

There's no doubt arena projects are challenging; the sheer size and complexity of modern arenas guarantee that. The University of Wyoming Arena Auditorium renovation, however, posed more obstacles than most. From unknown conditions behind and below the 30+-year-old concrete walls, floor, and tread risers, to unforeseen weather circumstances, this project stands out from the crowd.

Originally built in 1982, this NCAA Division 1 arena is home to the UW Cowboys and Cowgirls basketball teams. Despite the 200,000 SF area, the floor space was inadequate for an effective practice area (Photo 1). The University also wanted to enhance the customer experience for the incredibly loyal fans. Rather than build a new facility, the University chose to increase the playable floor space and upgrade the fan experience within the existing footprint.

The unique renovation utilized mass demolition, soil nail retaining walls, and retractable seating system to nearly double the event floor adding two half-court practice venues for the UW basketball program. Key elements of the reconfiguration that escalate the fan experience include prime student seating closer to the floor; sightline sensitive seating design; additional, elevated media seats; additional ADA seating; and maximized sightlines to the two new 19'x45' state-of-the-art video display boards.

UW Athletics directed the renovation design which rotates the basketball court, expands the court level floor to accommodate greater practice functions, provides retractable seating in the lowest portion of the seating bowl, provides new seats in the lower bowl, and replaces the arena's video and sound systems. The arena's new lighting and audio visual system support the desired pre-game and performance displays that enrich the spectator's experience of Wyoming basketball.

Exemplary project management, a true spirit of team collaboration, and innovative ideas enabled the success of this complicated project. Unknown facts concerning original construction methods, dust/noise containment, water tables, record rainfall, and altitude all contributed to the complex challenges of the project. The team used truly imaginative ways to combat normally benign issues that were problematic because of the unique architecture of the arena and the intricacies of the work.

Haselden's task was to demo approximately 7,000 seats—removing 12 rows (about 36') of cast-in-place tiered concrete—rebuild the walls where we would install telescoping seating, and rebuild the floor. Our first challenge arose during the demolition: instead of finding only soil behind the concrete, we discovered “gravel pockets.” Because the original concrete was poured on a slope, the gravel pockets would slough off, effectively draining the support for the concrete that was to remain above the demolition levels. Through a combination of grout injection, shotcrete application, and overhead grouting, our team was able to stabilize the gravel pockets and allow the soil nail and shotcrete wall application to continue (Photo 2).

Because the fully functioning administration building was directly adjacent to the arena, dust and noise control were major considerations. Our solution: tent the entire demo area (Photo 3). This “circus tent” style containment method proved highly effective at reducing noise and dust in the immediate vicinity. To properly ventilate the tented space, we took an unusual approach. On two opposite sides of the arena, we created “tunnels” with fans that provided 110,000 CFM of ventilation. These tunnels led out the doors of the arena and allowed for effective ventilation of equipment exhaust to provide the crew with a safe work environment. The fresh air came in through the truck ramp. The tunnels were created with garage tents (portable carports) that were connected together. They were inexpensive, effective (Haselden hired an industrial hygienist to perform a study guaranteeing the proper ventilation of the site), and, after the project was completed, were repurposed to the University and some laborers for use on campus or at home. Another example of reusing materials occurred during the demolition/excavation. The 3,500 cubic yards of dirt we removed was hauled offsite to the UW stockpile, and we cleared 1,200 tons of concrete which was recycled (Photo 4).

After the walls were complete, the next step in the process was to pour the foundation floor. Because the wood floor that was to top the foundation would be laid below the water table, extra precautions for moisture prevention were necessary. An additional sump pump was added to support the expanded floor space. Water proofing membrane went behind the shotcrete wall, then tied into the water proofing membrane placed under the concrete floor pour. Most importantly, Haselden decided to do one continuous pour, thus eliminating construction joints in the concrete (which are a natural seepage point). Haselden poured the

perfectly flat (a necessity due to the wood floor that would top it), 18,000 SF slab (306 yards of concrete) in 11 hours (Photo 5).

