



The expansion includes the row of structures along the riverbank, where people have gathered since long before settlers arrived.

Photos courtesy of the Spokane Public Facilities District

A convention center that takes you to the river

■ Outdoor patios and a rooftop terrace make the most of the convention center's riverside setting.

By **JEFF WARNER**
ALSC Architects
and
RAFAEL VIÑOLY-MENENDEZ
LMN Architects

The Spokane River and its waterfalls have been a meeting

place since long before settlers arrived, when Native Americans gathered there to share the abundant salmon. Later the river attracted Spokane's founders, who utilized the falls as a source of power. In recent history, Expo '74 attracted the world to the river and its falls. Since 1974 the river has contin-

ued to serve as the civic center for Spokane. Visitors and conventioners are consistently drawn to the river, its falls and the adjacent Riverfront Park. In 2012, Spokane County voters approved funding to expand the convention center to improve its functionality and to enhance its connection to the river. This latest expansion of the Spokane Convention Center not only creates a world-class convention facility, but also makes the Spokane River an integral part of the visitor experience.

A link to the river

While providing more exhibit space and better-positioned meeting rooms, the expansion improves the Spokane Convention Center's visual and physical connections to the river and the Spokane River Centennial Trail. Built between the existing facility and the Spokane River, the new addition's meeting rooms, exhibition hall and pre-function spaces overlook the river through large expanses of glass. Special sliding doors can be opened to make this view a part of the ballroom experience. The second-floor overlook provides a 180-degree view up and down the river, and offers a view to the lower floor level. Artist Steve Adams took advantage of the volume in this space with his hanging installation "Memory and Hope," a testament to the salmon that once thrived in the river. The rooftop terrace, surrounded by a green roof, provides an outdoor venue linked to the riverbank by the Riverside Steps. At the river level, outdoor patios under large shade trees provide a peaceful respite between meetings. These patios provide a closeup look at the river as well



An installation by Spokane artist Steve Adams hangs in a space overlooking the river.

as opportunities to see runners, walkers and bicyclists using the Centennial Trail. Fitting the new addition between the existing convention center and the Spokane River required some very creative structural engineering solutions from DCI Engineers, the civil and structural engineer for the project. The expansion includes 16 long-span trusses, which had to be assembled on site. The largest truss, which spans the length of the Centennial Ballroom, serves as the exterior facade of the exhibit hall above. Made of 180 tons of steel, this 30-by-225-foot truss is about the length of a Boeing 747. Exposed

by the glazed facade, it is reminiscent of the historic railroad bridges that used to occupy the site. Riverbank restoration Many of the improvements to the convention center and Riverfront Park benefit the entire community, not just those attending meetings and events. To preserve the environmental integrity of the Spokane River, careful erosion-control measures were used during construction to prevent contamination. Any groundwater or stormwater discharged from the site had to be first collected and put through a process called electro-

coagulation, where the water is "zapped" with electrical currents to filter out potential contaminants. The riverbank landscape has been restored by using natural riparian plants that are indigenous to the Spokane River. Green lawn areas, which attract geese, have been reduced to minimize potential human and goose conflicts along the trail. An art installation that extends the length of the site tells the story of Spokane's history while discouraging visitors from approaching a steep and slippery river bank. For those who want to get close

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SPOKANE CONVENTION CENTER

FAST FACTS

- Location:**
334 W. Spokane Falls Blvd.
- Size:**
90,000 square feet
- What's in it:**
Exhibit space, ballroom, reception area, meeting rooms
- Total cost:**
\$55 million
- Design-build contract:**
\$41 million
- Groundbreaking:**
July 2013
- Opened:**
Feb. 24
- What's next:**
 - 15-story, 716-room Grand Hotel Spokane will open in June
 - \$1.5 million skywalk to the Marriott is nearly complete

BY THE NUMBERS

- 75 feet**
Distance from the water's edge
- 100**
Workers on site each day at peak times
- 550**
New windows
- 1,300**
Tons of structural steel
- 6,700**
Cubic yards of concrete
- 13,000 square feet**
Green roof size
- 20,000 square feet**
Additional exhibit space

TEAM

- Owner/developer:**
Spokane Public Facilities District
- Prime architect:**
ALSC Architects
- Design architect:**
LMN Architects
- General contractor:**
Garco Construction
- Civil/structural engineer:**
DCI Engineers
- Mechanical/electrical engineer:**
MW Engineers
- Landscape architect:**
Land Expressions
- Lighting design:**
HLB Lighting
- Code consultant:**
Howe Consulting

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Glass walls open to bring the outdoors in

■ The ground-floor ballroom has walls that open up to the riverside.

By **RAFAEL VIÑOLY-MENENDEZ**
LMN Architects

and

JEFF WARNER
ALSC Architects

The Spokane Convention Center completion project represents the culmination of an ambitious program to create a cohesive campus including exhibit, meeting and ballroom facilities, along with the INB Performing Arts Center.

Building on the existing facility's economic success, the project completes the expansion that began with the opening of new exhibit halls in 2006, adding function spaces that will allow the center to attract major national events to Spokane.

