Armstrong®
World Industries

Case Study

Western Hemlock Tree at Seattle-Tacoma International Airport C Concourse

Engineered Artistry

Photo Credit: Port of Seattle

Project Details

Project
Seattle-Tacoma International Airport C Concourse Expansion

Location
Seattle, WA

Architect
The Miller Hull Partnership, LLP and Woods Bagot

General Contractor
Turner Construction Company

Subcontractors
Acoustical Design Inc. and Performance Contracting, Inc.

Engineer
Devco Engineering

Products & Services
Custom WoodWorks® ACGI Triangular Panels
WoodWorks ACGI Microperf SS5 Triangular Panels
Custom MetalWorks™ Trough Panels
Custom MetalWorks Medallions
WoodWorks ACGI Microperf Linear Closed Series 1 Planks
WoodWorks ACGI Linear Closed Series 1 Planks; Metalworks Mesh Torsion Spring Panels
Optima® Shapes for DesignFlex® Ceiling System
ProjectWorks® Design & Pre-construction Service

The Vision

The Port of Seattle was depending on the design of the expanded C Concourse at Seattle-Tacoma International Airport (SEA) to create an intuitive journey as well as welcome every guest into a biophilic, climate-conscious space and immerse them in a sense of calm. From the start, it was critical for the ceilings, walls, and "Tree at C" to come together to provide an authentic Pacific Northwest experience.

Photo Credit: Port of Seattle

Plus, with the project schedule demanding completion in time to welcome 2026 FIFA World Cup fans, the C Concourse design was charged with making a bold statement that would inspire return visits from travelers across the country and around the globe.

"This is the kind of project that demonstrates who we are as a region. Travelers will see just an amazing sight where you get a sense of the great outdoors here, but also some of the hospitality of the Pacific Northwest."

Ryan Calkins

Commission President,
Port of Seattle

Photo Credit: Port of Seattle

The Challenge

The tiered, open amphitheater-type layout of the main gathering area of the C Concourse required a large-format ceiling of approximately 4,600 square feet. A structural column disrupting that space posed a huge challenge to a design needing to represent the natural landscapes of the Pacific Northwest, convey the ceaseless energy and vibrancy of Seattle, and draw visitors up the grand staircase to second-level amenities.

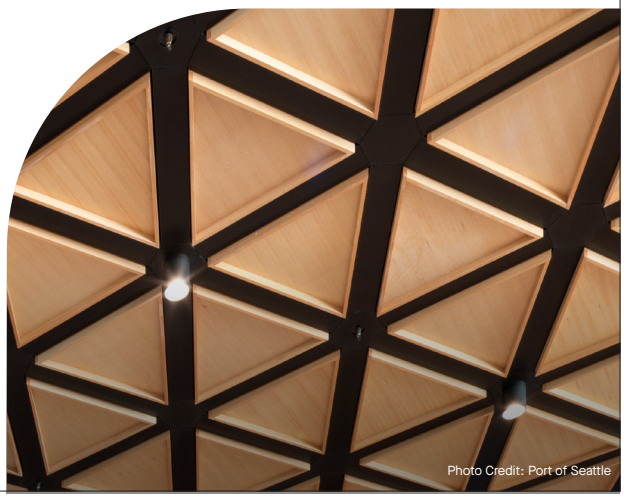


Photo Credit: Port of Seattle

The decision to reinvent the column as the "Tree at C" brought its own set of challenges. It had to be engineered, structurally sound, and breathtaking. Its base had to integrate seamlessly with the grand stair, while its curved upper "branches" needed to blend naturally into the flat ceiling plane. And all this fluency—for the "Tree at C," the massive open ceiling, and ceiling-to-wall transitions—needed to be achieved in accordance with design renderings depicting triangular, natural wood panels, and purposeful reveals.

The large open space with its consistent flow of traffic also presented steep acoustical challenges requiring a carefully coordinate approach to achieve the project's acoustic performance goals while maintaining passenger comfort and clear voice-paging communications. In addition, everything from pre-construction planning to installation had to be conscientious of the June 2026 opening and the fact that work would happen in and around a fully operational airport.

