

2016 ACE AWARD ENTRY

Best Building Project Under \$10 Million – General Contractor

Project Name: Children’s Museum of Denver

Overview

What do you get when a General Contractor brings a giant, empty box to a brainstorming session? Where architects wear Tyvek costumes and write ideas on each other with markers? And the owner’s representative shows up as Captain America? You get a playground where children become the architects of their own learning—and the classroom is Colorado. Who wouldn’t want to play here?

True to the Colorado vernacular, the new Denver Children’s Museum offers a seamless indoor-to-outdoor experience that teaches children the power and majesty of the natural world. Fransen Pittman and OZ Architecture accessed their own childlike creativity to build a world-class campus that offers transformative learning for children and delights 400,000 visitors annually. The transformed museum has already earned a position in the top 10 of America’s Best Children’s Museums by the Early Childhood Education Zone.

The new exhibits inside the Denver Children’s Museum include a one-of-a-kind climbing structure designed to reward its climbers with a 360 degree view of the Rocky Mountains. Guests experience the thrill of risk-taking and accomplishment as they maneuver laterally and vertically through the 3-1/2 story climb. As they ascend, children and adults encounter hovering clouds, a swaying mountain gondola, rope bridges and an ice-capped summit.

Building Scope

The addition of 14,000 SF of new space doubled the museum’s footprint. Fransen Pittman added a new 160 space parking lot, a two story addition on the south end of the existing building and a three story addition off the east end of the building. The new outdoor adventure park required extensive landscaping, a boulder field, rustic gabion walls, custom water features, zip lines, mining ruins, caves, and sand dunes.

The Fransen Pittman team put on their thinking caps to create a 1,200 sqft water exhibit designed to educate kids on hydrology, an energy exhibit with wind and fire, a hands-on arts exhibit with artists in residence, and a pint-sized kitchen.

The expansion project began in 2014, when the museum had outgrown its footprint and demanded a team that could imagine and create like children, collaborate among disciplines with vulnerability and respect—and, most importantly, protect its precious occupants during construction.

Safety/Environment

Safety of the Public: While colleagues at other children’s museums said, “you’re crazy—you can’t stay open,” the ownership felt closing would disenfranchise its clientele. The biggest challenge for the project was protecting children who were unaware of dangers associated with construction. The Museum remained open 7 days a week during the entire construction process. The new parking lot, building additions, and outdoor adventure park are all located adjacent to or in the middle of busy public areas. Every aspect of the construction required excellent communication with the museum to enforce extensive safety plans. These included dedicated traffic control personnel, temporary walls, overhead protection, complex separation systems and off-hours work. 100% workers were screened and background checked prior to working on the project.

Environmental: Joy Park is a 30,000 sqft outdoor exhibit that mimics Colorado’s landscape. In order to give the feel of being in a real canyon, Fransen Pittman installed massive gabion walls that integrated galvanized steel channels, steel mesh, local granite rip rap stone, and precast panels with custom form liners and integral colors. Stone masons spent months carving and reshaping the display to allow natural water flow. A crane was used to place the huge boulders so that kids can look through the openings and play in the naturally formed pools of water that collect between them. In addition, paths were built through grassy areas to accommodate traffic, and canopies were placed to provide shade.

Storm Water Detention: Because of the proximity to the Platte River, the project used two permanent storm water detention and sand filtration structures to meet storm water regulations. Each structure consisted of massive buried cast in place concrete vaults located beneath the Museum's parking and drive lanes. Each cast in place vault is large enough to fit a city bus inside.

Zero Lost Time Accidents: Remarkably, there were no lost time accidents.

Other Special Challenges

Challenging Site Access: The Children's Museum sits on a restricted site that is bordered by Interstate 25 on the west, the Platte River and Denver Parks property on the south and east, and the Aquarium on the north. The only access to the museum is via a narrow two-lane parking lot that is busy with moms loading and unloading children and walking down the middle of the drive lane to approach the museum entrance. This is the same drive lane that Fransen Pittman used for general access, dump trucks, heavy equipment, cranes, and construction deliveries.

