BY **MARK BLACK**

Red Rocks Amphitheatre:

The famed venue gets a long-awaited beautiful new roof and rigging grid.

IA STAGE IS AN ETCP RECOGNIZED COMPANY that proudly employs ETCP Certified Riggers, including trainers and subject matter professionals. We've established ourselves among the experts in the theatrical and specialty rigging industries. As experts, it is our position that all venues—especially the newer arenas—should employ ETCP certified riggers and electricians.

One of our most recent arena projects is the new stage roof at Red Rocks Amphitheatre, which was, by the way, named the "coolest outdoor amphitheater in the nation" in a *Rolling Stone* poll. Situated between two enormous rocks—Ship Rock to the south and Creation Rock to the north—it's the only naturally occurring, near acoustically perfect amphitheatre in the world. I could barely contain myself when the project was awarded to us. Red Rocks is a bucket list destination for many folks. I had seen a show there a few years ago and I remember thinking how cool it would be to see a more robust stage tower with a SkyDeck. And now here we are!

> **"The project required high-level rigging expertise and the importance of safe working practices was paramount."**

The venue was looking to provide more protection from the weather and a safer environment for the riggers. They also wanted the roof structure to be able to take more weight. The project required high-level rigging expertise and the importance of safe working practices was paramount. In an industry where working at height is a requirement, you have to be fit, have proper training, and confidence in your abilities. We all want to go home at the end of the day, right?

We worked very closely with architect Short Elliott Hendrickson Inc.; structural engineer Martin/Martin Consulting Engineers; and general contractor GH Phipps Construction to make sure we got it right. We sent Mark Powell out to Colorado to supervise the installation of a SkyDeck system for the new stage roof structure. He's been with us since 1989 and was among the original class of riggers to earn his ETCP Theatre – Rigging Certification in 2005. I trust him. The new roof project went something like this: The original roof was cut off in four pieces and removed with cranes. Then, the original eight support columns were pulled out of the earth. Four