The Spokane Public Facilities District held a design-build competition in early 2013, and the team of Garco Construction, LMN Architects and ALSC Architects was awarded the \$41 million project. Spokane-based ALSC was the prime architect and design collaborator. Seattle-based LMN Architects, which was responsible for the design of the 2006 expansion, led the design.

Garco led the design-build team, and was responsible for delivering the project on budget and within

an incredibly quick schedule — 22 months from award to opening day. (Many projects of this scale typically take 18 months for the drawings alone!)

The project adds over 90,000 square feet of new construction, including 20,000 square feet of exhibition space, a 12,000-square-foot ballroom and 10,000 square feet of meeting rooms, along with pre-function lobbies and back-of-house support spaces.

Glass expanses

The Spokane PFD's acquisition of the C.I. Shenanigans riverside restaurant site in 2010 opened up the possibility to connect the existing convention center spaces to the Centennial Trail and the banks of the Spokane River.

This opportunity to capitalize on Spokane's "Near Nature, Near Perfect" brand was seized upon by the design-build team. On the 40th anniversary of the Spokane World Fair, the team based its design concept on the fair's theme song, "Meet Me by the River."

The design maximizes the connection to the Spokane River, featuring large expanses of glass and a series of outdoor function spaces that bring the internal life of the building out into the public realm.

Visitors enter the center from



The team based its design on the Spokane World's Fair theme: "Meet Me by the River."

Photo by David Elms/ALSC Architects

the Point Lobby on Spokane Falls Boulevard and circulate through the building to arrive at the "Overlook." The Overlook features a 35-foot tall ceiling, its three walls made entirely of glass to create

a truly immersive experience, making the most of the riverside setting.

From here, visitors can reach each of the facility's major function spaces: the exhibit hall to the

east, ballroom below and meeting rooms to the west on two levels.

Breaking the box

Convention centers have tra-

ditionally avoided daylight in function spaces, given the need to control lighting conditions for

See GLASS — page 10

Massive steel trusses support convention center roof

■ The largest truss is about as long as a Boeing 747 — and was nearly as complicated to assemble.

By **CALEB HEERINGA**
DCI Engineers

Trusses are a fundamental tool in an engineer's toolbox — a structurally simple way to transfer weight from one part of a roof to the walls or columns that are designed to withstand the effects of gravity. Most engineers have designed a simple truss by the time they have made it through their sophomore year of college.

But the massive truss that served as a centerpiece for the Spokane Convention Center expansion was not your typical A-frame construction project. At 30 feet tall and 225 feet long — about as long as a Boeing 747 — the truss had to be assembled piece by piece on site and required extensive coordination with the design and construction teams. The result was a visually striking structural feature that overcame several of the project's design challenges simultaneously.

The expansion added 90,000 square feet to the facility, including added exhibition hall space on the second floor, and ballroom and meeting space down below.

Some assembly required

The convention center's unique location — an urban environment but adjacent to the Spokane River — limited what engineers could do.

Architectural designs called for the expansion to blend seamlessly with the existing facility, meaning the roofline of the addition couldn't be taller than what already existed. The proximity to the river meant that the floor of the facility couldn't go any lower, given the likelihood of flooding.

A traditional column-and-beam layout would have been the obvious solution, but an open floor plan was vital to the future use of the facility, especially the vast exhibition hall, which is designed to accommodate trade shows that would host 10,000 attendees or more.

Logun Rasmussen, an associate at DCI, said the team settled on large steel trusses, which could span long distances without the typical number of vertical supports.

Typically, engineers would call for trusses to be prefabricated off-site and then installed on-site. But the sheer size of the largest of the trusses — two stories tall and made of more than 180 tons of steel — made it impossible to move to the site economically. This meant that the truss had to be designed in sections and pieced together on-site, like a giant set of Legos. In total, the project incorporated 16 long-span trusses.

DCI President Mark Aden said the project's intricate and varied designs are one of the made it one of the most complicated steel framing projects he has seen in his 30-year career.

"The geometry of the site and building was complicated to say the least," Aden said. "If there are two pieces of steel the same length in the entire project I'd be surprised."

The addition is seismically isolated from the original building, but maintaining the open floor plan required getting rid of three existing structural columns in the original building. This meant engineers had to build temporary supports that could hold the existing beams while the new long-span trusses were slid under-

neath the roof to become the primary support for the building.

Many complexities

Working underground close to a major river posed its own set of challenges. As excavation began, construction crews encountered unexpected subsurface conditions, including car-sized boulders that were a major obstacle to the planned foundation support scheme. Engineers had to use a variety of foundation systems for the final solution, including micropiles, caissons and spread footings.

The project team was able to handle the project's complexity despite an extremely accelerated construction schedule. It was less than a year between groundbreaking and the ribbon cutting for the new facility.

See ROOF — page 11



The expansion required 16 long-span trusses, which were pieced together on site.

