



The 60 Ton Journey

Contributed by: Reinaldo D. Correa

Have you ever been in a museum, admiring a piece of artwork, when suddenly you find yourself lost in the wonder of the brush strokes before you? I regularly become entangled in that moment, for the process of creating a piece of art is equally as important as the finished piece itself. There is so much to gain from understanding the process of how things come into being. We live in a day and age where our ability to share with one another has become more readily available than ever before, and as an old proverb says; “As iron sharpens iron, so one person sharpens another.” Through this retrospect, I will share some of the strokes of collaboration that took place throughout the creation of the Klopfenstein Amphitheater of the Performing Arts.

In the recent past, I set a goal to sit down with key members of the team, inviting them on a journey of reflection. A reflection of our team’s accomplishments. The experience was wonderful and it gave me an opportunity to see through their lens and truly appreciate how each role and talent helped this project become a reality. We talked about the history of the project, our relationship as a firm with the City of Marion, and challenges encountered during the process: structural analysis, methods of fabrication, and many other things. History, vision and relationships played a key role in the project’s completion.

In 2003, our firm, RDG Planning & Design, had the opportunity to develop a master plan for Lowe Park in Marion, Iowa. These efforts led to the completion of a wonderful destination point including walking trails, a children’s discovery garden, playgrounds, lily ponds and the construction of the Art & Environmental Center. In 2011, we were asked to revisit the master plan and build upon the vision created eight years before. The renewed master plan included many more amenities that would help foster the jewels of the Iowa landscape and expand the experience of the community and visitors. Some of these new features included new trails with nodes containing art work, new water bodies, a series of green houses that served as educational opportunities, and that which I wish to elaborate on, the development of a new Amphitheater.



When we began envisioning its possibilities, those of us in the landscape architecture and art studios of RDG were struck by a recurring theme. We wanted to recreate the experience of being beneath a tree's canopy, and also capture the scenic beauty of the Oak Savanna. We challenged ourselves to break free from a conventional, band-shell like structure to create an iconic sculptural destination for Lowe Park. We longed for a vision that would be significantly memorable to the public and would resonate with this portion of the Iowa landscape and our previously installed elements.

What followed was a series of conceptual iterations. They eventually gave rise to a structure that grew from the ground and echoed the expression of Iowa's state tree – the Bur Oak. The monumental sense of scale, along with the outward expression of leaves, seems to defy gravity. These elements exemplify public art meeting architecture. Through meaningful collaborations between the community and many professionals (including artist, architects, landscape architects, engineers and fabricators), we had finally arrived at a solution that we all felt proud of and were excited to embark on.



We convened a series of team meetings with our collective disciplines to examine the best method of construction. We quickly realized a project of this scope and complexity needed a direct Design-Build process, allowing us to be fully integrated through all phases and fostering a truly collaborative effort. To understand the process and construction of the amphitheater, we can divide the work into six parts: landscape, stage, screen wall, lighting, stems and canopy. The landscape set the stage (so to speak) for this new art piece, helping to visualize a space both intimate and experiential. To achieve these goals, the contours of the site were designed to create a bowl-like shape to maximize focal views to the stage (creating a sense of space) and yet blending the theater into the surrounding 180 acres.

