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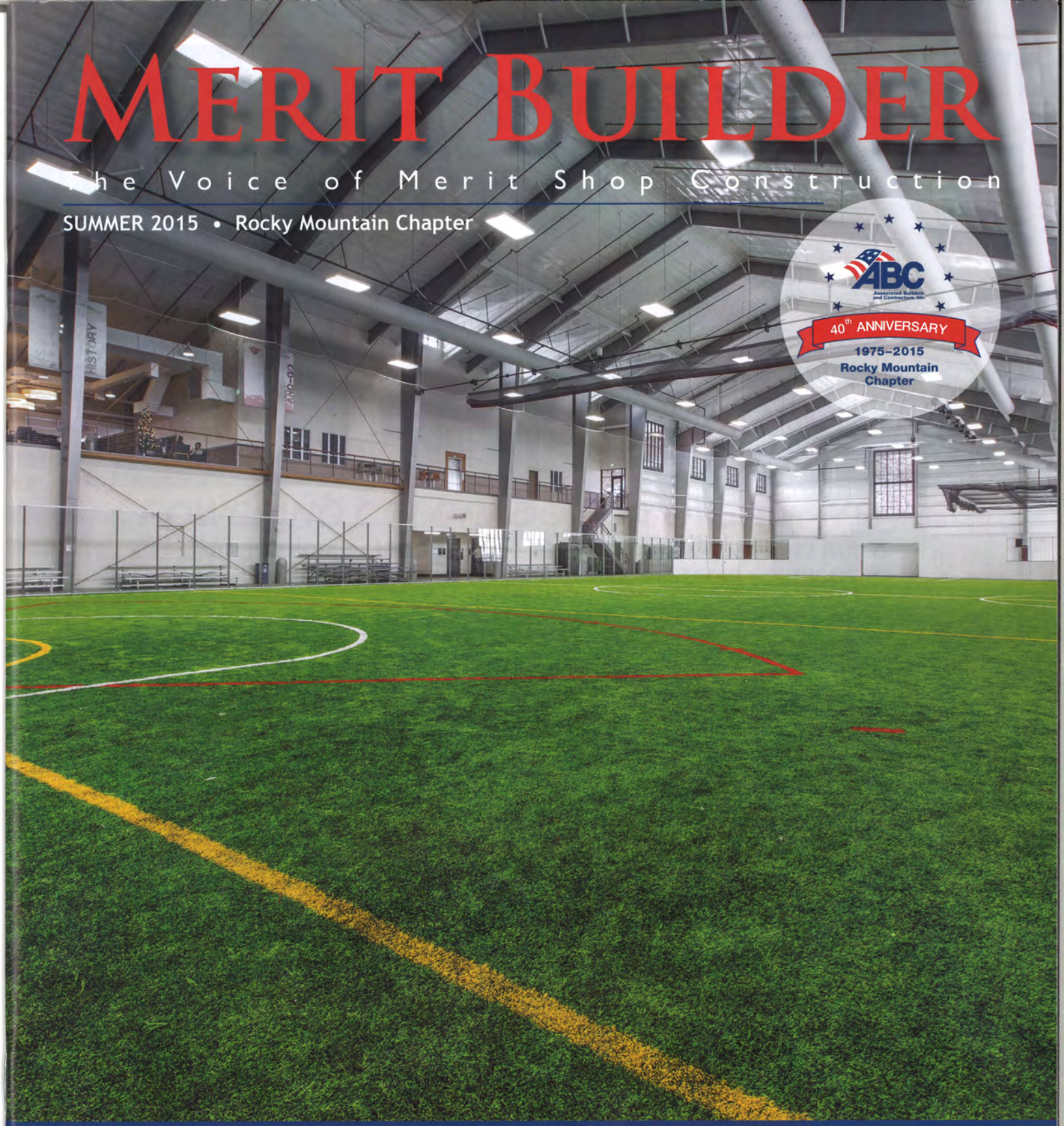

Philip S. Miller Park & Fieldhouse
Castle Rock, CO

Turner Construction - P. 22

Swimming pool inside the MAC

Collaboration and Communication Lead to Success

Turner

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A growing population demands growing amenities. In 2000, the population of the Town of Castle Rock was home to just 20,000 residents. Only 15 years later it's quickly approaching 60,000.

