

Category: 8 – Best Building Project – GC (Under \$10M)

Contractor: Adolfson & Peterson Construction

Project Name: Boulder Valley School District Mapleton School Historic Restoration: Mapleton Early Childhood Center

Why This Project Is Special:

Reopening a 125-year-old school is not a simple undertaking. Built in 1888, the beautiful stone Mapleton K-12 School unfortunately sat abandoned in a distinguished neighborhood rich with history. In 2012, Boulder Valley School District (BVSD) assembled a team to take the reins of the challenging project to modernize and renovate the school while preserving the historic character and repurpose the school as an early childhood center (ECC).

To maintain as much of the 125-year-old structure's character aesthetically and functionally as possible was a unique challenge. Unlike other renovations, the project team met the challenge of this unique renovation on a building that didn't have any as-built drawings and had incorporated over 120 years of antiquated construction methods and materials on top of the natural deterioration.

The project team exceeded its goal, finding innovative ways to overcome numerous challenges: extensive settling and deterioration, three previous renovations from three different eras of construction, compliance issues and strict standards for early childhood centers, the presence of asbestos and lead paint, and the need to work collaboratively with the many stakeholders in this community-based project.

The team applied creative solutions to preserving and restoring the historic features while fully modernizing the facility to meet compliance standards and incorporate the latest technology.

Why This Showcase-Project Should Win an ACE Award:

- By bringing a vacant building back into a functional state that our community is proud of is an extraordinary example of how we are building Colorado.
- This project addressed unique safety concerns and implemented specific safety training to ensure zero safety infractions.
- The construction team had to be open and creative in finding solutions to challenges by thinking outside the mindset of modern construction principles.
- The finished building is recognized as a historical masterpiece by the community with exceptional quality.

“The A&P team certainly proved themselves on this project and continually rose to the challenges presented. In the end, despite the numerous challenges posed by the project's many

disparate elements, A&P helped BVSD rejuvenate a historic community touchstone and ensure Mapleton School's future into the next century.”

- Steve Schumacher, Project Manager, BVSD

Overcoming Challenges

Specific obstacles included:

- All the historical walls were not designed to meet contemporary MEP standards
- The attic was not designed for the new boiler equipment and new heat recovery ventilation that was needed. Layout and material selection was crucial to being compatible with the attic space.
- Working in a building with a history of multiple small renovations in different eras
- Working in a busy neighborhood and a small site that was not accustomed to construction
- Installing an interior elevator into the historical building using unconventional practices while still meeting ADA requirements and QA/QC precision. The complex, unconventional approach involved cutting through the existing wooden floor joists and providing temporary structural support while the elevator shaft was erected.
- Meeting the needs and desires of numerous stakeholders
- Ensuring historical exterior stone was not damaged
- Creating a seamless integration of the finished facility: The disjointed additions to the building are no longer seen, but rather the entire building reflects the original 1888 design.
- Integrating technology: The construction team installed innovative built-in radiators directly into the walls, which met a functional need and coordinated well with the historic interior quality. The clean lines and smooth surface blends seamlessly with the other features of the space.
- Early Childhood Center transition: This necessitated a significant increase in plumbing requirements and coordination to meet the hygienic practices of early education (every class room must adjoin a bathroom and teachers need a line of sight to monitor hand washing). On the newer (1951) side of the school, every slab was torn out to integrate the required plumbing; on the historic 1888 side, the plumbing had to be routed around many obstacles.

Project Specific Safety

In addition to A&P's routine safety protocols and rules, special requirements were set in place to ensure the highest level of safety:

- Tight/congested site coordination: Keeping a park, green space, trees, and custom stone benches intact on a small construction site surrounded by a neighborhood with no parking. In addition, there was an extremely large electrical pole that was artistically framed in the middle of the site.
- Housekeeping: especially ensuring the clearing/organizing of bricks and stone from the site was done properly

- Asbestos abatement: A&P worked with BVSD on fulfilling an Asbestos Management Plan. Trace amounts of asbestos existed in the block filler coating on the walls. These materials were handled in accordance with OSHA requirements.
- Safe Demolition Practices: This project required specific and internal demolition that required extreme coordination on how and what to demolish, ensuring the historical and structural components were not compromised.
- Lead-Safe Work Practices: The plaster covered walls could not be sanded or effectively patched in anyway and therefore had to be removed in totality along with the pressed tin ceiling and other historic elements.
- Dust control: Dust control with asbestos and lead-paint surfaces was a top concern that was addressed in our safety plan.
- EPA guidelines for hazardous material remediation: This meant stripping down to the exterior stones walls section by section; removing the old lath wall support system; shoring bearing walls with additional structural support; and then applying spray foam insulation with metal studs and drywall. The insulation was a dramatic improvement in terms of the former building's thermal performance; bringing the building up to about an R-19 value, while also providing an acoustical buffer between excited young voices.
- Safe construction practices around residential neighborhood: Our team had to be courteous of the noise, activities, and street parking around the site and keep public safety in mind.
- Early Childhood Center safety requirements: The team had to ensure the integration of ECC compliance into the historical renovation.