The next challenge involved the wood floor and its effect on the schedule (Photo 6). The University basketball season ended in mid-March and the arena needed to be ready for use by the 7th of October. While the first game isn't until the first week in November, both basketball teams are allowed 30 days of practice before the first game. If construction wasn't complete, it would put the teams at a disadvantage for the entire season. Given that the facility has been nicknamed the "Dome of Doom" due to the Cowboys winning 74% of their games, this was not an ideal situation. Our first step to overcome the timing issue was finding an additive made by Concure Systems which allowed us to install the wood flooring 7 days after the pour (as opposed to the normal 30 days). Before the pour, we obtained a warranty from Concure ensuring the performance of both the slab and the wood floor, protecting the owner and the construction team.

During the installation of the floor, another unforeseen circumstance occurred. We allowed time for the wood to be laid out and acclimate in the arena environment. Unfortunately, during this acclimatization, Laramie – normally an arid climate – received record rainfall. This caused the wood to swell with 7-8% moisture content and the subcontractor refused to install until the moisture content was down to 5.5%. To solve this issue, Haselden tented the entire 18,000 SF basketball floor area and installed dehumidifiers for two weeks. Because this unanticipated circumstance greatly impacted the schedule, Haselden could only guarantee delivery by October 17th, leaving the players with only two weeks to practice instead of the 30 days they're entitled to. Additionally, the distinction of being the highest altitude (7,220 feet) NCAA Division I basketball venue in the country has its downfalls, and in this case, impacted the schedule. Spring in Wyoming still brings snow, and there were multiple (7-8) instances when the weather was so bad that all roads to Laramie were closed, meaning workers and supplies couldn't get in. To combat these schedule issues, the Haselden team worked 7 days per week (two shifts per day to get the floor installed!) and were able to turn the facility over on October 6th.

Immediately upon being awarded the contract, Haselden developed a project- and site-specific safety plan which addressed the unique qualities, concerns, and issues related to the project. Our team then met with UW staff to establish requirements, expectations, reporting needs, and lines of communication.

Our superintendents led the on-site team, conducting weekly site safety meetings in addition to weekly safety and environmental audits. All subcontractors were clearly informed during orientation, in the bidding documents, and in the project manual of the safety expectations and requirements of the project. This project logged a total of 25,391 hours with no lost time hours.

The Haselden team worked tirelessly to ensure the project finished on schedule, which was of the utmost importance to our client and the community. UW basketball season is of major significance to the community, so doing everything possible to bring it in on schedule—no matter what the unforeseen delays were—was the ultimate value to client (Photo 7).

While many unexpected obstacles materialized during the project, the ultimate successful outcome proved that the team's perseverance paid off. Not only is this facility enjoyed by University of Wyoming students, staff, and fans, but because this is a community center, many others use the arena, too. You'll often find parents pushing strollers, joggers taking advantage of the indoor atmosphere, and athletes running the stairs. And with 11,612 seats, it has the largest indoor seating capacity in the state (Photo 8).

The owner is thrilled with the results. It was recently ranked as the number one college basketball court design in the nation (Photo 9). In addition to the beautiful—and much larger—new court space, the players also have renovated locker rooms (Photo 10) and a 2,500 SF weight room. “Our utmost thanks goes to all the members of the team, but especially Haselden,” states Senior Associate Athletic Director Bill Sparks, “for their tireless efforts to provide us with a high-quality facility and to make our Mountain West Conference opponents once again envious of the arena auditorium.” Because of the success of this project, Haselden was subsequently awarded Phase 2 of the renovation.

