored to provide the shotcrete placement. Others on the team included ready mixed concrete supplier Cemex, with Morley Construction Company serving as the concrete contractor and MATT Construction as the general contractor.

Superior Gunite helped bring this high-profile project with a truly unique and highly ambitious design concept to life while also meeting the demands of a hyperaggressive schedule. Overall for the Academy Museum project, Superior Gunite placed over 7000 yd³ (5000 m³) of 7000 psi (48 MPa) shotcrete for construction of a new basement, a seismic retrofit of the existing Saban Building, and an elevated theater structure that will be used for world-premiere viewings and special screenings.

This structure was created using precast panels to form its unique shape. From the interior of the structure, Superior Gunite shot 24 in. (610 mm) thick, full-height, three-dimensional complex-curve shear walls, rising to 50 ft (15 m) in height—all of this while adhering to the strict tolerances required for the distinctive curved walls. Also shot during the construction sequence were structural support walls

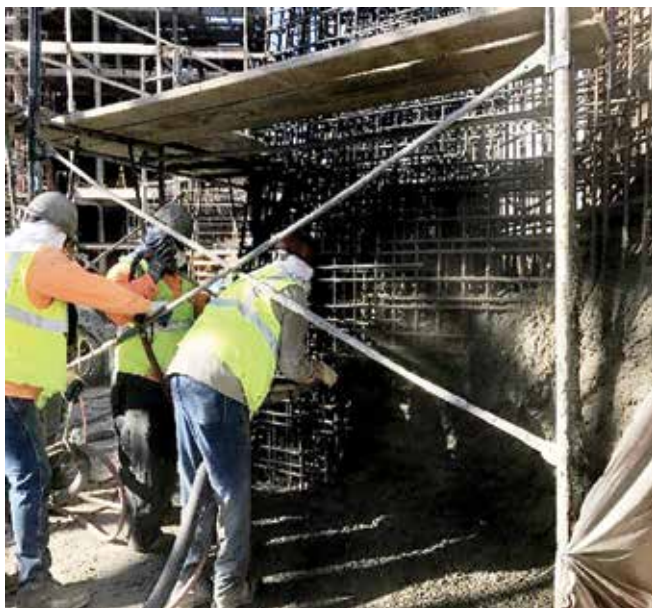


Fig. 1: Superior Gunite on site shooting the mockup



Fig. 2: Interior of David Geffen Theater



Fig. 3: Exterior of David Geffen Theater



Fig. 4: Trapezoidal columns shot by Superior Gunitite



Fig. 5: Superior Gunitite preparing to shoot the wing slabs

plus front- and back-of-house walls at opposite sides of the theater.

TRAPEZOIDAL COLUMNS

The versatility of shotcrete was further proven when Superior Gunitite was confronted by the two large trapezoidal columns that provided primary support for the massive structure. At nearly 40 ft (12 m) high, the load-bearing structural columns stand with a twisted, trapezoid-like design. Originally, these columns were slated to be placed with the form-and-pour method, until Superior Gunitite came up with the innovative solution to shoot the four sides leaving the inside empty and then filled in after the “walls” of the column hardened. The dowels coming out of the trapezoidal columns made forming virtually impossible, as they would have penetrated the forms vertically due to the taper and horizontal positioning. If the columns were attempted with conventional form-and-pour methods, the peculiar shape

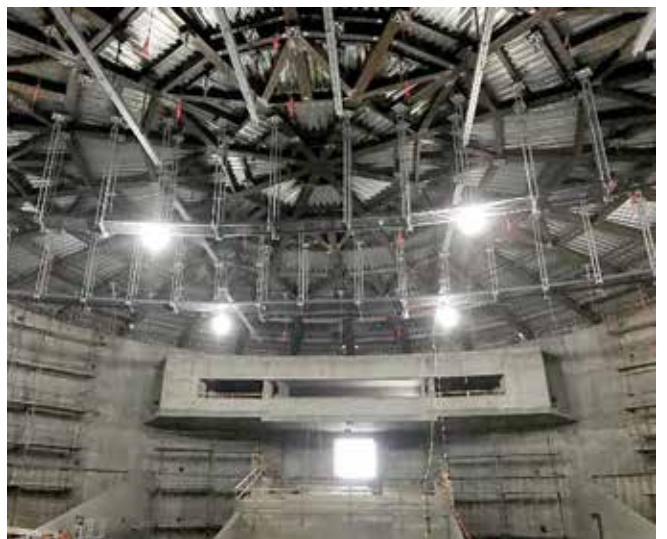


Fig. 6: Interior of theater ceiling

would have produced unbalanced concrete pressures during casting and could have made the forms “walk.” Shotcrete, however, has no internal hydrostatic pressure

from liquid concrete and is able to produce nearly any shape due to the versatility of the material and skills of an ACI-certified nozzleman.

2018 OUTSTANDING ARCHITECTURE/ NEW CONSTRUCTION PROJECT

Project Name

**David Geffen Theater
at the Academy Museum of Motion Pictures**

Project Location

Los Angeles, CA

Shotcrete Contractor

Superior Gunite*

Design Architect

**Renzo Piano Building Workshop with contribution to
design concept by Studio Pali Fekete architects**

Executive Architect

Gensler

Engineer

BuroHappold Engineering

Concrete Contractor

Morley Construction Company

General Contractor

MATT Construction

Material Supplier/Manufacturer

Cemex

Equipment Manufacturer

Western Shotcrete Equipment*

Project Owner

Academy Museum Foundation

Owner's Representative

Paratus Group

*Corporate Member of the American Shotcrete Association

STRUCTURE HIGHLIGHTS

Within the sphere building, guests will find themselves inside the belly of the David Geffen Theater, a six-and-a-half-story structure 42,300 ft² (3900 m²) and 150 ft (48 m) in diameter, housing a projection screen sporting a width of a whopping 60 ft (18 m). The lower level of the sphere holds a seating capacity of 1000 strategically placed viewing chairs to cater to the vast Cinephilia population residing in the entertainment capital of the world. The remaining areas will be dedicated to various purposes, from special events to exhibitions.

Adding to the uniqueness of this structure is the cascading glass-covered Dolby Family Terrace over the sphere, where guests have spectacular views of neighboring areas such as the natural expanse of the Hollywood Hills and the world-famous Los Angeles skyline. The sphere is supported by four columns with seismic isolators and weighs 26 million lb (12 million kg) and has the capability to move freely up to 24 in. (610 mm) in an earthquake. The seismic retrofit included the renovation of the Saban Building, where the structural strengthening walls were successfully completed using shotcrete. The Academy Museum is set to open in late 2019.



Lawrence Klein is a construction industry veteran professional with over 25 years of experience. Currently, he serves as the Preconstruction Manager and Project Executive for Superior Gunite Southern California and Business Development Manager for Southern and Northern California. Klein also worked for The Walt Disney Company

for 10 years. He is a third-generation Angeleno and enjoys spending time with his wife, daughter, and dog Chewy, as well as playing guitar and mountain biking SoCal trails.