

AGC ACE Awards 2021

Category 10 – Best Building Project, General Contractor (Under \$10 Million)

General Contractor – GH Phipps Construction Company

Project Name – Red Rocks Amphitheatre

Raise the Roof, Red Rocks!

Named the “*coolest outdoor amphitheater in the nation*,” in a Rolling Stone Magazine readership poll, Red Rocks Amphitheatre is a naturally occurring, geological phenomenon resulting in uniform sound distribution throughout the space. An acoustically astounding environment surrounded by diverse vegetation, wildlife, and breathtaking views framed by the layered ancient sedimentary remains of the ancestral Rocky Mountains – an unarguably extraordinary venue.

Clamorous Challenges

Working effectively on a strict timeline during a **global pandemic**, *accepted*.

Removing the iconic stage canopy carefully in a **delicate environment**, *accepted*.

Improving functionality and safety of the roof while **preserving aesthetics**, *accepted*.

Turn It Up

A building project like no other, the design and construction team faced a feat in removing the original 1988 canopy by crane, replacing it with a complexly designed roof intended to meet standards of improved safety, functionality, and aesthetic design. Improving an already exceptional entertainment experience for the greatest bands, musicians, and artists in the world demanded the very best and brightest talent in the industry. GH Phipps Construction Companies was honored to be selected to take part in this culturally significant project, a Denver National Historic Landmark, once listed as one of the Seven Wonders of the Geological World.

Resounding Solutions

Led by Project Manager, Kyle Casinelli, the GH Phipps team began working against the odds of the COVID-19 pandemic. For the first time in history, the venue sat still – all 9,525 seats, empty.

With safety at the forefront, the team forged delicately ahead to remove the original canopy without disrupting the precious surroundings. By mid-October 2020, removal was a full success, with parts recycled or preserved for later repurpose. This achievement was made possible through an intensive feasibility study including drone filming and 3D point cloud technology, generating detailed digital renderings of the space. Eight original support columns were removed from the earth, and four new footer locations were identified. Digging 6' below the stage, micro piles were drilled deep into the bedrock where concrete was poured to create 2' – 3' thick foundations for the new steel columns to support the roof.

The new roof was designed as a gently sloping plane with a faceted edge. From the audience view, the structure looks curved to align with the formation of the rocks surrounding the structure. Careful attention to detail was paid in enhancing the look. Every step was completed sensitive to the existing registry of Red Rocks Parks District's National Register of Historic Places, accepted in 1990, and the designation of a National Historic Landmark, 2015. All phases of the renovation were approved by the Historic Society.

Full Chorus

Excellence in project execution and management/team approach were achieved in the approximately eight months' time it took to bring this project to completion. Due to COVID-19 safety planning, the team was mandated to follow strict guidelines for hygiene and distancing, which had paid off. With quick adaptation to the new plan, the team came together and constructed the new roof, providing a safe platform for stagehands and riggers and brought to life the SkyDeck™ structure appearing light as air above the stage nestled between the boldly emerging rock formations.

Goals achieved:

- Improved safety including guard rails for riggers to move around without a lifeline
- Five times greater rigging capacity – originally 36,000-pound capacity, now supporting of an evenly distributed load of 150,000 pounds
- An inconspicuous size and organic shape complimenting the curvature of the rock
- More natural materials to achieve the desired, natural look

- Ice and water shield including ¾” pressure treated sheathing on Douglas fir
- Multi-directional functionality to support wind speeds from various directions

The Performance of a Lifetime

Construction innovations and state-of-the-art advancement were achieved throughout this project. The original canopy had outlived its life expectancy and appeared to be dated. Our team not only improved the aesthetics, they provided exceptional performance and safety standards for the new structure. Details of the design were created in a “function following form” strategy, and the uniqueness of this project was brought to life.

With preservation of a delicate, historical space in mind, Y-shaped columns took shape, limiting penetration and protecting the existing structure. This created a unique look and feel, complimentary to the original design and appearing as if the structure was supported by the stage floor, an illusion to awe the crowd.

Atop the columns, a SkyDeck™ grid was designed as a one-of-a-kind system allowing everything to be safely dead hung, including 84 moveable spanner beams. Creating a low profile and safe walking surface, EdgePro™ was used to fit snugly to SkyDeck™’s panel edge. A highly visible safety yellow finish was added to the walking surface to mitigate tripping hazards.

Surrounding the rigging setup, a set of gas piston assisted hinged panels opening at the center – like double doors – were added to permit large equipment to be moved through the space. The doors are easily operated with a chain motor. Brilliantly, to improve walkability, a metal staircase was added to replace the ladder located offstage right center and was anchored to the bottom of the north tower. The existing structure would not have structurally supported the stairs; this solution prevented disruption to the historical architecture. The entire rigging level is surrounded but a guardrail for safety and freedom from attached lifelines.

A Note to Environment and Safety

Environmental impact was a prime consideration in executing this project. We are proud to have achieved our goals and met the standards set for the historical nature of this venue. Safety was vastly improved, and the heavy timber roof on structural steel met the goals of both modern and

historical. Innovative features were built to stand up against harsh Colorado weather while appearing to be light and unobtrusive to the spectator.

Grand Finale

With an effort in excellence in client service and dedicated contribution to the community, our team was “*next on stage*” when all other performers took a pause amidst the 2020 pandemic shutdown. With Elevate Denver’s 10-year bond program in place, the GH Phipps team worked hard and fast to enhance the city of Denver through improvements to the city’s infrastructure. In this rare moment in time, our team had the opportunity to give back, improve an iconic stage, a historical landmark. We “raised the roof” at Red Rocks Amphitheatre, uninterrupted.

“It hasn’t been lost on our design and construction team that the greatest bands, musicians, and performers around the world want to perform at this famous venue. We just happen to be ‘performing’ as construction specialists.”

- Kyle Casinelli, Project Manager