

AGC ACE Award 2016

Category: Best Building Project – General Contractor (under \$10 million)

Littleton Public School – Runyon Elementary Renovation

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Runyon Elementary – a remodel that tops it all.

In 1969 a growing neighborhood in Littleton was excited when a new elementary school opened. Runyon Elementary, designed to nestle into the winding streets of this Littleton enclave, was the pride of the community. But 55 years later, the well-loved building's wood-framed structure began showing signs of its age as the roof started sagging during snow-loading events.

The school quickly installed post shores throughout the building interior as a short-term fix. These temporary shores were almost always in the center of a room and not helpful to the learning environment. Listening to the community, a plan was devised that would keep as much of the existing building as possible while addressing a growing list of deficiencies. The necessary work included essentially removing the roof, raising virtually all the ceiling heights, replacing the entire HVAC and electrical systems, abating asbestos, and correcting many structural issues so the “existing” building would look like new when finished.

Fitting these massive needs within the limited available bond dollars, school schedule and myriad unknowns in a 55-year-old wood structure make this project ACE worthy.

The first indication of structural problems came in winter 2014 after a large storm dumped over a foot of heavy wet snow. The roof joists sagged under the load. The district knew this could be just the beginning of a long list of restoration needs for the school. GH Phipps provided many pricing options and schedule options. From just replacing the roof, ceilings, lighting and repainting to a total restoration with higher ceilings and improved daylighting, our team provided a battery of options. These led to the final plan, schedule and a \$10 million budget.

This was not a normal renovation. The project schedule was tight to get the school back open before September 2016. A normal remodel would complete the necessary demolition, survey and measure accurately for steel fabrication then wait for steel delivery. The new steel had to be preordered and on the jobsite as soon as the abatement was complete. Everything tied to the roof structure. One key project execution and management/team approach included working closely

with school officials in scheduling site investigations while school was in session. At times this included saw-cutting a concrete slab, demolition of the slab, hand excavation, confirming foundation conditions, patching back, and cleaning up as if we were never there. These early surveys were conducted from close of school until midnight. The results were compared to the original as-build drawings (all 13 pages!) and included in the new BIM model. Due to the precision of these surveys and model every single piece of preordered steel was correct. This process, however, could not be done at the most critical area. A thickened slab adjacent to the gym could not be exposed early, but this area was also the best place to start the entire project once the abatement contractor cleared the building. Within hours of the abatement clearance, our teams exposed the inevitable: the actual footing condition did not match the drawings. The GH Phipps team enacted the backup plan, and instead of erecting the structure north to south it moved to south to north without missing a beat. The incorrect foundations were corrected and ready once the sequence moved to that location.

A late discovery added even more risk to this unique project. All existing drywall had to be removed when it was discovered to contain asbestos. This added a great deal of scope and time to the asbestos removal portion and additional risk of damaging existing windows and door frames. Extra care had to be taken around these frames to prevent damage by implementing a bracing-plan with the asbestos contractor while the building was under containment.

The final structural design required a combination of solutions not normally seen together. As noted above, some of the existing foundations were exposed and augmented with concrete pilasters and thickened walls. Fifty traditional caissons were added around the perimeter of the school with the new roof designed to cantilever over the top of the existing brick exterior wall, but the interior design required an additional 47 micro piles and 19 helical piers. Providing access to this equipment required openings to be strategically cut into existing walls and an access road built through the field behind the school.

Many of the existing walls were extended to the higher ceiling heights. The tie between the wood structure and new metal studs above required special order of narrower metal studs to match the old wood materials. The new clerestories and skylights would bring light into the interior of the old building like never before.

Keeping as much of the school intact as possible continued to be a strong directive throughout the project. Much of the school's floor was quarry tile. Protecting the flooring was a project of its own. With the drilling, cutting, demolition and constant traffic over the floor, multiple layers of protection were installed and carefully maintained.

Safety on this project was also somewhat unique. The care required to remove large portions of structure while keeping other areas unaffected demanded a more hands-on effort rather than using bigger and somewhat safer equipment. Every roof joist was connected to exterior walls, interior walls, ductwork and electrical conduits in some combination. Working around the existing old wood structure that required bracing introduced tripping obstacles virtually everywhere. As a result, daily safety talks and plans were established and implemented. Subcontractors were badged with job specific training stickers for their hardhats so at a glance untrained personnel were easily identified and scheduled for training. As a result there were zero accidents on the project.

The neighborhood and Littleton community voted for the Littleton School District bond issue in 2013 long before it was apparent that Runyon's roof structure would have to be razed, exposing the entire facility to the elements. The large abatement scope would further strip the old building; many new support columns would be required, and finally most of the mechanical/electrical would be replaced. The district, their representative Jacobs Engineering, and architect Yon Tanner, hired GH Phipps Construction Companies to assist in the design and management of this project's solution. When the dust settled and the "lid put on" the project was on time and under budget. By most measurements, the district constructed a virtually brand new school at half the price, doubled the life of the building, and pleased the community in an ACE-worthy way

Hearing the praises of the district, neighbors and 24 intrigued school districts in this example of "extreme-repurposing" were gratifying. Hearing the kid's squeals of delights when they came back *their* school – priceless.



Library - Before (with temporary shores) and After (with higher ceiling)



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Typical Classroom - Before (with temporary shores) and After

