

CASE STUDY

GKD METAL FABRICS

LEADING PROVIDER AND PIONEER OF ARCHITECTURAL METAL FABRIC



DOWN THE FINISH LINE

Hayward Field:
University of
Oregon
Eugene, OR

PROJECT
PARTNER
SRG Partnership

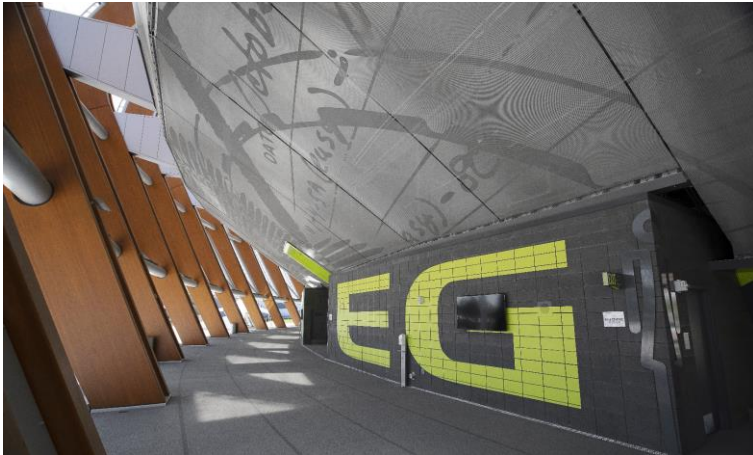
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Marking the centennial celebration of the University of Oregon's legendary Hayward Field, the stadium was scheduled to become a completely reimagined venue for the Track and Field 2020 U.S. Olympic Team Trials—an event taking place on the world stage. The University, known as TrackTown USA for its longtime dedication to the sport, embraced the opportunity to create a state-of-the-art track and field facility designed and built entirely around the elite athletes and dedicated fans it would house.

The design team at Seattle-based SRG Partnership was charged with bringing this stadium to the forefront of athletic facilities while also honoring its rich past which elevated the sport nationwide and brought continued notoriety to the University.

DOWN THE FINISH LINE

Due to the nature of track and field races, the hot ticket is as close to the Finish Line as possible. Knowing this, the design team at SRG Partnership planned a stadium that would be able to accommodate the largest amount of people at the most desirable sightline. This meant that the classic, colosseum shape of the stadium would be stretched to rise up at the point of the finish line, making an asymmetrical form.



“We wanted to do something different and innovative,” explains Marquesa Figueroa, SRG associate. Figueroa saw the project from initial concepts and sketches through design development and construction with a focus on the exterior. To design this structurally would be a feat – to create the illusion of one clean, continuous façade was another. “We wanted to keep it aesthetically clean and cohesive from the ceilings to the door handles,” recalls Figueroa.

LIGHT AND FAST

Figueroa says typically what you see under the bowl of a stadium is all its inner workings, such as plumbing, hydraulics and HVAC services. But SRG's design team wanted to hide all the unsightly mechanical that can usually be seen when strolling a stadium concourse.

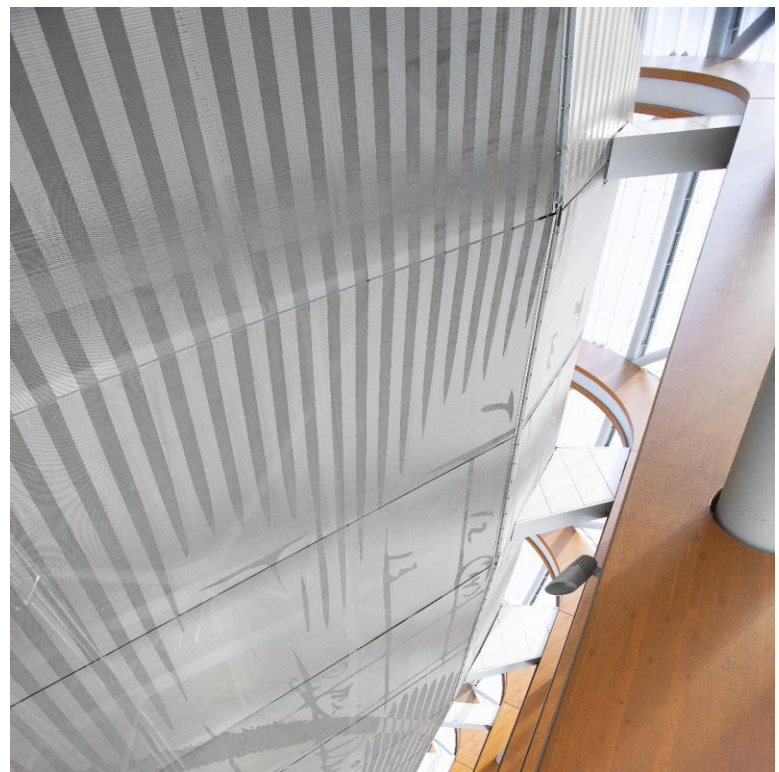
The design would need to obscure, but also comply with requirements for essential ventilation requirements.

