

## **ACE AGE Awards Submission 2017 Entry Form**

**Category:** 8 – Best Building Project – General Contractor (Under \$10 Million)

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**Project Name:** DEN Fire Station #35

### **Project Description:**

Fire Station #35 is a Design-Build project of a new fire station for the Denver Fire Department (DFD) located at Denver International Airport (DEN). PCL Construction partnered with Wong Strauch Architects (WSA) as the Design-Build team. The station's location was selected to provide firefighters with quick access to Peña Boulevard and thus critical area features such as the Jeppesen Terminal, Westin hotel and transit center, and DEN's transit-oriented development at 61st and Peña Blvd. The building is two stories and approximately 18,000 square feet. It supports 10 fire fighters and DFD administration staff with housing and administrative space along with a four-truck apparatus bay. The aesthetic design provides a modern architectural direction with a strong emphasis using industrial and aviation building cues. The building includes a structural slab, caisson and grade beam foundation system, a structural steel super structure, metal panel/masonry exterior, a training/hose tower, and high speed "batwing" bay doors.

The DEN Fire Station #35 project was completed in December 2016, on-schedule and under-budget (money was returned to DEN!!). The punch list was minimal and the overall quality of the project was exceptional.

### **Solutions of Special Projects:**

Fire Station #35 is the first 'outside the fence' station at DEN, meaning the facility will not handle airfield-related issues, but will instead respond to all of the non-secure buildings and roadways. This need to serve the larger area required the design to align with the greater DEN Aerotropolis design intent. At the time of initial Design-Builder award, however, this design intent had yet to be created. The original RFP design requirements were based on existing DFD fire stations with a more standard brick exterior skin. The DEN design review board identified this project as an important component of the new Aerotropolis and highlighted the importance of setting the design standard for this longer term vision.

The DEN Fire Station #35 ownership and design team worked alongside the DEN design review board on various fire station design alternates. The project budget was fixed while the design concept was being determined. The team took an active design-to-budget strategy whereby, as new features were desired, multiple alternates for finding cost in other areas of the program were vetted. Over nearly a year of additional design time, a unique conversion of form and function, was created within the DEN budget.

### **Excellence in Project Execution and Management/Team Approach:**

The building design mimics an aircraft hangar with the most prominent feature being a sloping curved ‘wing shaped’ roof. The construction of this roof required detailed planning to ensure arch consistency through the steel components and exterior fascia. Banded by metal panel trim, the potential for ‘oil-canning’ was a concern and focused upon during design detailing. A creative detail was utilized to overlap adjacent individual panels and allow for movement as sun exposure caused expansion and contraction.

PCL /WSA created a detailed BIM mock-up during preconstruction to review the roof connections, tolerance stacking factors, and aesthetic layout. Once on-site a large mock-up of the building wall and roof line was built, isolating further refinement needs for caulking channels and pop rivet details. After spending significant time planning this important design component, the construction went smoothly and a high quality product was delivered.

This element fit the design goals of DEN, stated has having clean modern architecture, unique aircraft related materials and colors, sharp modern lines, yet having an expression of being unique to DEN, and the building must state its own purpose in the design.

### **Construction Innovations/State-of-the-Art Advancement:**

PCL utilized pull planning Lean techniques to share information amongst team members and helped all trades stay informed, engaged, organized, and on schedule. Everyone knew when materials needed to be on site, how big the crews needed to be, and when the next activities would be ready to start.

The DEN Fire Station #35 stands out on a very short list of LEED® Gold rated fire stations in Colorado. The project features several advanced energy-efficient designs both inside and outside the facility. The interior of the building encompasses energy-efficient materials, which results in the station being 48 percent more efficient than a standard fire station built to code. Throughout the construction process more than 50 percent of the materials were recycled or salvaged.

Exterior to the building, the landscape design incorporated xeriscaping and native vegetation which exceeded the local zoning requirements for green space by 50 percent. A porous paver system was utilized on the entry side of the truck bays, allowing for rain water settlement while accounting for fire truck loading. The roof of the facility reflects a high percentage of solar heat which minimizes the amount of necessary cooling and water usage throughout the building. Energy efficient LED Lighting was also installed throughout the facility. Scott Morrissey, DEN's senior director for sustainability stated:

“Denver International Airport is committed to investing in sustainability when we construct new facilities, and the unique design of DEN Fire Station #35 allows the airport to meet its obligations for protecting passengers and property while integrating sustainable technologies to improve efficiency and reduce operating costs.”

### **Environmental/Safety:**

PCL's safety program was utilized throughout the duration of the DEN Fire Station #35 project. This program is more than adhering to the rigorous compliance, inspection, and documentation requirements of a safety manual. PCL's safety program creates a culture where all workers are empowered to care for their own safety, workers look out for one-another, management is engaged in and committed to the safety of all workers, and safety is measured on behaviors, not just statistics.

The focus of the program includes conducting a Job Hazard Analysis (JHA) prior to the start of any major scope of work, completing a Pre-Job Safety Instruction (PSI) at the start of each task and after break, and conducting rigorous daily inspections. While these efforts promote pre-planning and hazard awareness, our team also focuses on worker engagement and building a culture of safety. The team implemented an "Adopt-A-Crew" safety program and focused on our readiness reviews before each scope of work started.

The "Adopt-A-Crew" program aligns PCL personnel with a targeted subcontractor to help them prepare and discuss their daily PSI with their crews. This "on-the-ground" level of involvement illustrates management's commitment to safety and provides an informal setting for the workers to ask questions. It helps bridge the gap between management and individual workers to enable effective communication.

Readiness review meetings were conducted with each subcontractor and scope of work to ensure our field leaders understood the work and the associated risks involved. Subcontractors would walk PCL through their work plan and JHA to ensure they were in alignment. Any areas for improvement were addressed immediately instead of when the workers showed up for the day. The culture PCL creates is what propelled the team to achieve an excellent safety record as demonstrated on the DEN Fire Station #35 project.

**Excellence in Client Service and/or Contribution to Community:**

The need to have DEN Fire Station #35 operational was a critical component of the airport's plan for growth. DEN CEO, Kim Day, emphasized this point at the kick-off celebration stating, "As Denver International Airport continues to grow its physical infrastructure to support our traffic growth, this new fire station will ensure that we have appropriate fire protection assets in place. We are exceedingly proud of our close partnership with Denver Fire and all our first responders, whose dedicated men and women help keep our passengers, employees and visitors safe every day."

PCL and WSA merged as a teammate with DEN and the DFD, understanding how critical the building was to both entities. This made the project more than just a building but a truly needed community service. The full design-build took pride in being proactive in solving problems through the integration of the client program with design and budgetary parameters. This success was evident in the following quote from DEN's DFD Administrative Captain Evan Soibelman:

"I wanted to convey my complete satisfaction in working with PCL Construction on the build-out of our new DFD Station 35. PCL has been extremely professional and translucent throughout

the process. The teamwork has been second to none, and I have heard comments from folks that have worked on project over a 20-year period that “this is the best team I have ever worked with.” I would highly recommend (PCL) to anyone looking to have a smooth process and a beautiful building in the end. “

The project also qualified for public art under the City and County of Denver’s “1 percent for art” ordinance. An international call for artists was announced November 2014, and Seattle-based artist, Steve Gardner, was selected to build a fused-glass work of art for the west façade of the building. The artwork is made up of laser-cut aluminum and fused and cast glass panels.