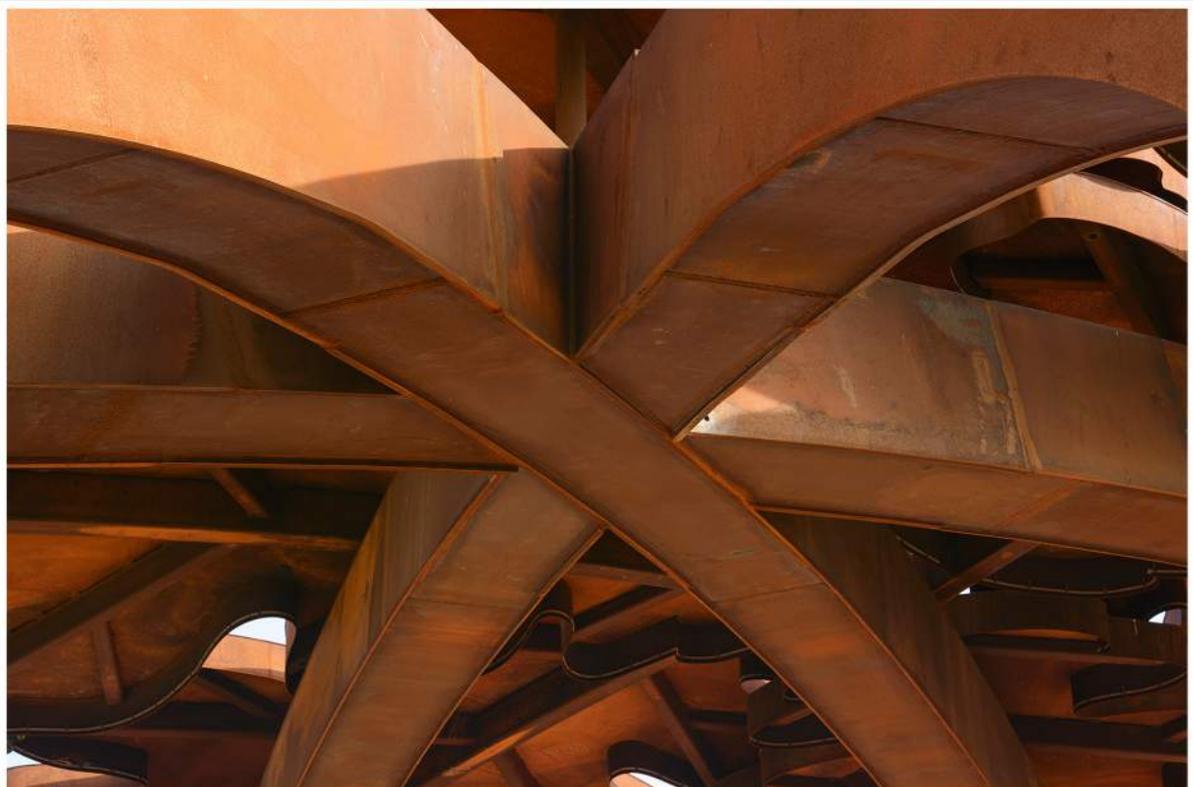


If the landscape is the foreground that embodies the piece, perhaps the stage itself can be thought of as an extension of the ground. The use of native limestone around the stage follows the step systems and helps create this sense of grounding. As the native limestone continues to wrap along the front elevation of the stage one can perceive a shift in materiality. What follows is a mural suggesting a “Prairie Fire” made of Italian mosaic glass tile which complements the organic color of the Corten weathering steel of the canopy. The original color pencil sketch of the mural went through a pixilation method to abstract the initial imagery. Every pixel of the sketch eventually translates into a 3/8” piece of glass tile that, with the other tiles, generates a mosaic version of the artwork. At the rear end of the stage, a glass curtain wall (standing eight feet tall with twenty individual panes) serves as the backdrop. Prairie grass illustrations were printed directly onto 1/4” annealed glass using translucent inks with ultra-violet stabilizers. These were then laminated with another 1/4” pane of annealed glass to make a 1/2” thickness. This artistic wall also functions to improve the acoustics of the piece through the absorption and reflection of sound. Finally, the use of color changing LED illumination creates a transition between day and night.

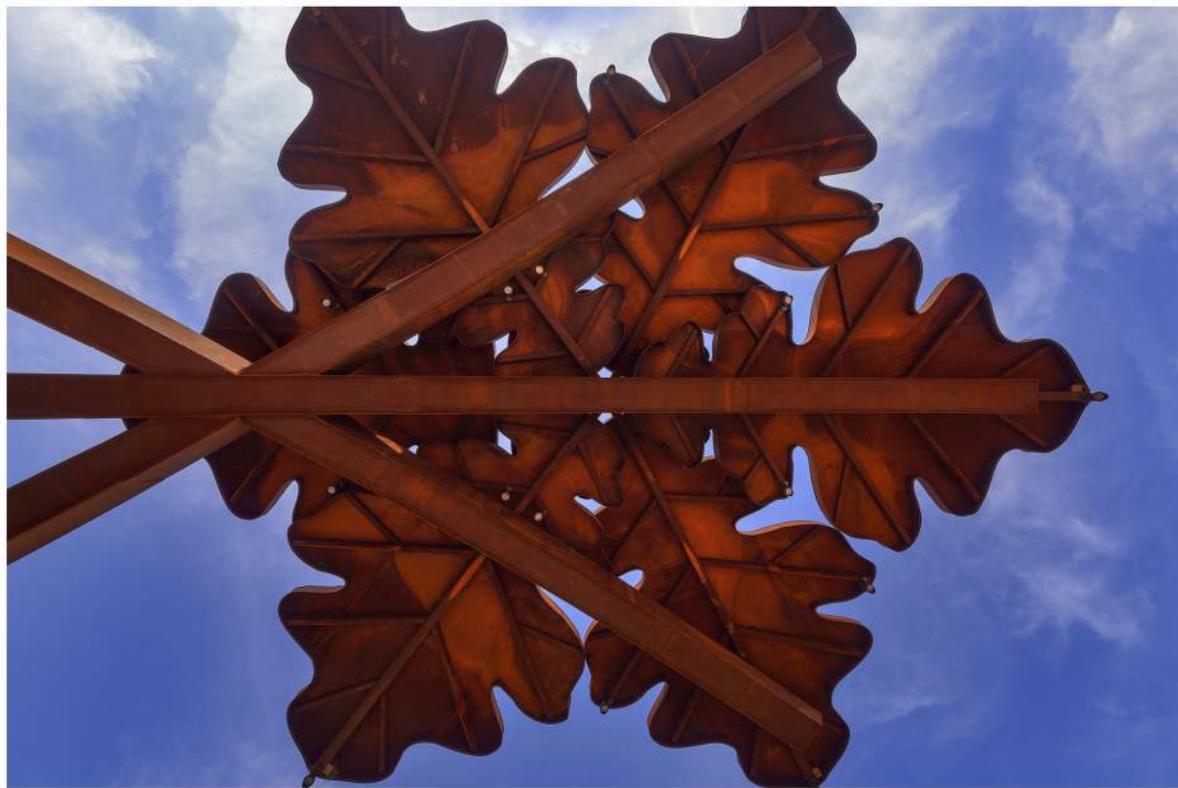




As our eyes move upward on the piece, three Corten steel stems grow to create a dynamic presence. These stems, as they converge at the base, create an abstract illusion of a tree trunk, while at the top they diverge, accomplishing an illusion of three separate branches. This was one of the more difficult parts to the engineering of the structure. To accomplish this element, we exported our 3D model, built within Rhino software, to structural analysis software called RISA. This platform allowed us to analyze and understand the reactions between the piece and the deflection experiences it would have to withstand, due to environmental behaviors such as dead load, live loads and wind loads. We segmented the stems into three major sections: legs, knuckle and arms. These sections were created out of a reinforced box frame beam. The Corten steel plate thickness ranged from 1 3/8" thick, at the very end of the legs, to 1/2" at the arms. The dynamic cantilever expression of the stems, that serve as the support for the canopy, extends to 60 feet in length and eventually anchors into the footing, reaching bedrock at more than 30 feet deep.



The canopy is the element that ties everything together. It represents a contemporary expression of the American Arts and Crafts Movement, recalling period Tiffany ornamentation and Dirk Van Erp copper lamps. It enhances the sense of space and becomes the prominent feature of the work. Its compound curves presented a few challenges from the fabrication standpoint. A unique technique was devised to simplify fabrication: we considered the canopy in two levels. This allowed us to create two three-leaf structures instead of one six-leaf structure. Each of three-leaves was fabricated individually and rolled to follow the radius of the stems, connecting to what we called the leaf node. The second level followed with an exact replica of the first level's 3-leaf structure but rotated 120 degrees. The canopy is massive. Each individual leaf measures 25'-4" and was composed of 3 different types of hollow structural section (HSS) members that took form as the leaf veins. The result: six stunning bur oak leaves grace the skies.



Once completed, I had the opportunity to visit the site. After standing in front of this piece of art, I find I am as much captivated by the final piece as with the collaborative process. It is truly fascinating to experience how 60 tons of steel have transformed into a destination where people can visit and create life-long memories. A tremendous amount of work was put forth by many individuals to make this vision possible – from clients who dared to dream big, through the great efforts of a team that strived for excellence, and a firm that cherishes its relationships and opportunities. The Klopfenstein Amphitheater of the Performing Arts has become a new cultural landmark for the region.

Upon reaching a destination, how great it is to reflect upon the journey.





Credits:

Client:

- City of Marion

RDG Planning & Design Team:

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- Emlyn Altman
- Jen Cross
- Kari Stecher
- Mike Bell
- Mike Chambers
- Pat Boddy
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Fabricators:

- Barnes Manufacturing Services

Fabricator Screen Wall:

- LOOK Architectural Coating

Photography:

- Kun Zhang

Contribution by:



Reinaldo D. Correa Diaz

Reinaldo is an associate architect with over six years of professional experience. He functions as a designer and artist with RDG Dahlquist Art Studio. Since joining RDG Planning & Design in 2010, he has worked in a variety of different roles. His responsibilities include design, product research, 3D rendering, construction documents, specification writing, CNC router programming and operation, as well as serving as a liaison between the Art Studio and Architecture Studios. He has experience with client contact and project delivery.

Reinaldo graduate from Iowa State University with a Professional Architecture Degree and a minor in Digital Media in 2008. He is a member of the American Institute of Architects and the National Council of Architectural Registration Boards.