Planning the largest park project in the town's history doesn't happen overnight. Named after local butcher, banker, and philanthropist **Philip S. Miller**, Philip S. Miller Park has been in the works for almost five years. The goal has not been to just meet the recreational needs of this expanding population but to make the park a true regional attraction.

Choosing the design and construction team for a facility of this magnitude was quite the task. Known for their tremendous sports resume, **Sink Combs Dethlefs** was selected to design the Miller Activity Complex (MAC). **BHA Design** was the landscape architectural consultant responsible for the site planning and design for everything outside of the structure including the adventure playground, overlot grading, outdoor athletic fields, challenge hill, concrete pathways, entry monumentation, landscape, irrigation, and parking, as well as the coordination of geotechnical,

electrical, and civil engineering services. **Turner Construction** - who has built notable sports facilities as Sports Authority Field at Mile High, Dick's Sporting Goods Park, and Glendale Infinity Park - was selected as the Construction Manager / General Contractor.

"We were looking for a proven and experienced team that could handle the challenges that came with coordinating this large green field development and building project under an aggressive timeframe" said **Jeff Smullen**, Park Planning and Construction Manager for the Town of Castle Rock. "The project was completed 21 months after Turner was initially hired under a preconstruction services contract, during which time, the design team was still working to complete final design. A strategy of awarding multiple guaranteed maximum price contracts to move grading, infrastructure, and long-lead time procurement forward was used to accelerate the schedule while the design was finalized. This helped to continue to build momentum and excitement for the project, which has turned out to be extremely successful."

Miller Activity Complex

The epicenter of activity at Philip S. Miller Park is the 64,443 square foot, two-story Miller Activity Complex, more affectionately known as the MAC. On a typical day, you'll find kids playing soccer, lacrosse, and football on the artificial turf fields; playing in a 3,000 square foot play area boasting an indoor playground with 23 foot tall slide; jumping around in a 5,000 square foot trampoline zone with 16 trampolines; playing video golf on a 18 hole simulator using real clubs and a life-size projection screen; and taking a swing at the plate in the indoor batting cage.

The MAC also boasts an impressive indoor aquatics center with four lap lanes, a winding waterslide, a zero-entry section with smaller slide, water table, and vortex whirlpool that simulates rushing currents of water.

As you may expect, the MAC is at the top of the list for kids birthdays as the two party rooms accommodating up to ten parties a day have been booked every weekend since opening last October. There were 472 parties in the first five months of operation. Overnight rentals of the entire MAC facility have also been popular with an average of about two group lock in's per month.