Lastly, with the C Concourse making the region's first impression on well over a hundred thousand national and international visitors daily, the Port of Seattle stayed deeply involved in project oversight and approvals. With strong local ties, the architect, contractor, subcontractor, and Armstrong were all dedicated to ensuring the C Concourse Expansion would support Seattle-Tacoma's travel and tourism, economy, and people.

Photo Credit: Port of Seattle

"There was no question this was a completely custom project, a one-off with nothing like it coming before or after. We tested and retested and made tweaks. We had all-in collaboration and clear communication the whole way through. Everything went smoothly and the results are incredible."

Dan Holdridge

Senior Manager,
ProjectWorks, Armstrong

The Solution

The solutions to the C Concourse expansion challenges started with the central product from Armstrong—custom triangular WoodWorks ACGI Microperf ceiling panels in Western Hemlock. These panels allowed the ceiling and "Tree at C" to be designed to the architectural drawings,honored the Pacific Northwest landscape, and provided strong acoustical performance.

Photo Credit: Port of Seattle

The "Tree at C" took an all-hands-on-deck approach. Armstrong leveraged a relationship with Devco Engineering to support the design of interior framework that would remain sound under the weight of more than 200 WoodWorks panels. Each team's unique set of design and construction experience, product knowledge, and resources, ultimately lead to an approach for mounting the panels up the tree in a way that achieved necessary transitions into the ceiling. The structure consisted of curved steel tubing around the column which mounted back to it with Unistrut, steel rings, and hundreds of descending rods supporting the weight of the rings.

"At a certain point we could no longer rely on mounting back to the column. Even with precision calculations of weight and space to determine the proper Unistrut system, we still had 'hot spots' to solve for. The only way to make it work was by doing what we did—bringing all the teams together to collaborate."

James Chaney

Senior Project Manager,
Acoustical Design Inc. (ADI)

Given the complexity of the "Tree at C" and its ceiling transition, Armstrong and ADI took the lead in creating three mockups that were progressively more realistic to the final product. The first two happened at ACGI and Armstrong manufacturing facilities, with the final "fit-and-finish" mockup occurring at the ADI warehouse. About 20 people came to this "close-to-real" test—which included the tree and part of the ceiling.

Representatives from the Port of Seattle and its maintenance crew, Miller Hull, Woods Bagot, ADI, Armstrong, engineers, and the installation teams attended.

The same team that built the mockups did the installation to help facilitate the process. Armstrong shipped most ACGI WoodWorks panels to size, except for those at the base of the tree, which were field cut and installed once the floor was in place.

"All key people gathered to see how this would play out in reality, and to put it to the test with their questions. It was not just a show-and-tell, but a point of assuring the Port of Seattle and the architect they put their trust in the right hands. We were able to address questions and concerns, and the mockup was approved immediately."

James Chaney

Senior Project Manager,
Acoustical Design Inc. (ADI)

Photo Credit: Port of Seattle

ProjectWorks Design & Pre-Construction service from Armstrong became involved early and stayed involved throughout. ProjectWorks ensured teams that the design vision could be achieved, helped determine the geometry for triangular panels creating a seamless transition from a round “treetop” to the ceiling perimeter, and solved for potential issues before materials reached the job site. In addition, the architect’s desire for a reveal at the ceiling-to-wall transition was solved by creating a perimeter from WoodWorks ACGI Microperf Linear Closed Series 1 planks, achieving a continuous look.

“This project is a story of one of the biggest strengths of ProjectWorks—they worked with standard offerings to create something that suited our needs and met our design vision and performance goals without compromise. This level of involvement and problem-solving made all the difference. We received a very comprehensive package, and the shop drawings were fantastic in terms of detail, quality, and intent.”

Billy Schreiber

Project Leader,
Woods Bagot

Photo Credit: Port of Seattle

The Result

After construction started in 2023, the expansion project proceeded smoothly, and the Port of Seattle ceremoniously cut the ribbon on the C Concourse at SEA just ahead of Seattle hosting its first 2026 World Cup match.

