EPICENTER Spring 2017

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The New Holladay Marketplace Is Coming To Town

If everything goes according to plan, by the fall of this year Harmons will be the new neighborhood grocer in Holladay, located at 2300 E. Murray Holladay Road. In March, demolition began where Rice Basil, Great Harvest and Top It were once located.

Though this will mean saying goodbye to a few local favorites, Harmons is pegged to be a welcome addition to the new Holladay Marketplace. The Harmons of Holladay will not be as large as the typical Harmons store found throughout the area, but will still have the amenities that keep locals loyal to Harmon Grocers.

This will be a unique location being in a smaller space, but will have a cooking school and bakery. The store is expected to be a 16,500-square-feet footprint featuring three stories with a basement, store level and mezzanine.

Rendering of New Holladay Market Place—2 Story building with Partial Basement

While all Harmons stores are well known for keeping shelves stocked with quality produce and local goods, according to Harmons' website only five Harmons currently have a cooking school, soon to be six with the Holladay store addition.

This project is a real McNeil Engineering team effort. Our **Civil Engineering Department** performed the civil design, which included the horizontal control plan, grading & drainage control plan, storm water report and the erosion control plan. Our **Landscape Architecture Department** will complete a preliminary landscape plan, planting plan, the irrigation plan, as well as provide construction management administration during the landscaping. McNeil Engineering's **Survey Department** completed the initial ALTA/NSPS Land Title Survey for the Civil Design team and also plan to perform construction staking services through the completion of the project.

Demolition of Existing Buildings

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Bertha Made It… Finally

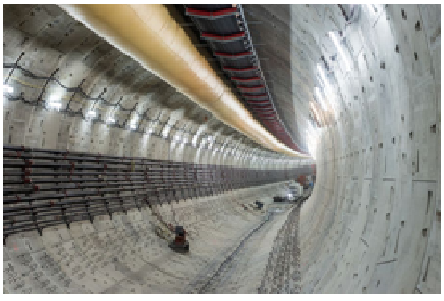
In the winter 2015 edition of our newsletter we shared the story of Bertha, the worlds largest tunneling machine. In our 2015 report Bertha had broken down and had been sitting for over a year.

Well now for the good news...On April 4th of this year Bertha reached daylight and completed its mission. It only took four years for Bertha to dig the 2 mile tunnel under the city of Seattle Washington for a new route for State Route 99.

Bertha after breaking through the retaining wall

What now for this huge drill? Now that Bertha has cut through the retaining wall into the disassembly vault, the drilling machine will be dismantled for recycling.

Washington State officials say the tunnel completion marks a key milestone in the effort to provide fast and reliable trips along state route 99 for cars and freight. They say the route supports the movement of more than $30 billion in cargo each year. Officials estimate the route to be completed in early 2019.



Tunnel dug by Bertha

Learning in Capitol Reef National Park

Utah Valley University (UVU) has a really cool place to learn, the Capitol Reef Field Station (CRFS). Have you ever been to Capitol Reef in Southern Utah? If so you know what makes the CRFS such a unique and cool place to learn.

UVU Capitol Reef Field Station

The CRFS is located just beyond the end of the paved road about 2.5 miles past the end of the aptly named Scenic Drive. The CRFS sits atop a mesa in the heart of Capitol Reef National Park, amidst unobstructed views of postcard-perfect scenery. The sound of Pleasant Creek can be heard as it flows past historic pastures. To the east is the last mountain range in the continental United States to be mapped, the Henry Mountains, framed by beautiful sandstone cliffs, and to the west lies Boulder Mountain. Looking up, casual stargazers and serious astronomers alike appreciate the amazing night sky, for which Capitol Reef National Park recently received a Gold-Tier International Dark Sky designation. This location provides an incredible opportunity for place-based learning. Only 3.5 hours from UVU and the Wasatch Front, CRFS welcomes students and faculty from institutions of higher learning who seek to experience the natural and cultural legacies of the Colorado Plateau.

