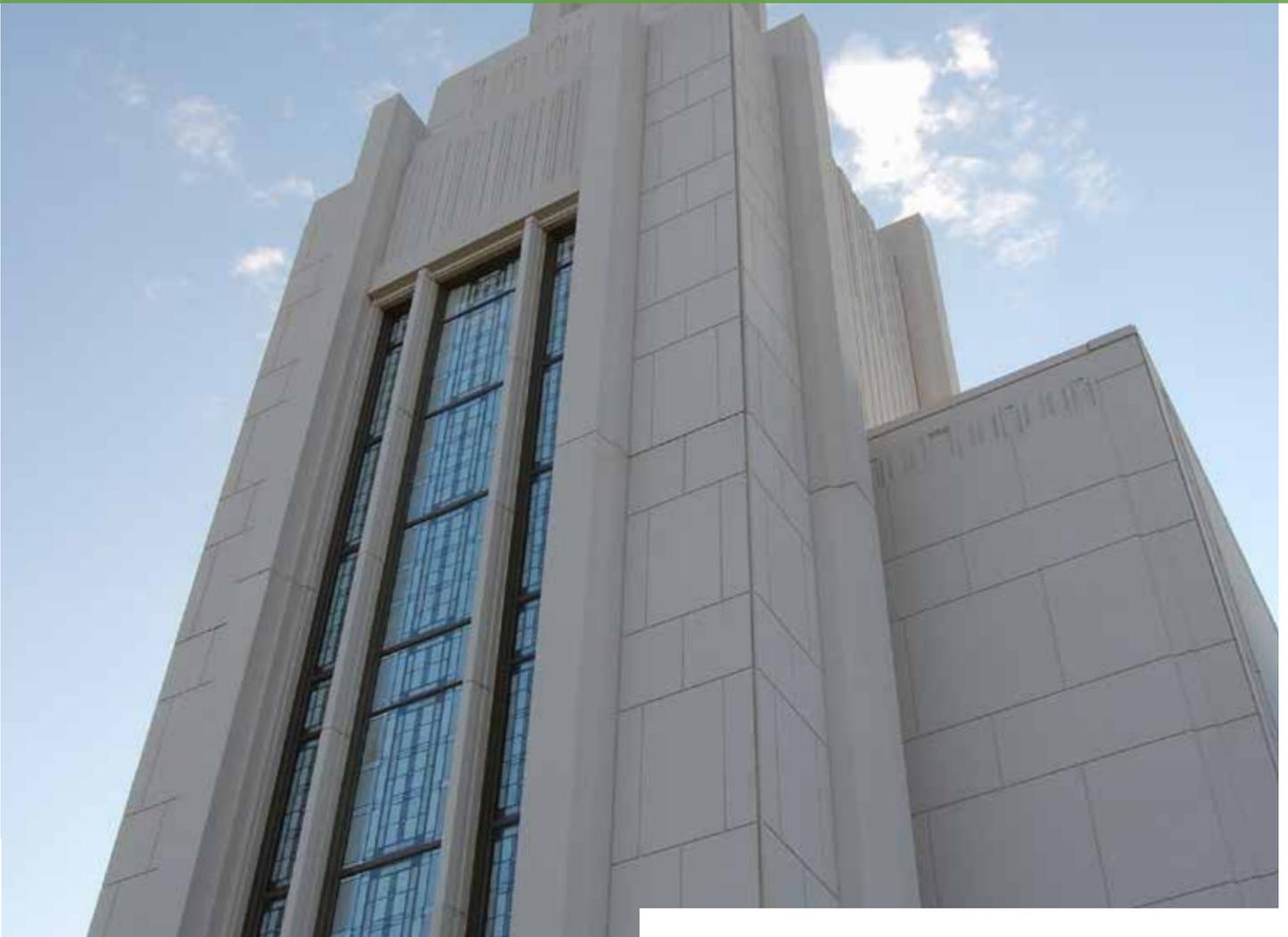




## TWIN FALLS LDS TEMPLE

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# CASE STUDY



**GROUNDING IN STRENGTH.**

# Forterra Structural & Specialty Products

## Detailed Precast Components

### 'In-spire' an Artistic Design

#### Project Description

The Twin Falls, Idaho, Temple for The Church of Jesus Christ of Latter-Day Saints is situated just south of the Snake River Canyon and 5 miles from Shoshone Falls. The white two-story temple is capped with a 13½-foot-tall, gold-leaved Angel Moroni atop a 153-foot spire. The spire stands as the highest point in the region. Also sharing the 9.1-acre complex is a new one-story meeting house, with over 300 parking spaces and tree-lined boulevards and gardens.