01-Haselden-UW Arena



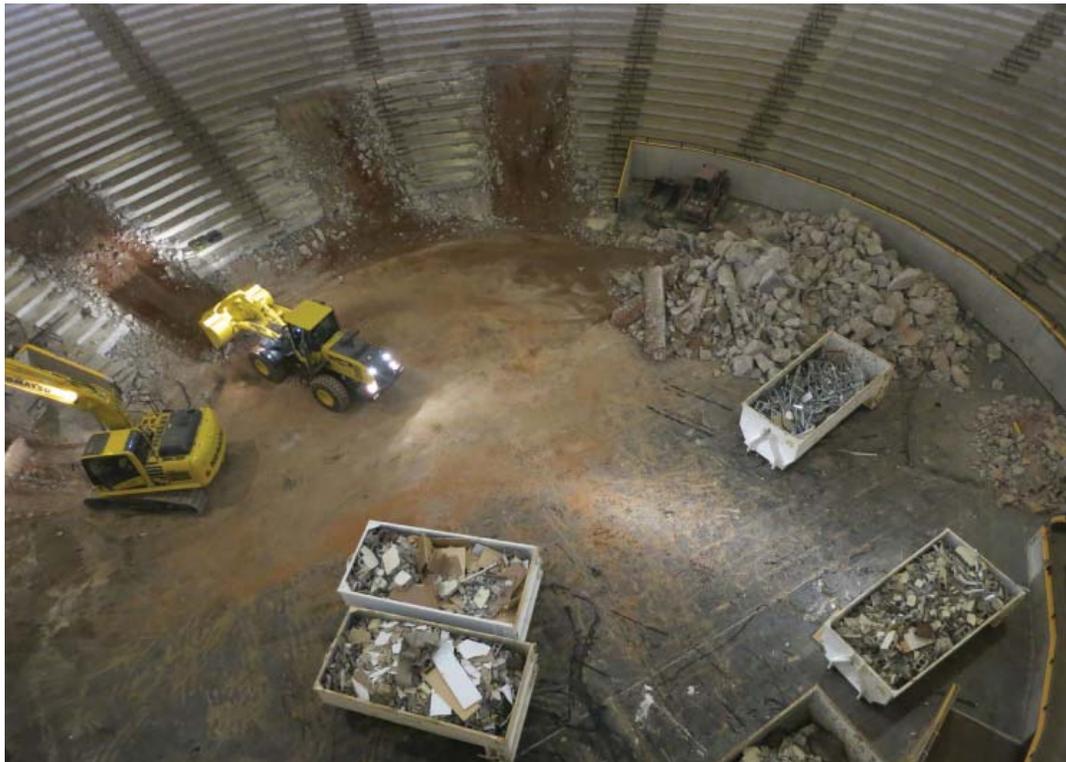
02-Haselden-UW Arena



03-Haselden-UW Arena



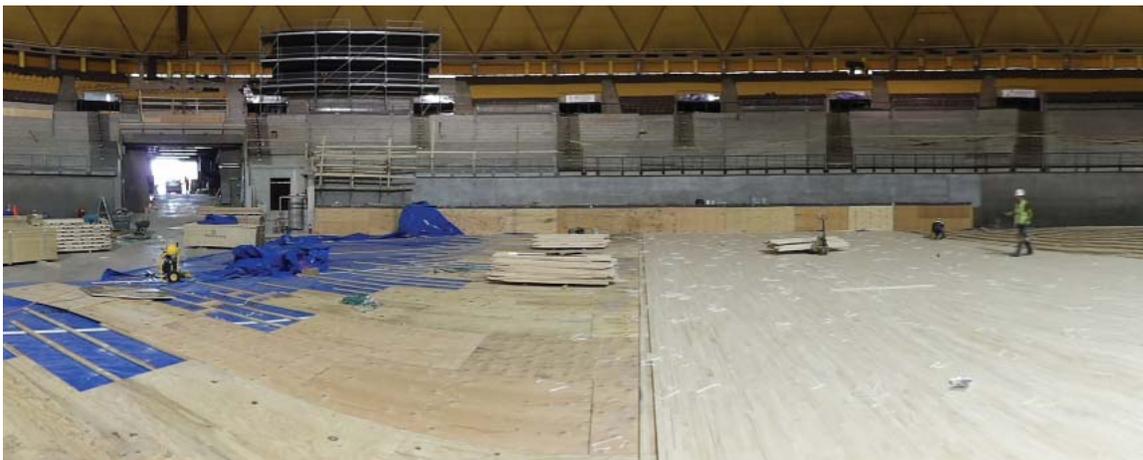
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