UVU Capitol Reef Field Station Sign

The CRFS has become such a popular place of learning that it is expanding. AJC Architects has designed a new classroom building and McNeil Engineering's **Structural Engineering Department** completed all the structural design for the expansion.

What a privilege to be a part of such a great and worthwhile project.

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FUN FACT

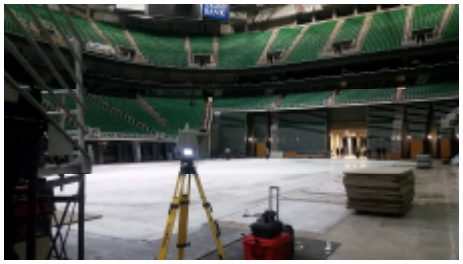
Machu Picchu was built at the height of the Inca Empire around 1450 but abandoned just over a century later in 1572 after the Spanish arrival in Peru. Archaeologists believe Machu Picchu was constructed for use as a Royal Estate. Machu Picchu is located 2430 m (7970 ft) above sea level on a ridge between the Huayna Picchu and Machu Picchu mountains in Peru.

Home of the Utah Jazz Gets Scanned

Vivint Smart Home Arena is Located in downtown Salt Lake City and the home-court of the NBA Utah Jazz. The building originally opened as the Delta Center on Oct. 7, 1991. With seating capacity of about 20,000.

The building has played host to the 1993 NBA All-Star Weekend, two NBA Finals, the NCAA men's basketball tournament, the 1999 U.S. Figure Skating Championships, as well as figure skating and short track speed skating events during the 2002 Olympic Winter Games.

The arena has featured some of the biggest names in the music world with Garth Brooks, U2, Taylor Swift and The Rolling Stones among the largest concert draws in



Laser Scanning at the Vivint Smart Home Arena

the arena's history. Family-friendly events such as Disney on Ice and Days of '47 Rodeo also make annual appearances. The arena hosts about 1.8 million guests and more than 100 sports and entertainment events each year.

McNeil Engineering's **Survey Department** laser scanned the Vivint Smart Home Arena. The data collected in the scan will be used for new seating.

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Remodeling the Past...

By Carl Greene, Consulting Department Manager

One of my favorite things to do is to study the past. I love history. And when I have the opportunity to help preserve historical buildings, I consider myself doubly blessed. Over the course of this next year McNeil Engineering – Consulting has been given the opportunity to help preserve a beautiful religious structure in Salt Lake City. This chapel was first constructed in 1908, received a major addition in 1937, and was added onto in various phases over the next 30 years. The very steep roof over the main chapel area contrasts beautifully with the castellated tower prominently facing the street. This steep pitched roof also distinguishes the original structure from the later additions.

Salt Lake 2nd Ward Chapel Under Construction

To help us capture the intricacies of this historic building, and to help us provide the best design solution for its restoration, we worked with our survey department to scan the building. Once their scan was recorded, we linked the point clouds to Revit, examined the few, incomplete plans available, and recreated the exterior of the building in a virtual environment. The 3D model allowed us to explore all of the unique connections and geometries that make up this historical structure, and offer solutions for each. This in turn allowed the contractor to bid a more complete project, with less surprises (i.e. – change orders) during construction, keeping us on budget and on schedule.

McNeil Engineering was called in to help with the replacement of both the deteriorating asphalt shingle system and the single-ply EPDM which had started to detach itself from the roof deck below. Our scope of work includes coordinating with and working around seismic upgrades. The building is surrounded in scaffolding at the moment to allow for core drilling 4" diameter holes through the existing masonry, concrete and sandstone exterior walls. Once cored, the holes are filled with one piece of reinforcing bar and an epoxy grout, making the building significantly safer for its occupants.

Salt Lake 2nd Ward Chapel 3D Model

We will be installing new architectural profile, asphalt composite shingles over the main structure and white, single-ply PVC membrane over all of the low slope roofs. Under the PVC membrane we will be installing new tapered insulation to improve drainage.

