



**CFSEI**  
COLD-FORMED STEEL  
ENGINEERS INSTITUTE

## **2018 CFSEI DESIGN EXCELLENCE AWARD WINNER**

**FIRST PLACE/COMMERCIAL – MATSEN FORD DESIGN ASSOCIATES, INC. –  
1600 WEST LOOP SOUTH BALLROOM CEILING, HOUSTON, TX**

**1600 West Loop South  
Houston, TX 77027**

**Completed: March 2018  
Construction Cost: \$350 million**

**Owner:** Fertitta Entertainment /  
Landry's, Inc.

**Architect of Record:** Gensler

**Engineer of Record for Structural Work:**  
Walter P. Moore

**Cold-Formed Steel Specialty Engineer:**  
Patrick W. Ford, P.E., Matsen Ford Design  
Associates, Inc.

**Cold-Formed Steel Specialty Contractor:** Rodney Saye, Texas Exterior Systems, LLC

**Award Entry Submitted by:** Katie Benjamin, Matsen Ford Design Associates, Inc.

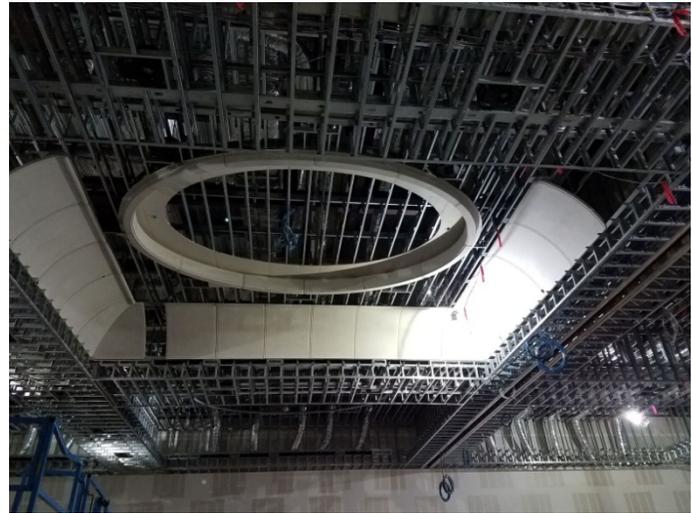


Photo by Rodney Saye

### **Project Background**

The 1600 West Loop Building is a 38-story, 700,000-square-foot luxury hotel housing 250 rooms and suites. The Post Oak Hotel sits as a centerpiece within a 10-acre mixed-use development that includes restaurants, retail, and office space. Within the hotel, the three-story glass lobby with custom crystal chandeliers and multiple works of art create a museum-like atmosphere of luxury.

Multiple areas of the hotel were framed out with cold-formed steel, including the soffits at the first level, lounge and Rolls Royce showroom. The main framing of the project was at The

25 Massachusetts Avenue NW  
Suite 800  
Washington, DC 20001

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Grand Ballroom. A 16,000-square-foot, two-story event space with 12 vaulted Glassfiber Reinforced Gypsum (GRG) ceilings with chandeliers highlight the main event space. The main structure of the Grand Ballroom consists of structural steel beams, with cold-formed steel framing out of the ornate, vaulted ceiling.

Cold-formed steel was also used extensively for the exterior work, including the walls, around the pool, restaurants, soffits and the top penthouses.

### **Design Challenges and Solutions**

What makes this project special are the 12 elaborate, oval, vaulted ceiling spaces in a 3 x 4 grid pattern supporting Glassfiber Reinforced Gypsum (GRG). Eight-inch cold-formed joists span approximately 17 feet to the main structural beams. These joists support the secondary framing of the ceiling and MEP with multiple levels of vertical and horizontal members for the curved, vaulted recesses at the chandeliers. The secondary framing is comprised mostly of 3-5/8-inch studs to frame out the ellipse.

A key challenge was to support the ceiling while spanning 17 feet. The ceiling also had to be framed out as an oval in plan, but vaulted in section. This required strongback studs and six-inch studs for blocking at the vertical supports, with different and nonconventional ways of connecting these members.



Photo by Rodney Saye

Coordination around speakers, projector lifts, diffusers and HVAC units made the project even more challenging. The typical frames were prefabricated, hung from the primary structure above, and connected with continuous framing members as well as curved track to form the arched recesses.

The 1600 West Loop South Ballroom ceiling project required close coordination among the team members and the ability to think out-of-the-box when challenged with unique design situations. The completed project is a testament to the creativity and design flexibility available to architects and other professionals when they choose cold-formed steel framing.



The Post Oak Hotel Grand Ballroom – Photo: <https://www.thepostoakhotel.com/>

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