CTL | TIMES NEWSLETTER

FALL | 2016

CONGRATULATIONS

2016 ACEC/CO Engineering Excellence Award Winner!

CTL|Thompson, Inc. received the Grand Conceptor Award at the 2016 ACEC/CO Engineering Excellence Award Luncheon for our work at the Regency Athletic Complex at Metropolitan State University at Denver. This is a prestigious award within the Engineering Community.

Previous site uses at the project site were heavy industrial and chemical facilities; site development for the athletic complex was very challenging with respect to environmental and geotechnical issues. CTL | Thompson devised a plan utilizing Deep Dynamic Compaction to compact thousands of yards of fill in-place. This unique solution allowed the project to move forward within budget constraints, saving the Client up to $3,000,000 in disposal costs.

Our team was comprised of Matt Wardlow, Marc Cleveland, Benny Lujan, Dave Glater and Trevor Truett working in partnership with Metropolitan State University, Auraria Higher Education Campus, Davis Partnership, Martin/Martin, Saunders and Hayward Baker.

The Grand Conceptor Award is not given every year which makes receiving it even more significant.

There are 5 award categories:

> Merit Award recognizes projects for their engineering solutions
> Honor Award recognizes projects for their outstanding engineering solutions
> Engineering Excellence Award recognizes projects for innovative and outstanding engineering solutions
> The Grand Conceptor Award may be selected from the Award winners, when the entry scores WELL ABOVE the other project entries.

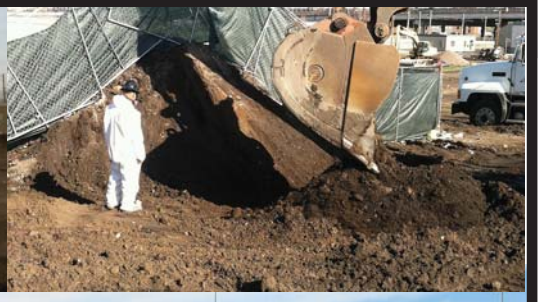
RATING BASE ON:

> Uniqueness and/or innovative Application of New or Existing Techniques (20%)
> Future Value to the Engineering Profession and Perception by the Public (20%)
> Social, Economic, and Sustainable Development Considerations (20%)
> Complexity (20%)
> Successful Fulfillment of Client/Owner Needs (20%)

CTL went on to win a National Recognition Award in Washington D.C. at the National Competition in April.

Regency Athletic Complex at MSU Denver





ANNOUNCEMENTS

Employee Hire

CTL|Thompson hired structural engineer Scott Hargrove to join the Fort Collins office, to support their growing structural engineering department. With more than 10 years of experience in residential, commercial and industrial structural/civil design, Scott brings additional expertise to the Fort Collins division.

In addition to adding to the structural engineering team in CTL's Fort Collins and Wyoming offices, Scott's substantial expertise in residential design and construction for mountain communities will support CTL's range of services in its Summit County and Glenwood Springs offices.

ASQ Quality Auditor Certification

The Certification Board of ASQ (American Society for Quality announced in June that Wayne G. Thompson has completed the requirements to be named an ASQ-Certified Quality Auditor, or ASQ CQA.

Wayne has reached a significant level of professional recognition, indicating a proficiency in and a comprehension of auditing principles and practices.

Individuals who earn this certification are allowed to use "ASQ CQA" on their business cards and professional correspondence.

Video Presentation for ACI

With record attendance and the World of Concrete and ACI, the industry is re-engaging across a host of topics. Use of supplemental cementicious materials is a hot topic. Bud Werner relayed some of his insights into this topic.

Bud Werner has been in the concrete business since the 1970s. He began his career at the U.S. Bureau of Reclamation and worked there for 11 years in research, testing programs and mix designs of concrete. Bud recapped the last age of using natural pozzolans successfully and commented on how they could contribute to solving problems that have re-emerged in the concrete industry.

To view the video go to:

http://www.geofortis.com/category/videos/

Fort Collins Office Updates

Employees:

- **Matt Gooderum passed his PE test in April.**
- **Matt, Spencer, Brendan, and Chad all competed in the Xterra Lory Triathalon in June west of Fort Collins.**

Projects:

The Fort Collins office recently completed the structural design for the Lochbuie town hall, which is under construction. It was a challenge, to say the least.

They are also working on the structural design for the proposed Lyric Cinema in north Fort Collins. CTL had previously completed the geotechnical and environmental on the project.

Gaylord Rockies Resort & Convention Center, Aurora, Colorado

A short distance from Denver International Airport, work is underway on the Gaylord Rockies Resort and Convention Center. Set on 85 acres, with 2 million square feet of conference and hotel space planned, the Gaylord Rockies will be the state's largest combined hotel and convention center. It is one of the largest projects ever built in Aurora and one of the largest hospitality projects to break ground this year in the United States. Nearly 10,000 construction employees will be needed over the course of the two-year project.

CTL | Thompson was hired to manage groundwork and foundations for the initial construction phase. The Scope involved providing compaction testing and drilled pier observation and inspection. But when heavy trucks carrying concrete for the caisson foundations sank into the ground instead of delivering their payload, general contractor Mortenson Construction called on CTL's materials testing and design experience and added "design access road" to CTL's scope of work.

