

## 2014 ACE AWARDS

Category 09: Best Building Project  
(\$10–\$40 Million—General Contractor)

# Western State Colorado University **Mountaineer Field House and Recreation Center**

## PROJECT TEAM

### OWNER

Western State Colorado University

GENERAL CONTRACTOR/  
CONSTRUCTION MANAGER  
JE Dunn Construction

ARCHITECT  
Sink Combs Dethlefs

STRUCTURAL ENGINEER  
Martin/Martin

CIVIL ENGINEER  
Schmueser Gordon Meyer

MEP ENGINEER  
The Ballard Group

LANDSCAPE DESIGNER  
studioINSITE

## PROJECT NARRATIVE

### Project overview

Mountaineer Field House and Recreation Center provides Western State Colorado University with training facilities that now rival many NCAA Division 1-A universities.

At 7,750 feet above sea level, the new 119,210 SF, \$26.5 million field house and student recreation center addition includes the highest elevation 8-lane indoor collegiate competition track in the nation. It also boasts three multipurpose courts in the infield, a 44' tall competition climbing and bouldering wall, a fitness center and three activity rooms.

Mountaineer Field House also includes the new High Altitude Performance Lab, giving students hands-on training in measuring sport performance and exercise physiology for clients from the university, summer sports camps and the Gunnison community at large.

Other amenities include the renovation of the existing locker rooms and weight rooms, class room space in support of the University's intercollegiate athletic program, plus new offices for the track and football departments.

This sustainable project is on track to receive LEED Gold certification.

### Overcoming special challenges

Location of the project in Gunnison, Colorado meant that our team faced both geographic and weather related challenges.

Committed to drawing on local resources for the Mountaineer Field House project, local subcontractors were solicited and procured for much of the work, however large scopes, such as steel, mechanical, electrical, roofing and drywall, required using firms based in Grand Junction, Colorado Springs and Denver.

The impact associated with housing out of town workers and the added travel time for workers to reach the jobsite meant that crews could not be easily adjusted on short notice. Additionally, a work area could be shut down for a day or more waiting for a replacement tool or a major piece of equipment to be shipped to the jobsite.

Because of these constraints, a higher level of coordination was required by all team members to level the manpower requirements, maintain reliable schedule commitments, and arrange for adequate surplus materials and equipment parts.

Using Lean construction practices, including the Last Planner System, provided our team with more reliable and level work flow. Our team held ourselves and each other accountable for meeting deadlines and providing quality work for the “next man up” in the work flow.

Preplanning efforts, local relationships, and detailed scheduling among all subcontractor partners accounted for the success of the project and resulted in a project completion date that was six weeks ahead of the original schedule completion date.

In the winter, Gunnison, Colorado is one of the coldest places in the lower 48 states.

Construction of the Mountaineer Field House and Student Recreation Center spanned two winters where the temperature regularly dipped below -20 degrees Fahrenheit and frequently did not reach zero degrees. Much of the masonry and steel structure was erected during this time, requiring temporary protection and special treatment of the equipment. Low viscosity hydraulic fluid, heat tape around hydraulic parts, and battery heaters were all required to keep equipment operational. During the placing of concrete the schedule was modified to allow for temporary heating of the floor areas to avoid ground thaw issues.

### **Active user group involvement**

As a student-funded project, our team relied heavily on the participation of students and faculty user groups during all phases. During the preconstruction phase, our project team worked side-by-side with user groups to develop a budget that would address the program goals. The user group consisted of students, student-athletes, and faculty from the Athletics, Student Recreation, Recreation and Exercise Science, and Wilderness Pursuit departments.

To kick off the design of the Mountaineer Field House, the entire design and construction team started the process by engaging the user group and project stakeholders—students, faculty, administrators, department heads and university maintenance personnel—in a week long design charette. The team held interviews of the users groups to review the program and confirm space requirements and work sessions where design alternates were voted on and prioritized by the students and then incorporated into the final construction.

One particularly influential group was the student climbing committee. This group met regularly with the design and construction team to help develop the climbing and bouldering area program, select the climbing wall designer and builder, and influence the final design of the climbing and bouldering walls. During construction, students and faculty were kept informed of the project

status through regular progress meetings.

### **Innovation**

Design and construction of an energy efficient, sustainable building at one of the coldest climates in Colorado required an innovative approach to a building envelope that could withstand a harsh climate and meet the project's program and energy goals. The team worked with building system consultants and material providers to determine how to construct an economical thermal skin system that could be constructed through a cold spring and short summer yet still stand up to the operational abuse expected in an athletic field house. The result was a composite rigid and blown insulation system without an exterior gyp layer. This system provided the required R26 insulation value and weather tight barrier at the same or lower as traditional wall systems.

### **Quality Craftsmanship**

Our team delivered a high quality building with long term durability able to withstand extreme weather conditions six weeks ahead of schedule. Early coordination between the general contractor, the design team and the steel fabricator resulted in the design of the major trusses supporting the field house 206' span. Constructability and integrity of the design were taken into account, as well as efficiency of the construction. This coordination went well past design into the construction of the building. Subcontractors were engaged in Lean construction practices, including Last Planner System, to plan the most efficient way to work together. This detail planning—early on and on a day-to-day basis—was a large part of what drove the schedule efficiency. Lean practices not only drove schedule improvements, they also allowed for better quality through detail planning.

In addition, our team worked together in the review of material interface details, flashing locations, and constructability of the system. The Quality Assurance team conducted computer generated models of the thermal and moisture barrier performance for the exterior wall, and at window and door openings where multiple skin systems come together. Reviewing details in a 3D model allowed the team to see material interfaces, such as the area between the window and masonry flashings where the sill and jamb intersect, that cannot be fully understood in two dimensional drawings. These efforts informed the team not only about correct detailing of the design, but the order in which they need to be installed to work correctly.

### **A dedication to safety**

We take an “active caring” approach to safety, ensuring that every employee goes home to their families the same way they came to work. Safety orientations are tailored to the specific project and the inherent safety risks associated with each project. These challenges were addressed daily during the “Plan of the Day” meeting held between supervisors and field personnel to determine recognized exposures and the “means and methods” of eliminating those safety hazards or controlling them through a “Job Safety Analysis.”

Weather conditions and walking / working surfaces were a challenging aspect of this project. Our team implemented proactive fall protection practices prior to the arrival of bad weather. We

installed adequate anchor points for tie-off and ensured that all employees had the necessary gear and training. Engineering controls were applied to protect surfaces from ice and access routes to the work area were strictly controlled and limited to authorized personnel.

To ensure a safe job site, our safety specialists performed a formal safety audit each week utilizing a proprietary safety inspection program called SIMS (Sight Inspection Management System). The data collected from the safety audits provided hazard trends that identified potential safety deficiencies on the project or with the supervisor or subcontractors.

### **Contribution to the community**

Design and construction of the Mountaineer Field House has benefited the entire Gunnison community. Mountaineer Field House and Student Recreation Center provides Western State Colorado University with an excellent student and athlete recruitment tool by demonstrating that facilities at the University are on par with Division 1A campuses around the region in size, amenities, and design. In addition to recruitment of athletes, the facility is also drawing many sports camps to the area.

As reported in the April 10, 2014 issue of the Gunnison County Times, the Mountaineer Field House has had an estimated economic impact of over \$6 million to the local Gunnison economy. The on-site management crew included a foreman hired from the local community and the project team included five local subcontractors, representing over \$1.1 million worth of work. In addition, over \$800,000 in material was sourced locally, many construction services were procured locally, and more than half the equipment used on the project was rented locally.









