

Category: 9 – Meeting the Challenge of a Difficult Job – GC

Contractor: Haselden Construction

Project Name: Cathedral Basilica of the Immaculate Conception – Bell Tower Upgrade

Haselden's On-Call Division was selected as the design-build contractor to upgrade the bell support structure of the Cathedral Basilica of the Immaculate Conception. The Cathedral Basilica is one of only 81 designated basilicas in the United States, and the only basilica in Colorado. It is also one of the oldest churches in Denver, and represents Denver's first Catholic congregation. The century-old church was in great need of a new structural system to support the bells that date back to 1913. As it stood, the bell support beams were constructed of wood. In November of 2013, Haselden completed replacement of the original wood with a steel structure, suspending the 15 bells approximately 125 feet above the ground.

Solutions of Special Projects: The sheer logistics of this project provided Haselden with a challenge. The bells were encased in a 14-foot-square tower, accessed by a 100-step spiral staircase and a hatch leading to the level housing the bells. Because of the confines of the tower, the only way to move materials in and out of the structure was to go through the arched stone openings. In order to do this, we had to close down one lane of Colfax Avenue and the adjacent sidewalk to position the crane to move the materials. Additionally, the bells were too large to be moved out of the tower while the work to the structure occurred. The smaller bells were lowered down the roof hatch to the landing below the level housing the bells, but the larger bells had to remain in the same small area where the work would occur. Because of the considerable weight of the larger bells, it wasn't possible to simply rest them on the landing below; the team designed and constructed a structural steel beam to hold the bells during the demolition and reconstruction of the support structure. The beam spanned through the arched stone openings and rested on the lower sills. Special rubber pads were put in place to ensure the masonry wasn't damaged.

Excellence in project execution and management/team approach: The basilica required very specific expertise to protect the historic value while ensuring the safety of the structure. Haselden

brought in The Verdin Company, a firm that has specialized in the restoration of bells and their supporting structures for nearly two centuries. Verdin designed and built the new steel structure, which had to be configured for the weight distribution of each bell. They also designed the new ringer system as well as the bell automation. The collaboration between Haselden and Verdin ensured a successful project outcome.

Construction innovations/state-of-the-art advancement: The goal with this project was to bring innovative technology to the bell tower without compromising the historic façade. The first step was to replace the original wooden structure with steel. Not only did this improve the safety of the structure, it also ensured that the bells would be in the correct position for ringing, and not askew because of a sagging support beam. Additionally, all the bell ringers were replaced and an electric control panel was installed. The original cathedral bells still ring, but now they can be controlled via the push of a button, or programmed in advance.

The church administrators understood the importance of hiring the right contractor to collaborate with. “When it was determined the church needed to repair the bell structure, we realized that it was important to hire a general contractor who could not only build the project with the care required when dealing with a historic structure, but also assist with design, codes, etc.,” stated Parish Administrator Mary Ellen Lederman. “Haselden provided a great crew that helped us navigate the process and bring back an important asset to the community.”

Environmental/safety: Safety is a corporate priority for Haselden. An EMR of 1.0 is the industry norm; 0.85 is considered excellent. Our current EMR is 0.71. Haselden logged nearly 12,000 person hours on this job, with zero lost time and zero recordable incidents.

Haselden has been singled out repeatedly by insurance and safety groups for our innovative approaches to creating safe job sites. We have achieved the highest level of recognition by the Associated General Contractors Colorado Chapter (AGC/C) and the Occupational Safety and Health Administration (OSHA) as part of their CHASE (Construction Health and Safety Excellence) Partnership. Haselden was the first Colorado-based general contractor to receive the top BLUE level, after successfully completing a rigorous set of eligibility requirements. Additionally, Haselden was the recipient of the prestigious AGCA (Associated General

Contractors of America) first place national award for Safest Contractor of the Year for General Contractors within our category on two separate occasions; Haselden is the only contractor in the nation to have won this First Place Award twice since the competition's inception.

All field salaried team members are OSHA 30-hour trained and our field craft team members exceed the equivalency to the OSHA 10-hour by receiving fifteen hours of safety training at orientation. Our Injury Illness Prevention Plans (IIPP) and site specific safety programs are completely unique to each project.

One of the unique and distinct aspects of Haselden's safety program is our use of Safety WISE, software specifically designed for safety auditing and recording. It allows the onsite management teams to perform safety audits and hazard analysis and report back corrective actions the team has taken to avoid accidents and injuries. Real time data allows our safety team to analyze our company's performance across all jobsites and identify potential trends and proactive measures. Haselden was an industry safety pioneer and remains unique in our use of the Mobile Training Facility which utilizes interactive computer-based training in English and Spanish.

For this project, the main safety concern involved transporting materials over a busy roadway—Colfax Avenue— plus a pedestrian sidewalk and the church's courtyard. In order to ensure the safety of the public, Haselden obtained a permit to block off one lane of traffic and the sidewalk under the tower. This allowed us to place our crane in this area and effectively move the necessary parts of the structure. We rerouted the pedestrian traffic and, during crane operation, posted extra dedicated safety personnel to stand watch in the tower as well as on the ground. No safety incidents occurred during the project.

Excellence in client service and/or contribution to community: Due to safety issues associated with the deteriorating structure, the big bell had not sounded in a decade, and the smaller bells had been silent for two years. The bells rang for the first time on Thanksgiving Day of 2013 (see video [here](#)). The Winchester bell now chimes every quarter hour between 8am and 9pm. The bells also peal on Sundays before mass begins and again at the end of mass, as well as on special occasions such as weddings.

But these bells serve as more than timely reminders; they are an important part of the community. As noted by Parish Administrator Mary Ellen Lederman, “The bells reflect the beauty and greatness of God and draw people into the church.”