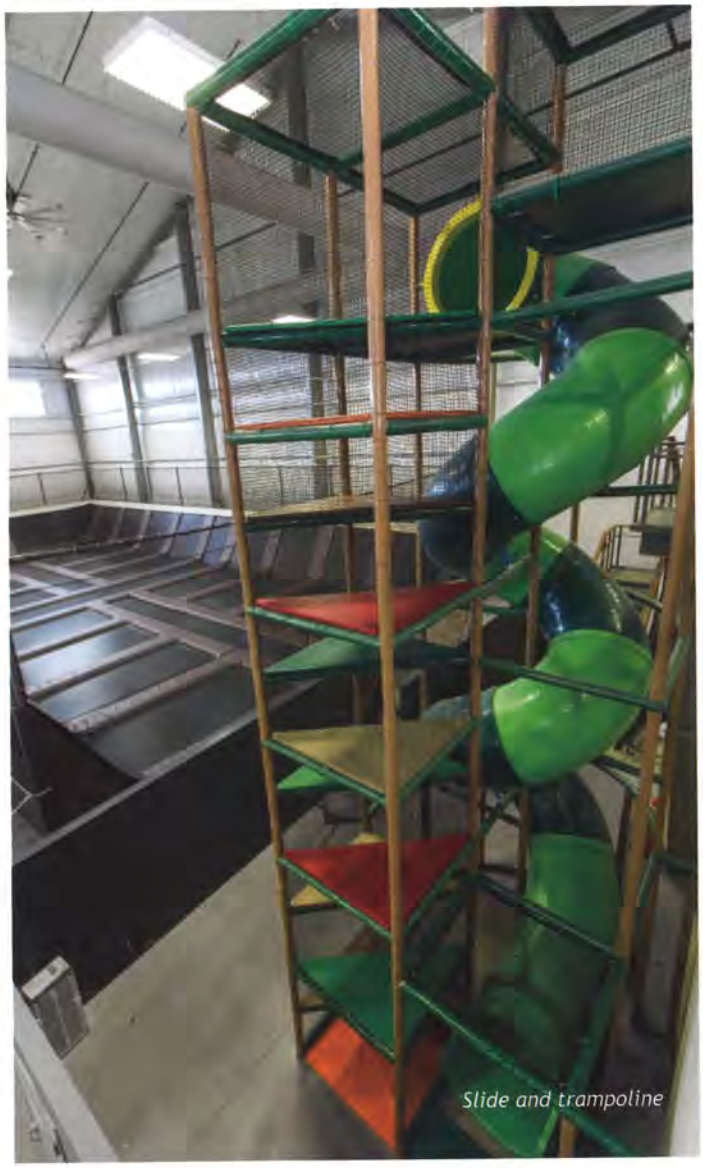
The indoor facility also includes a lounge, lockers rooms, and administrative offices for the Town of Castle Rock Parks and Recreation staff.

Trails / Challenge Hill

Fun isn't limited to just what's inside the MAC. Nearly eight miles of new trails surround the 270-acre site, beckoning hikers, runners, and mountain bikers to explore the area's scenic valleys and ridgelines. One of the most sought out features of the outdoor space is the Challenge Hill, an incline with 200 steps offering a not-for-the-weak workout that rewards outdoor lovers with impressive views of the surrounding area. In March 2015, 25,000 round trips were registered on the staircase.

Lounge

Hallway sitting area



Slide and trampoline

Outdoor Amenities

The most recent phase of the ever expanding Philip S. Miller park includes a 2.5 acre Adventure Playground that features a 40 foot long at grade slide and many other unique play events that blend seamlessly with the natural terrain, Gambel Oak, and Ponderosa Pines. In addition, a large synthetic turf athletic field, concrete pathways, parking, lighting, a privately operated zip line course with 10 zip lines - located throughout the park's ridgelines and the privately operated Epic Adventure Tower, which allows users to climb the 40' climbing wall, zip and jump from a 40' platform or choose to freefall from a 70' platform while protected by state of the art auto belay devices rounds out the amenities within this first phase.

So how did a project with such varying amenities and features envisioned by Castle Rock residents implemented by two architectural firms come together? With a lot of open communication and willingness to try new things.

Working with Two Architects

Traditionally, when there are multiple architects on a project one is designated as the prime. The uniqueness of the indoor and outdoor space at PSM was better suited for an arrangement where when questions arose, Turner worked directly with the party that designed that individual feature including the engineers and consultants. Not being stuck to the norm of having the prime architect go to the sub consultants resulted in more efficient communication and faster decision making.

Lean Construction

Turner has begun using Lean Construction techniques on more and more of our projects. In doing so we have experienced improvements in design team and trade contractor relationships, communication, scope definition, coordination, cost, and schedule performance.

"Lean is a comprehensive management approach to deliver the most value from the customer's perspective while consuming the least resources."

Simply put Lean is about eliminating waste in all forms. The fundamental principles of Lean are:

1. Define value from the customer's perspective,
2. Understand the value stream of all steps in the process used to create the end product,
3. Ensure a smooth flow of value added activities,
4. Utilize collaborative pull scheduling to provide each internal and external customer what they want, when they request it, and
5. Seek perfection with efforts for continual improvement of all aspects of the process.