Typical of most roof replacements, we will be removing all of the existing drip metal and parapet caps. This building will be quite the challenge to reinstall the metal because of all of the battlements. Our goal is to do the most we can to restore the look of the original construction of pre-cast caps, while at the same time protecting the structure and the new roof from water and the weather.

Once complete, not only will this historic center of worship be restored to its original beauty, but those who attend and use this building will be safer for generations to come.

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Fort Collins LDS Temple: Award Winning Project

The LDS Fort Collins temple is the 2016 Design Award Winner: Best Religious Structure awarded by the Precast Concrete Institute. **McNeil Engineering's Structural Engineering Department** was the precast structural engineers on this project... Congratulations to Matthew and his team!!!

More than 34,000 sq. ft. of precast concrete elements of complex geometries and finishes were manufactured by Pretecsa, the precaster for the project in Mexico, then transported by road 1770 miles to Fort Collins and installed over the course of 10 months.

To accommodate the massive design, forming of each mold required joining several smaller pieces created with different materials. Plaster models of small sectioned parts were designed and subsequently articulated into molds to have larger and more complex pieces requiring a dedicated crew of cutting and profiling each section using different hand tools.

A tight schedule and weather limitations required quick installation, which the designers achieved by creating massive precast panels that covered up to 250 sq. ft. each. The large dimension of the panels combined with the high complexity and precise detailing was a challenge.

Fort Collins LDS Temple

Employee Anniversaries this Quarter

Employee	Date Started	Years of Service
Dan L Schaugaard	4/21/1999	18
David B Draper	5/22/2000	17
Walter C Travis IV	4/26/2006	11
Jacob H Felshaw	4/7/2008	9
Elizabeth A Draper	6/7/2010	7
Tevi Lawson-Avla	5/7/2012	5
Becky Scholes	5/6/2013	4
Noel A Enriquez	6/4/2014	3

America's Infrastructure Grade Released

ASCE's 2017 Infrastructure Report Card, released in March, offers the nation both bad news and good news.

The bad news is the average grade, D-plus, has not changed since the last *Report Card* four years ago, reflecting a continued dire need of overhaul.

The good news is the *Report Card* says such an overhaul is still attainable, and offers suggested solutions that can make that overhaul happen.

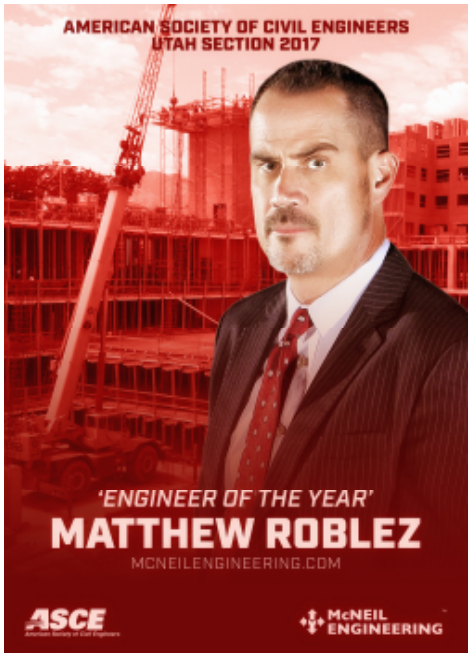
While the overall infrastructure grade remains unchanged since 2013, seven of the 16 infrastructure categories assessed did see improvement – hazardous waste, inland waterways, levees, ports, rail, schools, and wastewater.

Rail received the highest category grade – earning a B. Transit, meanwhile, received the lowest, a D-minus.

A team of 28 civil engineers from across the country with decades of expertise in all 16 categories prepared the *Report Card.* ASCE's Committee on America's Infrastructure assessed all relevant data and reports, consulting with technical and industry experts, and assigning grades using the following criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience, and innovation.

"There are many kinds of success in life worth having."
Theodore Roosevelt

We would like to congratulate Matthew Roblez for being named **Engineer of the year** by the American Society of Civil Engineers Utah Section...Way to go Matt!!!



One of the charities that McNeil Engineering supports is the Rescue Mission of Salt Lake. Below are some interesting statistics for the Rescue Mission: