MSC
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Structural steel and wood
join forces in a new Florida swimming pool facility.

Above Water

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THE FACILITIES at an RV park and campground are expected to be functional, not striking.

But the Sun-N-Fun Resort and Campground in Sarasota, Fla., wanted to give their guests a bit more. After all, the resort is a two-time winner of the National Association of RV Parks and Campgrounds National Mega Park of the Year Award—and a Sarasota icon. Generations of locals and others have been coming here for half a century to spend their summer days poolside.

Sun-N-Fun's new $5 million, 18,716-sq.-ft, LEED Gold indoor pool and exercise facility is part of the resort's effort to provide modern services to the next generation of visitors. It features a therapy spa and pool, a five-lane 25-meter indoor pool, an aerobics and spinning room, a fully equipped exercise room that cantilevers over the pool deck, steam and sauna rooms, locker rooms and access to adjacent exterior spas and pools.

Open and Exposed

A primary goal of the designers was to connect to the existing exterior pool and create an open feeling by taking advantage of views to the east. The north and east façade are constructed using an impact-rated storefront glazing system to provide natural light and views out to the existing resort. The storefront is supported by a grid of HSS16×8 beams and HSS10×10 square columns, which also provide lateral stability in the transverse direction in the form of moment frames. The HSS columns supporting the roof structure along the north side are interconnected with HSS beams to also provide lateral stability in the longitudinal direction in the form of moment frames. In order to provide a physical connection to the exterior deck, three 20-ft sections of the eastern façade use a folding glass wall system, allowing the indoor pool deck to extend outside on pleasant days.

Another goal was to expose the structure as often as possible. Spanning the large indoor pool are 7-in. by 26-in. glue laminated (glulam) beams supported by HSS7×7 columns sandwiched between HSS10×6 columns on the north and a stack bond exposed masonry wall on the south. The 100-ft span is divided

all photos Carlson Studio Architecture

The Sun-N-Fun indoor pool facility shows off as much of its structure as possible.

The roof cantilevers to provide shade from the persistent Florida sunshine.

using two 50-ft-long glulam beams, which in turn support structural insulated panels (SIPs) that span the 6 ft between beams. A 94-ft-long (including a 20-ft cantilever) W36×170 wide-flange girder supports the glulam beams at the apex of the curved roof. A V-shaped pair of 10-in.-diameter HSS columns support the girder, springing from the center of the pool from a common base plate. The 40° V-shaped design allowed the beam's span to be broken into three segments while having just one bearing point in the pool area, a requirement of the owner. The HSS columns begin in plan side by side and rotate as they meet the wide-flange beam to become inline with each other.

To ensure proper fit-up between these columns and the beam connection holes above, the assembly was first fit up in the project

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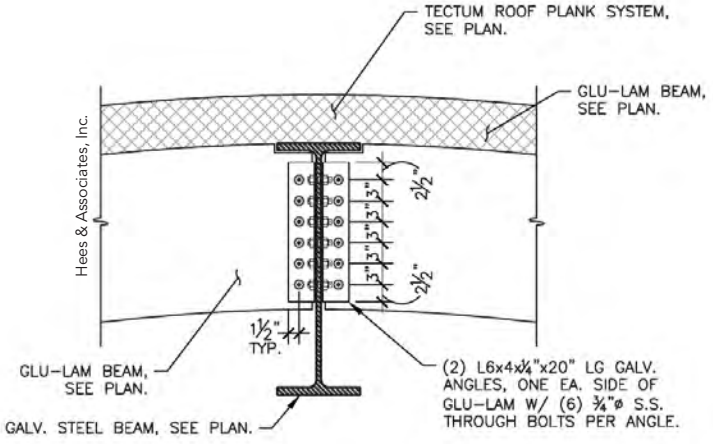
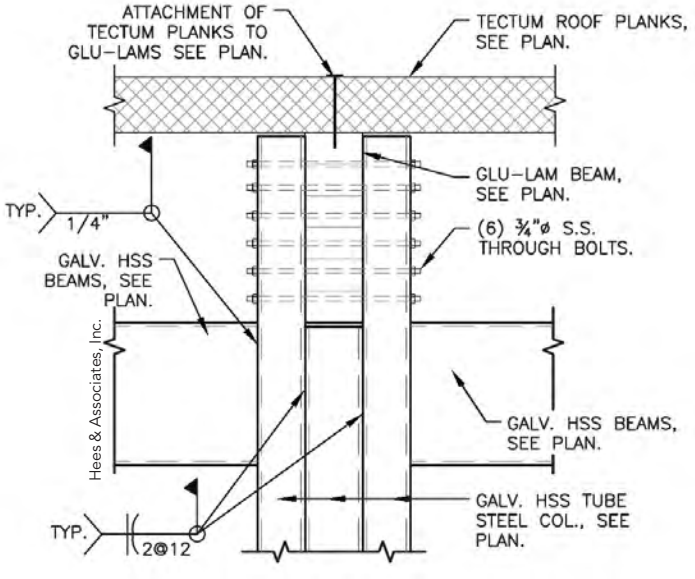