Dimensions of the structure are 178 feet, 10 inches by 87 feet, 10 inches. The exterior walls of the 31,245-square-foot building are made of precast concrete panels with a quartz rock finish that weigh up to 30 tons. The quartz rock was mined in Washington state.

“The customized concrete mix design derives its color from a specific recipe of white cement powder combined with a well-graded blend of exotic white quartz coarse aggregate and white quartz sands and a slight amount of ferrous pigment,” according to Roger Arnell, business development manager for the Forterra Salt Lake City, Utah facility. The texture is created by a sandblasting process; the resulting color and texture is an unchanging combination of natural materials that will never require painting or any other costly surface treatment.

The temple design provides for a clear open-space interior. Inside is a baptistry, celestial room, four ordinance rooms and five sealing rooms. Inspired by Shoshone Falls, designers incorporated a waterfall theme into the structure’s exterior walls and 200 art glass windows. Murals in the temple’s two ordinance rooms are by Idaho artist Leon Parson and showcase local landscapes, including the Shoshone Falls. In addition, exterior landscaping features a waterfall in front of the building and a fountain at the rear. Low-water-use xeriscape plant materials and large rocks are installed.

A Syringa flower motif, created by Utah artist Tom Holdman, is used in the stained glass windows and throughout the Temple as well. The Syringa is Idaho’s state flower.

**Project Type:** Church  
**Location:** Twin Falls, Idaho  
**Owner:** The Church of Jesus Christ of Latter-Day Saints  
**Architect:** MHTN Architects Inc., Salt Lake City, Utah  
**Structural Engineer:** ARW Engineers, Ogden, Utah  
**General Contractor:** Big-D Construction, Salt Lake City, Utah  
**Precaster:** Forterra Structural & Specialty Products, Mountain Region, Salt Lake City, Utah, facility  
**Precast Products:** Architectural cladding, double rib window walls, wall panels, side rib walls, porticos, parapet caps, mullions, trim, infill heads, site wall caps, and site wall/planters

Custom wall fabrics and donated artwork complete the interior design. Also included in the interior are wood imported from Africa, granite from India and stone from Montana.

Precast concrete was also a major contributor to the project design, according to Bill Erickson, AIA, senior associate with MHTN Architects Inc. "Decorative fluting was designed into the precast panels as an accent to the main building spire. Lower down are precast panels with offsets built into them. Above, the panels have fluting going up the sides to where the spire rises," says Erickson.

Forterra's Arnell describes the fluting: "The architectural detail on the building is accentuated by dramatic fluted fin elements with a vertical orientation. The member is manufactured as a single piece making it more economical to produce and install. Because the precast pieces are so large, they reduce the number of real joints that occur in the entire building, thereby reducing the number of joints to be caulked."

### Creating a tight building envelope

The building consists of a steel frame and concrete block walls with architectural precast concrete cladding. The assembly used to insulate this structure is comprised of a rigid board insulation chemically attached to the concrete masonry structure and then covered by the protective precast concrete cladding.

All precast components were produced by the Forterra Salt Lake City facility, including:

- 18 double rib window walls
- 88 wall panels, some fluted
- 18 side rib walls
- 66 miscellaneous mullions, trim, infill, heads
- 13 porticos
- 193 parapet caps



## Precast construction was a major factor in the project's on-schedule completion

### Site precast elements included 69 site wall caps and 56 site wall/planters

"Like most of our architectural precast projects, each mold required on this project was used on this job and only this job," says Arnell. "The job required a very high level of understanding and ability from the engineers, drafters, carpenters and erectors to achieve the level of quality demanded by the owner."

Attachment of the architectural precast components to the building's steel frame required, for the most part, only standard connections, according to Erickson. "We did have to cut some holes in the block walls to get to the steel frame and make the anchors. We then grouted those connections solid at the block walls. A bigger challenge," he adds, "was being able to control the high humidity and air turnover [typical of this type of building]. This was handled by sealing up the walls and making everything as tight as we could."

Site conditions presented another challenge. "During construction, we hit lava [rock] right off," Erickson explains. "We knew it was there but it was a little higher than we thought, so we had to do some special excavation work. In short, we blew it up. It turns out there actually is a company in Idaho that does just that for building construction projects. They use low-power explosives that break up the lava and then they dig it out." Reinforced concrete footings and foundation walls were then constructed. Stormwater is handled by a new sewer system installed at the same time the temple was constructed.

"Precast construction was also a major factor in the project's on-schedule completion", says Erickson. "Only one panel had to be returned. Everything else was right on schedule for the erection." Ground was broken in April 2006, and dedication took place in August 2008.