
Category: 9 – Best Building Project – GC (\$10M - \$40M)

Contractor: Swinerton Builders

Project Name: AMG National Trust Bank Headquarters

Building Classical in Modern Times

The last project of Phil Mills' illustrious construction career was an endeavor like no other. Mills, a superintendent with Swinerton Builders who dedicated much of his career to tenant improvements and data center construction, recently retired after 40 years in the industry. For his last project he built a *jewel box complete with classical architectural elements* such as a copper-clad dome, Greek-inspired stone columns, an intricate tile medallion and marble staircases. While these features are not common to today's modern building world, Mills and his Swinerton teammates readily accepted the challenge to build the structure modeled after the 19th century Palace of the Rhine in Strasbourg, France. Classical elements historically portray strength and permanence, and proved perfect to embody these traits as part of the new headquarters for AMG National Trust Bank in Greenwood Village, Colorado. To accomplish such an assignment, *Swinerton combined experienced construction leadership, modern building tools and technology, and old-world craftsmanship* to manifest the bank's ideals to its clientele through construction, and to create a new home for 90 employees.

“Thank you for the wonderful home away from home. We greatly appreciate your excellent management, workmanship and professionalism!”

Sheryl Bollinger, CEO and President, AMG National Trust Bank

Three hundred years ago, dome structures were crafted of timber and stone, laboriously placed by hand and crude machines with little thought given to worker safety. Modern methodology, equipment and technology overcome many of these challenges; however, dome assembly is a complex web of construction requiring diligent planning and installation carried out safely.

Based on thorough planning with the steel fabricators, erectors, installers and crane operator, ***Swinerton mitigated all fall hazards*** which enabled workers to perform uninterrupted and without incident.

The third floor of the 69,000-square-foot building is topped with a structural steel, copper-clad dome that creates high-end event space for the bank’s clientele and community members. The dome structure itself is a hemisphere consisting of 12 curved W18x50 steel members. As few domes of this size, scope and purpose have been completed locally in recent history, Swinerton and its subcontractors considered many options to ***fabricate, build and erect this project-defining element safely and efficiently.*** With safety factors first and foremost in the team’s mindset, they assembled four steel members on the ground to form the basis of the dome. Then, this 12,000-pound centerpiece was hoisted and placed in a single crane pick. Three ironworkers, tied off safely to the already installed vertical steel members, bolted the centerpiece into place.

Successful dome construction was a result of Swinerton’s leadership, the hands-on skill of the ironworkers and crane operator, combined with the technological prowess of Millennial generation team members. Once the dome was installed, Swinerton imported 3D laser scans of the 12 vertical and centerpiece elements into Navisworks and Revit models. This practice confirmed measurements for fabrication and placement of the RadiusTrak in-fill framing within the dome for accuracy. ***Placement of the structure had to be spot on as the dome’s layout also influenced the installation of 4,000 pounds of pre-patinaed copper cladding*** and the quality of glass fiber reinforced gypsum (GFRG) panels placed inside the dome to achieve interior aesthetic and acoustic properties.

“Finishing this project was far more complex than any of us realized it would be, and the commitment to technology and highly qualified subcontractors from Swinerton was crucial.”

Jim Neenan, Prime West Development

Unique and defining to the third floor event space within the dome is a **40-foot diameter custom stone floor medallion** of exotic materials such as capalovaro, palissandro, and onice rosso onyx. The concept for the medallion design was inspired by AMG’s business principles based on Greek philosopher Aristotle’s teachings that the pursuit of excellence is built upon a foundation of character, which contributes to a knowledgeable, just and successful society.

The creation of this medallion took a true team effort with each member contributing expertise and excellence: AMG provided the vision; architect Ware Malcomb sketched several options contemplating Aristotle’s teaching; subcontractor Brekhus Tile & Stone provided constructability and material availability input, and Swinerton guided overall schedule and budget decisions.

The medallion became part of the project’s critical path once the extent of the design and installation became apparent. After multiple pre-installation and coordination meetings among the team, it was determined that the initial scheduled duration was far from accurate and that the medallion work would take 2,100 manhours to complete. With an already aggressive schedule, and ***balancing 10-hour working days with worker fatigue that could impact quality and safety,*** the entire team agreed that the craftsmanship for such a high-end finish product and space important to AMG’s overall vision was worth the extra time and effort needed to ensure success.

Brekhus imported the final design into a 5-axis waterjet cutter via AutoCAD which enabled the machine to map more than 100 custom cuts with incredible precision. A six-person stone mason crew followed detailed lay drawings with each piece individually identified with piece markers to ensure exact placement. To ensure quality and design integrity of the intricate composition, the installation process started from the most inner circle cut and grew outwardly. Today, the design, shop and lay drawings hang at the dome area entrance to tell the story of how it came to be.

“We appreciate the extra effort and the incredible quality and attention to detail.”

Carey Crain, Executive Vice President, Prime West Development

The first floor bank lobby showcases a dual grand staircase, inspired by the Palace of the Rhine, with **120 hand-carved marble balusters and 60 lineal feet of balustrades** making up the guardrail for the stairs and second floor balcony. The procurement, fabrication and installation of these beloved design elements proved most challenging, and Swinerton’s expertise in interior finishes enabled the team to tackle them with tenacious care, modern technology and custom workmanship to deliver this showpiece to AMG’s specifications.