▲ A connection detail showing the intersection of glulam with wide-flange.

▲ A V-shaped pair of 10-in.-diameter HSS columns support a 94-ft-long girder, springing from the center of the pool from a common base plate.

▼ A detail showing HSS intersecting with glulam beams.



fabricator's (Coastal Steel) plant before shipment, and temporary tie beams were placed between the column "branches" during shipment. The column bases were then field welded to a base plate, which was set in the foundation to achieve the required bevel and fit.

"After the supporting steel members were erected and the laminated wood roof members were connected, the temporary tie beam was removed and the results were beautiful and fit perfectly," remarked Brian McGovern of Coastal Steel.

The interior ends of the glulam beams are fastened to the W36×170 with double angles and stainless steel through bolts, while the exterior ends are sandwiched between two HSS10×16 or HSS18×8 beams with steel-plate mounting brackets. The wood beams are through-bolted with stainless steel bolts.

Because of exposure to the chemicals typically found within an indoor pool environment, the majority of the structural steel connections, including the glue laminated-to-W36×170 connections, were stainless steel. In addition, the steel was coated with Sherwin-Williams Macropoxy primer and Hi-Solids Polyurethane corrosion-resistant paint. The project used approximately 85 tons of structural steel.

In the Tube

Paired HSS10×6 columns on the north façade sandwich an HSS7×7 member that provides space for electrical and low-voltage wiring to be hidden within. The interior tube dimension was chosen specifically to allow an exterior LED light fixture to slip between the two HSS10×6 members. This recess in the column creates a "light channel" that illuminates the vertical structure at night. In other areas, the HSS moment frames were designed with openings within the tube wall to allow for the placement of hidden light fixtures and fire annunciators.

The remainder of the fitness facility is constructed with load-bearing concrete masonry unit (CMU) and load-bearing insulated concrete form (ICF) walls supporting a composite steel elevated floor system and open-web steel joist system for the roof (originally designed for a green roof area, which was later removed from the design). In the second-floor exercise spaces the steel bar joists were left exposed, allowing the ceiling height to be over 14 ft. Headers for openings in the exposed CMU wall were detailed with steel W8 sections to create interesting lines and tie the exposed steel aesthetic back into the CMU wall.

Sustainability was a stated goal for the project, and the framing system was able to chip in, even beyond the typical structural contribution of recycled content. The curved roof cantilevers 8 ft on the south side to create large overhangs that provide shade against the persistent Florida sun. On the north side the roof cantilevers 12 ft to create a covered walkway that connects the existing campus and exterior pool deck to the main entry of the building. Additional green features include a 10,000-gallon rainwater cistern, a cooling system that uses the pool's water to dehumidify the enclosed pool area and groundwater-sourced geothermal system for conditioning the rest of the building. MSC

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