Photo courtesy of DCI Engineers



Garco Construction, ALSC Architects, and LMN Architects wish the greatest

CONGRATULATIONS!

to the Spokane Public Facilities District on the completion of this significant project, and on creating local jobs in its construction and an increase in future business that will benefit all of Spokane's citizens.



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We are proud to contribute to this outstanding public assembly facility as a member of the Garco Construction team on the Spokane Convention Center Completion Project.

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River

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to the river there are overlooks with interpretative signage that explain the history of the river and its importance to the region.

In spite of the size of the addition and limited available land, public access to the river has been maintained.

The popular 37-mile-long Centennial Trail, which follows the river through Spokane, has been improved along the convention center. A pathway under the addition links a new vehicle drop-off area for easier access to the trail.

There is also a direct pathway from the second level of parking to the trail and a future boat launch. Building-service areas that were once visible from the Centennial Trail are now screened from view while still remaining accessible.

Tourism appeal

In recent years, publications like USA Today and Outside magazine have started to take notice of the tourist appeal of the Spokane River. The new convention center builds upon the tradition of gathering by the river for out-of-town visitors, as well as those who live in the Spokane area.

The tourist's riverfront experience in Spokane is enhanced by the trail improvements, the new green roof terrace and Riverside Steps. It's an ideal place for weddings, family vacation photos, school field trips, or a place to take a rest from nearby shopping.

Jeff Warner is a principal at ALSC Architects and Rafael Viñoly-Menendez is a partner at LMN Architects.

Roof

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The project was equally complex from a civil standpoint. Doing major construction near the Spokane River required a special permitting process and careful erosion-control measures to prevent contamination. Any groundwater or stormwater discharged from the site had to be first collected and put through a process called electrocoagulation – where the water is “zapped” with electrical currents to filter out potential contaminants like sediment, oil and heavy metals.

The new designs also greatly improved the utility of the center's outdoor areas. The center's west lawn area was plumbed with potable water services, allowing the center to host a wider variety of outdoor events, including food trucks.

The expansion also required moving an 18-inch sewer main that was vital to Spokane's broader sewer system. The pipe was relocated underneath the Centennial Trail, a multi-use public trail that runs between the river and the convention center.

The new pipe has better downhill slope, addressing maintenance issues the city had been having. Much of the underground utility work occurred below groundwater level, meaning construction crews had to wear hip waders throughout the process.

Though challenging, Rasmussen said the final product is something Spokane can be proud of.

“We had a lot of challenges — tight schedules and big decisions to make,” Rasmussen said. “It's really rewarding to see it come to completion — it's a beautiful building.”

As communications coordinator at DCI Engineers, Caleb Heeringa enjoys immersing himself in the A/E/C industry.

Glass

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events with strict audiovisual requirements. Improvements in digital display technology have substantially eased these concerns, and facilities are moving towards more openness and transparency.

The Spokane Convention Center's 2006 exhibit hall expansion was one the first in the U.S. to introduce views and light into this typically “black box” space, and the completion project takes it to a whole new level: The entire north face of the exhibit halls is opened up to the river, with a 25-by-225-foot glass wall that offers spectacular views and takes advantage of the ideal north light.

Unique lighting

The new Centennial Ballroom is another space that is truly innovative within the conventions and meetings industry. Unlike most such spaces, which tend to be located on upper levels, Spokane's ballroom is on the ground floor, steps away from the Centennial Trail.

The 12,000-square foot space (which can be subdivided into four smaller meeting rooms) features three sets of 25-foot operable glass walls, opening up the ballroom to the riverside. The ceiling includes LED lighting that can be programmed to create thousands of color combinations, allowing show organizers to individually “brand” the space for their event.

Outdoor spaces

The connection to the Spokane River goes much further than just the visual. For the first time, visitors will be able to step out from their meeting, exhibition or reception and enjoy the spectacular natural setting. A variety of outdoor function spaces have been designed to host multiple events, each with its own separate area.

The Riverside Terrace, on the west side of the project, can be accessed from both the riverside overlook and the new upper-level meeting rooms. The terrace is designed to accommodate a large tent structure, and its upper-level location gives it privacy for events such as wedding receptions. Power and data are provided for audiovisual and lighting.

The Riverside Steps connect the terrace back down to grade, combining a gentle stair and larger-scale “seating steps.” Western exposure makes the steps a great location to lounge in the sun or enjoy lunch or a coffee break. Hardy joggers are already using them for an added workout!

The event lawn, just north of the Doubletree Hotel, provides an informal gathering area. With the Riverside Steps acting as grandstand seating, it is the ideal location for a pop-up concert or outdoor movie night.

This variety of outdoor function spaces represents a competitive advantage for the Spokane Convention Center, reinforcing its unique setting and creating a memorable experience for visitors, encouraging repeat visits.

The Spokane Convention Center completion project, along with the new hotel property on Spokane Falls Boulevard, will reposition the city as one of the most attractive destinations in the Northwest. Building on a well-established record of success, this transformational project sets the stage for continued growth.

Rafael Viñoly-Menendez is a partner at LMN Architects and Jeff Warner is a principal at ALSC Architects.