Community Involvement

From the earliest beginnings of the renovation, the project was deeply connected to caring and influential community members of the surrounding neighborhood, National Landmark Society, parents of prospective/current students, Boulder City Council, tax payers who approved the tax increase for the project in 2010, and the Design Advisory Team (a BVSD group to assist the architect in planning the scope of work.)

A&P fully understood the importance of connecting with the community and was able to meet their needs. For example, although there was a desperate need for school parking, no one wanted to lose park or green space. Instead, a small parking lot was created next to the road, allowing the green space to remain open. The park landscaping was upgraded, and stone benches original to the site were incorporated into the new design. Another example of how the design team catered to the multiple stakeholders is shown in a rehabilitated a piece of concrete art that had been a part of the site for the last 30 years named "Slick the Pig". The team has a local artist refurbish the pig-shaped art-piece and is now featured in the landscaping.

Example of Extraordinary Service Provided

The window restoration provided a value engineering solution that helped preserve the historic aesthetic of the windows while increasing energy efficiency and reducing maintenance costs.

The original plans called for new high-efficiency windows in the entire building. However, after working with the historic society, A&P suggested restoring the original 1888 windows. A&P provided mockups and layouts that coordinated jamb extensions, trim moldings, roller shade pockets, sash pulls, cords, and hardware, and improved the design of true divided light muntins at transoms and pocket windows. The windows were removed and taken off site for restoration, and through the architect, A&P coordinated the requirements for fire-rated glazing, insulated glass, and paint to match the original school colors so that the restoration would be historically authentic.

Completing the project successfully was characterized by:

- Replaced plumbing and fixtures designed for children.
- Lead-painted walls, doors and ceilings were torn out and replaced with matching replicated pieces.
- Refurbished original historic windows
- The tin ceiling, all woodwork, doors, and casings were designed to match the original versions.
- The school's entrance was moved to the back of the building, giving students and parents a safely-located courtyard
- Stone from the original facility was repurposed and all the exterior façade now has matching stone.
- Electrical and data wiring were replaced, and light fixtures were matched to the building's historical appeal.
- A design for a small, much-needed, parking lot was created next to the road so minimal park and green space were impacted.
- The school's green field stayed as an open space with upgraded landscaping. Stone benches original to the site were incorporated into the new landscape design.
- A new, safe, playground was installed and a local piece of art "Slick the Pig" was rehabbed.
- Original wood floors installed in 1922 were refurbished and the historic stairway was rehabbed.
- The existing school bell was modified with a rope and pulley to make the bell functional.
- A round radiator was restored for aesthetic value.



BEFORE: A&P begins the revitalization project on the historic Mapleton School, an iconic neighborhood landmark, that suffered nearly a decade of neglect before work began. Notice the boarded-up windows and unwelcoming atmosphere.



AFTER: The project revitalization created an entirely new ambiance for the school. The school's new entrance was moved to the back of the building, featuring beautiful landscaping and a safe playground. Most importantly, the new site layout gives students and parents a safely-located courtyard with functional access to walk from the school entrance to the new parking lot.





BEFORE AND AFTER: The before photo shows the evidence of structural issues in the existing exterior stone walls. The wall thickness changed from the footings to the top of wall from 2'-6" to 16" respectively so the walls did not stack very well for hydronic rough-in. The window restoration provided a value engineering solution that helped preserve the historic aesthetic of the windows.





BEFORE and AFTER: The former large library, built in the 1970's, was not a functional space for the school's ECC curriculum. Therefore, the space was renovated into a much-needed cafeteria and multi-purpose space. The new functional space features a vibrant colored floor and high ceilings with clerestory windows, encouraging creativity.





BEFORE: The existing staircase in the historic school was not only out of code but very drab and dark.



The historic main entry of the building became the focal point again with its ornamental staircase and refurbished radiator. The staircase was brought to life again with its detailed moldings and new stair treads and risers to blend with the classic maple floors. All of the kept handrail details were coordinated with the State Inspections to meet safety code. Although the radiator is not in operation any longer, it brings aesthetic and historic value to the space. Original features were replicated to match the replaced pieces including the unique fin ceilings and crown moldings.





A new cohesive design was created to link the newly constructed building spaces with the historic building. Highly coordinated demolition took place to remove the former entrance without damaging any of the historical building.



The redesigned "link" provides both a functional use of space as well as a beautiful aesthetic setting for entering into the building. Evidence that the construction team excelled in terms of quality and craftsmanship is understood by seeing the seamless integration from one building to the next.





BEFORE: The 1889-built building sat vacant with structures in shambles. Each wall was a different width because of different materials used throughout the eras. In addition, none of the original walls could accommodate modern-day insulation or MEP. Each wall had to be opened, redesigned, and replaced.



AFTER: The seamlessly-integrated radiators in the walls, refurbished tin-ceilings, original maple floors and restored historical windows all create a modern learning environment that is now warm, welcoming and functional. Unseen insulation provides the needed thermal performance while also providing an insulation acoustical buffer between excited young voices.