Lean techniques used on Philip S. Miller Park included training, the use of pull planning, knowledge sharing from previous projects, daily huddles, and the use of an electronic plan table. The project used national resources for a one day training session by coaching the key subcontractors as many of them had not been introduced to lean. This session was an all-day hands on activity which tied directly into manpower, scheduling, collaboration, and trust. Through the duration of the project, pull planning was used by defining a target completion date (milestone) and working in a backwards manner to achieve this date. In other words, tasks are defined and sequenced so their completion releases work.

The outcome of the pull planning events was to input this data into a six week look ahead schedule that basically took the project and divided it into areas. The benefit of this approach is more effective coordination. The six week schedule was updated every day during the daily huddle meetings based on which activities were completed. The ability to hold people accountable in front of others proved to

Party room

be quite powerful as it helped people see how they were affecting other trades. Turner believes that the combination of pull planning and six week look ahead schedules was the reason the project was completed six weeks early.

Sharing knowledge from previous projects about what worked and why was also beneficial. This would be incorporated into how certain activities were performed on the project. The thought process was if there was a better way of doing something, why not do it on this project? Additionally, on-going training was held during the subcontractor coordination meetings. The training revolved around lean and ranged from 5S drills to discussing topics in the 2 Second Lean Book.

Plan Grid, an electronic plan table, was also highly beneficial on Philip S. Miller Park. All documents including submittals, RFI's, and safety manuals were posted on the PlanGrid application. Instead of red lining drawings on a piece of paper, the team was able to attach hyperlinks directly to the electronic drawing making the data immediately available to the subcontractors. In addition to increasing efficiency and communication, PlanGrid also greatly reduced the environmental impact. Additionally, this system could be taken out into the field.

Challenges / Solutions

Every project has its challenges. For Philip S. Miller Park, the first challenge was realized when drilling for the foundation. The MAC was originally designed for drilled piers into bedrock. However, once work began, the team discovered the depth of bedrock was deeper in many areas, on this fill site, than the preliminary geotechnical investigation indicated. Construction was halted and the team worked to find a new solution, which included moving forward with supporting the foundations on geo piers. The rammed aggregate pier's, also had a cost savings benefit because they eliminated the need to drill deep reinforced concrete piers to bedrock and instead improved soil conditions so that a traditional spread footing foundation could be used.

Kid's pool

The natatorium was originally conceived as a conventional building but Sink Combs Dethlefs suggested instead to go with a sprung structure. This aluminum frame supported fabric structure resulted in a $1.5 million savings over traditional construction and still allowed for features such as four large roll up sunshine garage doors, which provide additional lighting and can be raised on warm days to provide access to the outdoor turf and patio areas.

Working on a 270 acre site is quite a task! Turner worked extensively with erosion control specialists to develop a plan to ensure the site was maintained. The team also had two weekly inspections of all BMP's, a third part inspector every other week, and a town inspector inspected the site every month.

What's Next?

The park has more exciting amenities on the way including an outdoor Amphitheatre, splash pad, picnic pavilions, Mill House events pavilion, and a potentially year round ski and snowboard slope that would be developed under a private public partnership agreement.

The highly anticipated Philip S. Miller Park attracted 10,000 people to the Grand Opening. In March 2015, over 160,000 vehicles entered the park and the park continues to average approximately 5,000 vehicles per day. From a project standpoint, the Town of Castle Rock was happy too as PSM ultimately came in under budget with $350,000 in funds getting turned back to the owner.

Founded in 1902, Turner has a nationwide network of offices located in most major metropolitan areas. With a broader geographic presence in the U.S. than any other construction company, Turner combines the accessibility and support of a local firm with the strength and resources of a national corporation. Turner's Denver office offers commercial construction services tailored to specifically meet our client's needs and to meet project goals. Contact Turner construction at 303.753.9600 or visit their website at www.turnerconstruction.com. ■