The team considered perforated metal panels, but to cover the continuously curving toroidal shape of the overall stadium design ruled out the material, as it could not satisfy the complex geometry and flexibility required. “The bowl is asymmetrical and growing with what’s happening on the field,” explains Figueroa. “The roof line follows the stadium’s highest point at the finish line, and the chosen material would need to be flexible enough to follow that torquing curve, as well.”

SRG found GKD Metal Fabric could satisfy the exact technical and aesthetic requirements for the Hayward Field project. The product was a great opportunity to do something different and innovative and also offered branding opportunity to pay homage to the former stadium’s rich history, says Figueroa. “The advantage of using this mesh is being able to slightly torsion and torque it, to make it become a continuous canvas on the underside of the bowl, which also allowed for graphics and branding.”

PRECISION WIGGLE ROOM

As regional sales director of the GKD architectural division, Shawn Crismond led the project team. He determined that the main technical and artistic challenges would lie in feats that had never yet been achieved using metal mesh. Known for its technical ability with woven metal mesh material as a modern architectural building solution, the GKD team was no stranger to specifications that push the material’s aesthetics and technical precision.



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GKD Chief Engineer Dale Payne determined that in order to cover the surface with a flowing, continuous sheet of material as specified by SRG, each panel would bear a unique geometry. The mesh would have to be cut in trapezoidal shapes, mounted and tensioned on the diagonal. This is counter to the standard technique where rectangular panels are fastened and tensioned to hardware, usually at the top and bottom and perpendicular to the weave of the mesh.

Payne considered the design constraints and developed a custom set of universal design solutions that would apply in every location scenario, especially where tight tolerances allowed as little as 1/16th of an inch. Payne created a custom-designed set of building scale mounting hardware engineered for the ability to fine-tune a precision installation. Using this custom installation hardware, Payne constructed a full-scale mock-up on site. When the client saw this proof-of-concept, they moved forward with complete confidence that the project would be completed to the tight tolerances and aesthetic standards they desired.

ETCHED TO PERFECTION

With the mock-up fully optimized, Project Engineer Roger Kahl was able to render each of the 276 unique T316L stainless steel mesh panels. The next challenge however, presented in the custom-etched graphics that portrayed the history of the stadium. The art depicting handwritten notes of legendary track and field coach Bill Bowerman would need to be designed and applied in such a way that as panels were curving and wrapping around the steel substructure, the designs would match-up within the same tight tolerances at the seams. The art had to be designed flat, but looking at the panels wrapped versus flattened were two different perspectives entirely, explains Kahl. “Flattened, a design might look like its two feet apart, but once it’s put together, it may only be one inch apart.”

Using advanced software tools, the team found a foolproof method to generate a flat pattern from a 3D file which enabled them to ensure a precisely etched collection of panels. “They had to put the design on as if it were already in place,” says Payne.

PHOTO FINISH

A tight timeline with a do-or-die deadline meant a design-build schedule at full sprint. This left no room for errors or delays as there wasn’t time for any revisions in the field. Using AutoCAD Navisworks ensured that every single trade’s drawing flowed into one master file that would immediately alert the team of any interferences. Working hand-in-hand in meetings with 15-30 people once and sometimes twice a week, they immediately resolved any conflicting constructions. “It showed how nimble and flexible the team was, and the attitude of teamwork and the collaboration that we all put towards it was tremendous,” recalls Figueroa.

The team’s dedication continued when installation realities hit. First, the space was too cramped for installation using conventional scissor lifts or cranes. It required a custom design for a crane small enough to be rolled along the stadium catwalk to lift or hoist panels into place. “I figured out the minimum width of that catwalk and how long of a boom we needed to extend to reach the installation point,” tells Payne, who designed the custom crane. Then, when the uncertainty of the pandemic hit the workforce, members of the factory flew out west to ensure that GKD’s white glove installation was delivered perfectly and on time.

Figueroa describes the mesh applied to the finished stadium as a gratifying visual metaphor that embodies the overarching design intent. “Allowing that slight transparency to the bowl while covering all of what’s behind it makes the whole place feel light and airy—and fast.”