Unforeseen Underground Issues: The property sits on top of a turn-of-the-century landfill and brewery. The foundation system was first changed from caissons to helical piers, and then to a micro pile foundation system, in order to minimize groundwater and contaminated drill spoils. The south half of the site fell under the CDPHE Voluntary Cleanup (VCUP) program. Therefore, all construction workers were required to attend asbestos awareness training and third party inspectors were required to observe all excavation work. During the course of the project Fransen Pittman encountered a variety of unexpected underground items including early 1900's soda bottles and old foundations from the original Platte River Brewery.

Temporary Access and Egress: The new construction required the museum to close off its main east entrance and the exits along the entire south and east wings. In order to maintain code-required access and egress for the public, Fransen Pittman created a new main entrance on the north side of the building by converting a facilities workshop into a welcome desk and café.

Temporary exiting was created by converting a second floor window in the south wing into an emergency exit with scaffolding and a temporary stair.

Unforeseen Job Conditions: The Children's Museum was originally built in 1983. An addition was built in 1999, and there were multiple changes made to the building over the next decade. During the demolition and structural tie-ins, there were multiple unforeseen conditions requiring quick design changes and out-of-the-box solutions in order to keep the construction moving forward. For example, while demolishing the existing east exterior wall, Fransen Pittman encountered a solid concrete wall behind the exterior sheathing that was originally thought to be metal framing. That wall had to be removed to make room for the third floor offices. This was done in off-hours to minimize the noise disruptions to guests.

Inclement Weather: Between the summer of 2014 and the spring of 2015, the project encountered over 8 weeks of critical path schedule delays. Still, Fransen Pittman was able to complete the project in time for the museum's annual Birthday Bash fundraiser.

Excellence in Project Execution and Management/Team Approach

Delivery Method: Fransen Pittman used a CM/GC delivery method to ensure an efficient, team-oriented relationship among Fransen Pittman, Oz Architecture, Wember, and the Children's Museum. Concise communication and partnering kept every team member up to speed on priorities and project goals. Decisions were made efficiently with consistent follow-through. Value engineering began in preconstruction and carried through the entire construction phase in order to manage costs and budget.

Optimal Museum Attendance: Prior to construction, the museum expected a significant reduction in attendance due to disruptions and the amount of square footage that would need to be closed. Through effective communication with the museum and creative solutions for temporary walls and construction phasing, Fransen Pittman was able to keep much of the museum open. To the delight of the owners and museum visitors, public attendance during construction was maintained at or above pre-project levels.

Construction Innovations/State-of-the-Art Advancement

Temporary Walls: When any issue arose, the entire team jumped to come up with a solution, such as creating a system to ensure doors were always locked after entry and exit in construction areas. With the museum remaining operational during construction, it was imperative that children could not enter construction areas. Temporary walls were erected to keep construction out of sight from the operating portions of the museum. Doors with locks were installed, and keys were hung at the top of the door frames, (out of reach of small children), so that dozens of workers could enter and exit construction areas without endangering museum patrons.

Excellence in Client Service/Contribution to the Community:

Soliciting Financial Support

The Children's Museum is a 501c3 private non-profit organization. Fransen Pittman drew upon its solid relationships to generate support via the subcontractor community. This included gifts in-kind, donated labor, and sometimes overlooking change orders as a way to contribute to the museum.

A One Ton Truck

Fransen Pittman donated a one-ton flatbed truck to the museum to facilitate deliveries to and from the museum's offsite exhibit fabrication shop.

Today, as children enter the museum through their own child-sized door, the Children's Museum Executive Director, Mike Yankovitch says, "I don't know how Fransen Pittman did it but they did it. It's remarkable. It's sorta magic."