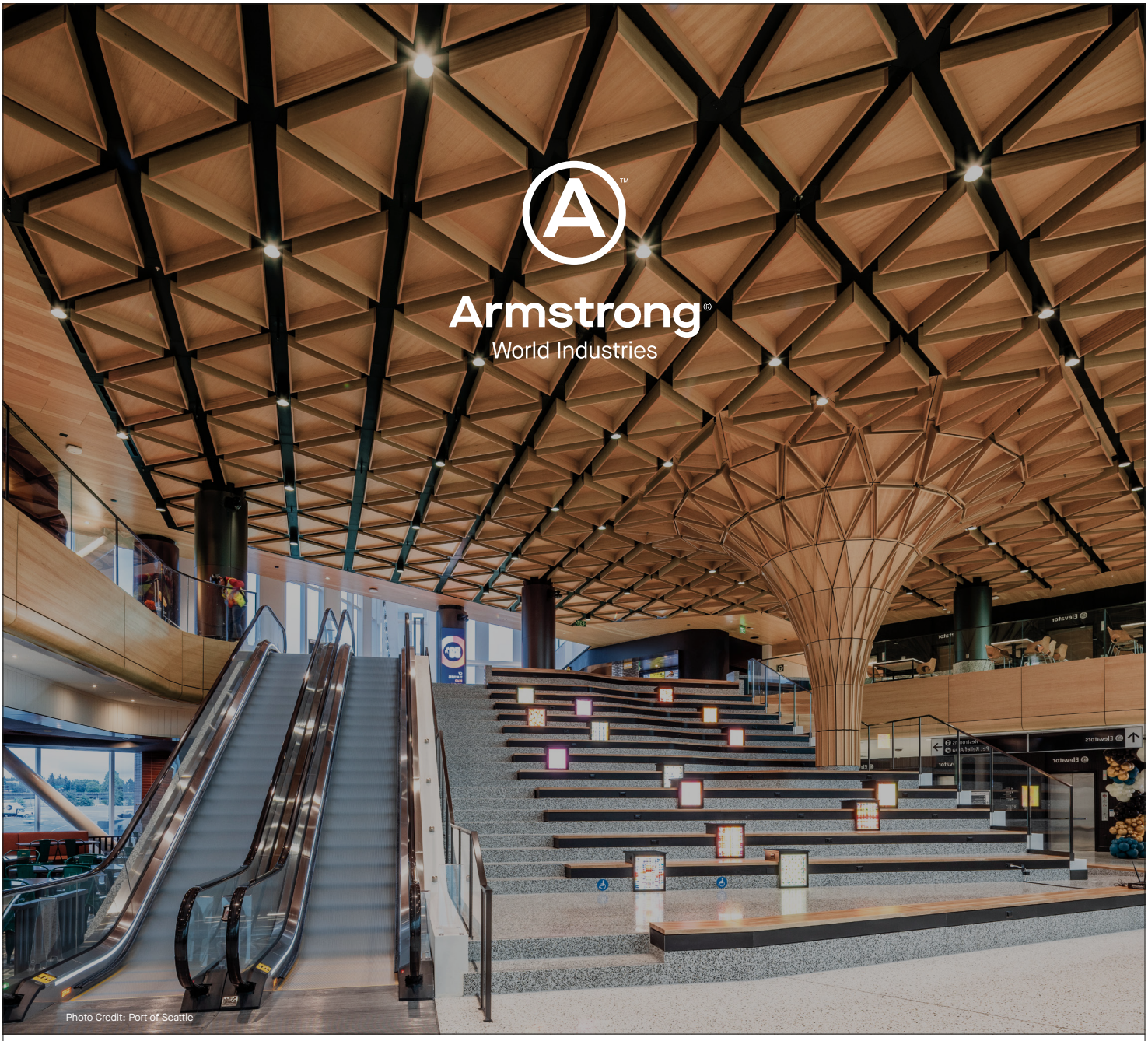
Photo Credit: Port of Seattle

The project was also successful from a budget standpoint. Maintenance crews have convenient plenum access as well as the ability to attend to any impact foot traffic has on the base of the "Tree at C." Perhaps most importantly, every visitor entering the concourse is greeted with warmth and serenity. And, as they continue their journey—which includes unobstructed views of the Olympic Mountains—they are immersed in a sustainable, inspirational experience highlighting the natural beauty, charm, and relaxation of the Pacific Northwest.

"The C Concourse Expansion represents more than a new building for the Port of Seattle—it demonstrates what is possible when innovation, environmental leadership, and partnership come together. The Port is proud to deliver a transformative space that elevates comfort and connection while advancing its climate goals."

Ryan Calkins

Commission President,
Port of Seattle



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