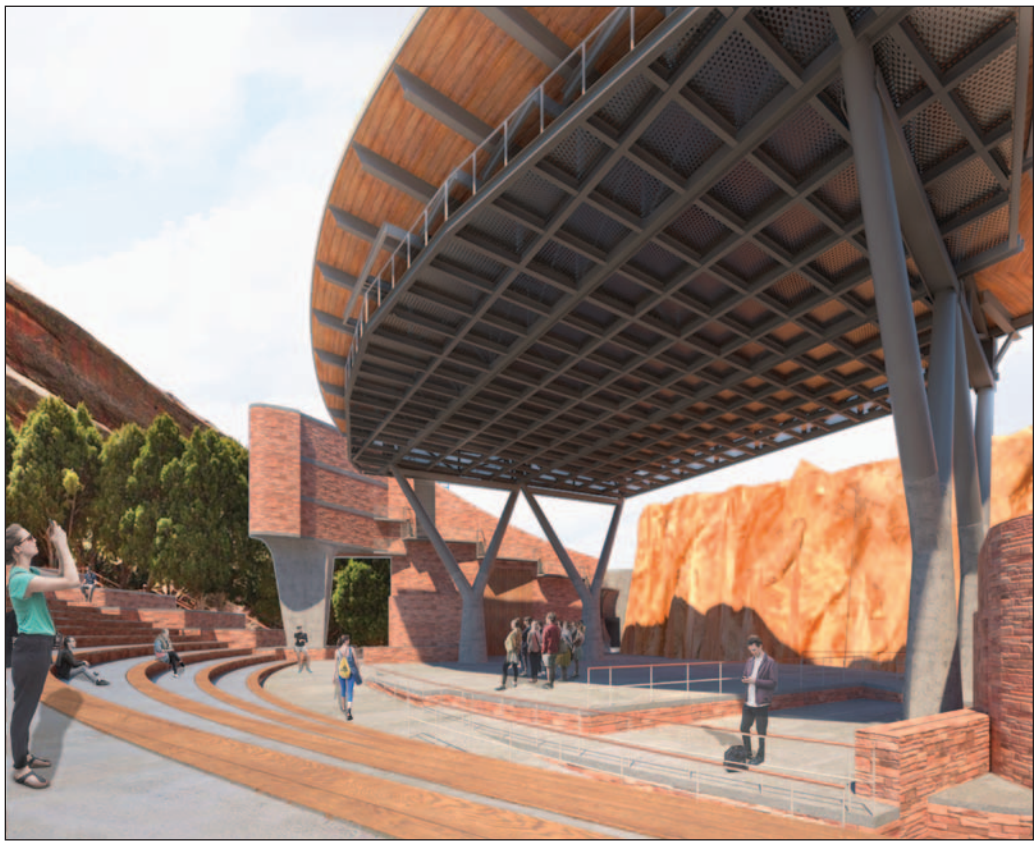

PHOTO COURTESY OF SEH (SHIRT ELLIOTT HENDRICKSON INC.)

A rendering from the front-of-house of the new stage roof at Red Rocks Amphitheatre.

Looking from the stage roof during construction.

PHOTO COURTESY OF GH PHIPPS CONSTRUCTION

new footer locations were prepared 6' under the stage floor. At each footer location, six to nine micro piles were drilled down to the bedrock, and upon reaching it, drilled an additional 14' *into* the bedrock. Four concrete pile caps were poured on top of each of the new footers to create 3' thick concrete foundations to support the new steel columns.

At stage floor level, the new roof support bases are round formed-concrete columns that begin to taper as they reach 12'0" high. They are topped with 5'4" high poured-in-place concrete splayed (Y-shaped) columns. The arms of the splayed columns, which are finished with a metal wrap with fully welded seams, continue to reach upwards on an angle until they meet to form in the shape of a rough W on either side of the stage. They look awesome.

Three main trusses are seated on top of each point of the W columns. The main trusses span from stage-right to stage-left. Additional trusses running up and downstage connect to the three main trusses and create the major framing for the new roof system.

The steel framing that runs up and downstage is on 10' centers and holds up the rigging gantries and the SkyDeck tension wire grid. The original structure could support roughly 36,000 lb. of rigging equipment. The new structure was designed to support 150,000 lb. The stage itself is not affected by the weight of the structure, nor will it be affected by the weight of rigging equipment.

Situated inside the truss system at 40'2" above the stage floor is a network of evenly spaced steel I-beams, which are attached to the bottom chords of the three main trusses and the two larger bridging trusses. These I-beams, arranged in a grid pattern, hold 88 modular SkyDeck II panels in place. SkyDeck II is catwalk-rated tension wire grid with a live load capacity of 50 lb. per square-foot.

The SkyDeck panels are attached to the roof framing via proprietary IA Stage saddle brackets. Each SkyDeck panel is strung with stainless steel cables woven on 2" centers to form a sturdy mesh walking surface.

Two feet above the SkyDeck is where

Construction of the roof structure at Red Rocks Amphitheatre.

PHOTO COURTESY OF GH PHIPPS CONSTRUCTION

you'll find the new rigging gantry system and rigging grid. The grid was designed so that everything can be vertical hung with no bridles. The flexibility of hanging positions was enhanced with the addition of 4" grid wells on each side of every SkyDeck panel. A grid well is a gap between the SkyDeck panel and the surrounding I-beams that allows you to easily rig through the grid wherever you'd like. Each panel is sheathed with IA Stage's EdgePro, a formed-steel guard designed to protect SkyDeck's wire rope fittings as well as protecting all rigging slings and hardware from damage.

From below the stage floor to the top of the roof, this new structure incorporates layer upon layer of safety measures. Our company slogan is "Safety Above All Else." ETCP Certification has come to represent the industry standard in safety and we respect that. ■

Mark Black, founder of InterAmerica Stage, started his career in the motorcycle industry. Along the way, he cultivated an intense interest in theatre and grew to be a senior project manager with Hoffend & Sons, where he supervised stage machinery installations worldwide and managed art center and opera house projects in Europe and the Americas. He founded IA Stage in September of 1989 in Daytona Beach, FL, because of its easy access to major theme parks, cultural centers, and motorsports. IA Stage soon became among North America's top rigging firms and has a long established relationship with every major theme park in Florida and entertainment venues around the globe. He is proud to have ETCP Certified Arena – Riggers and Theatre – Riggers on the IA Stage team. Mark can be reached at info@iastage.com.