Each marble baluster sits directly on the structural steel framing that creates the curved stairs. **For design esthetics and structural integrity, the profile of each baluster and guardrail needed to match the radius and curvature of the stairs perfectly.** To ensure this accuracy, Swinerton 3D laser scanned the actual structural steel conditions for the grand stairs for marble fabrication in China from the BIM model.

Understanding the important function that the lobby serves in welcoming clients and employees to the bank, Swinerton’s project team made themselves available at all hours of the day and night to Chinese fabricators to ensure deadlines and quality objectives were understood and met. Even with the assistance of modern technology, approximately **one-third of the pieces required refinement on site to meet the curves and radius of the staircase.** Swinerton hired a local “marble doctor” to perfect these pieces. His work in **sculpting the marble actually enhanced the appearance of the stone,** and in the end, pleased AMG leaders who appreciated the more natural look of the material.

After the stone medallion work completed, the floor was covered and protected so that work inside the dome could finish. To reach the dome ceiling, four installers of the GFRG panels used two scissor lifts and scaffolds standing 30 feet tall to facilitate installation. Because of this height and safety concerns, Swinerton added extra outriggers which stabilized the scaffolding and maintained a 4:1 base to height ratio. Additional safety precautions included tethering all tools and personal items to the scaffolding and lifts to ensure neither workers nor materials fell on the tile floor below.

Every bank needs a vault, and *AMG's vault door alone weighs 9000 pounds*. Swinerton developed safety plans to mitigate pinch points and trip and fall hazards for this special installation on the first floor. Millwrights, using a gantry, installed the vault door after building enclosure to protect it and their workers from the snowy winter weather. In the below-grade parking structure, areas in the path of installation were re-shored to ensure structural integrity until the door's permanent placement on a pre-poured 18-inch concrete slab.

Historically, iron work is the construction trade that sustains the most injuries due to the nature and heights of work. Swinerton's mission of zero lost time for the entire project and pedestrian traffic surrounding the site began with diligent planning, specialized safety measures and exceptional execution. *Swinerton sustained zero lost time incidents.*

“We are so glad to have worked with Swinerton on this very special project. You have been patient and accommodating to the high standards of highly engaged executive team!”

Kelley Bergmann, Community Concierge, AMG National Trust Bank

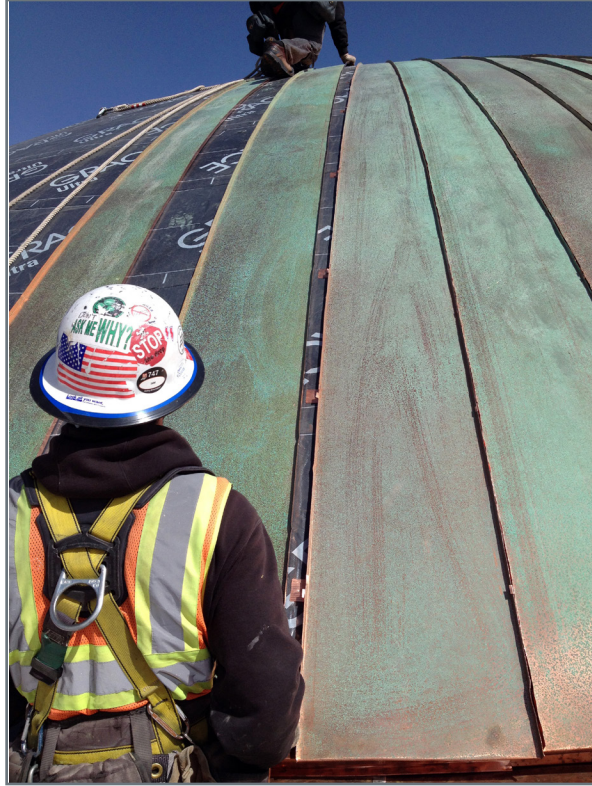
During Superintendent Mills' 40 years in the industry, he has experienced significant changes in building technology, the overall pace of construction, and an enhanced focus on safety. As the sun sets on Mills' professional career, we applaud him for his contributions to more than 40 projects, and celebrate his success in building a jewel box with architectural elements of a different time.



The new headquarters for AMG National Trust Bank is based on the 19th century Palace of the Rhine in Strasbourg, France. It features classical architectural elements such as a copper-clad dome, stone columns and facade, tile mansard roof, an intricate tile floor and marble dual staircase.



Four structural steel elements forming the basis of the dome were assembled and placed in one crane hoist. Installation required diligent safety planning and performance, and was aided by 3D laser scans imported into the BIM model to ensure fabrication and placement of in-fill framing.



Over 4,000 pounds of pre-patinaed copper cover the dome. The lobby floor is covered by a 40-foot-wide stone medallion, and its design is based on the teachings of Greek philosopher Aristotle. The medallion installation took 2100 manhours, and the larger pieces weigh approximately 300 pounds.



The first floor lobby showcases a dual grand staircase with hand-carved marble balusters and balustrades. Swinerton 3D scanned and modeled the balusters as each one sits directly on the structural steel framing to create the curved staircase to ensure accurate fabrication in China.



The bank vault doors weighs 9,000 pounds which warranted millwrights using a gantry to install the door on top of an 18-inch concrete slab. A rooftop patio at sunset provides outdoor space for bank and community events, and a place for employees to enjoy fresh air.