CTL recognized that the combination of the area's extreme weather conditions, the makeup of the soil, the size of the equipment and the traffic created by the 10,000 employees required for the job was just too much for the road to withstand. To shore up the ground below the temporary pavement, CTL recommended a feasible solution that has proven reliable for soils found below permanent roads: chemical stabilization. The technique mixes lime and cement with on-site soils to create a firm, stable base for asphalt. Chemical stabilization helps to compact soil, alter the behavior of clay soils, aid in water drainage and keep dust down, all crucial factors to consider as work carries on through distinct Colorado seasons.

In a project of this size and complexity, the seemingly inconsequential access road became a major player in completing construction on time and under budget.

The Broadmoor, Colorado Springs, Colorado

CTL|Thompson, has provided engineering solutions to The Broadmoor since 1984. In 2011, Anschutz Corp. purchased The Broadmoor, investing millions of dollars in the 3,000-acre resort complex. Over the past four years, the company has reimagined the buildings surrounding Cheyenne Lake at the hotel's main campus and built new luxury amenities at three distinct Broadmoor Wilderness properties, including a fly-fishing school on the main property; Cloud Camp, a majestic wilderness retreat atop Cheyenne Mountain; The Ranch at Emerald Valley, nine cabins located west of the main hotel campus in the Pike National Forest; and Fishing Camp, located on Tarryall River. Throughout the expansion, CTL has provided engineering counsel, conducting geological analysis for Cloud Camp and managing structural engineering for The Ranch at Emerald Valley.

Recently our team completed two Broadmoor projects noteworthy for their contribution to local tourism – and the engineering challenges the projects proposed. The main complex's Broadmoor West building, which first opened in 1975, reopened last year. The Broadmoor Soaring Adventure is a new attraction featuring 10 zip lines that range from 250 to 1,800 feet outside Seven Falls, a series of waterfalls in South Cheyenne Canyon that Anschutz Corp. recently acquired and renovated after they were heavily damaged from the September 2013 floods.

Until Anschutz Corp. bought The Broadmoor and signaled its interest in remaking Broadmoor West, this larger resort building was aging and showed it. Created in the contemporary style of the 1970s, it lacked character and architectural distinction. The Anschutz team committed to a $57 million renovation to change the building's outward appearance and add three floors of additional lodging. Given the age of the building, the team had to plan for the unknown – and Colorado's weather, as work couldn't stop.

To save time, our working history of the building was a great advantage. We knew that Broadmoor West was founded on spread footing foundations on native sand and gravel soils. Adding floors and balconies would add additional loads and potentially cause dangerous settlement. Luckily, we had tested at least two dozen borings around the building over the past 20 years, which the team used to complete calculations on the stability of the existing foundations and ability to handle the additional load. Our tests showed that any additional settlement to the structure would be well within tolerable ranges, saving hundreds of thousands of dollars in construction costs – and all-important time.

Once the Broadmoor West project was completed, CTL worked on the Soaring Adventure zip line project at Seven Falls. Lead by Dave Glater who has previously evaluated and designed solutions for mile-long electrical transmission lines spanning southwestern canyons. However, this was the first zip line he helped design in a canyon setting. His experience on projects throughout the Rocky Mountain region allowed him to tackle a new challenge using familiar techniques, keeping safety of the attraction's users foremost in mind.

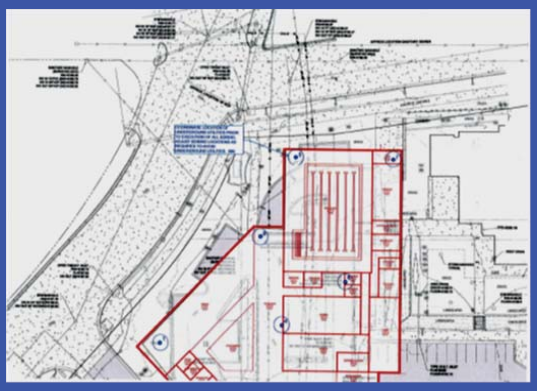
The task was not easy. A number of the zip line stations were on cliff edges, including promontories made of highly fractured weathered rock. Material at various locations varied from deep soil to hard rock, and exposures where towers were needed contained fractured rock. CTL assessed the size of rock blocks and designed an economical foundation long enough to engage the unjointed rock. The job called for conservative measurements, knowledge of ground behavior and geologic changes, and examining the site from multiple perspectives, including the cliff's foot. The first portion is now complete, and zip line users can safely enjoy the gorgeous scenery of the attraction.

University of Colorado Denver Projects, Denver, Colorado

CTL is providing geotechnical testing and observation to support the construction of UCD's new Wellness Center and the renovation of the campus's North Classroom building. CTL's environmental team is also monitoring for any potential environmental hazards during excavation. The firm's materials testing lab will assist when construction begins.

The 95,000-square-foot, multifloor Wellness Center is planned to contain a swimming pool, basketball courts and a climbing wall, as well as a 1,500-square-foot wellness clinic on the first floor. It is scheduled to open in January 2018, at the beginning of the University's spring semester.

The North Classroom renovation includes a complete systems overhaul on the 29-year-old building, including the roof, HVAC, electrical and plumbing; renovation of 34 classrooms, which comprise one-third of all CU Denver classroom space, and upgrades on office and laboratory spaces for three departments. The upgraded building will reopen in November 2017.

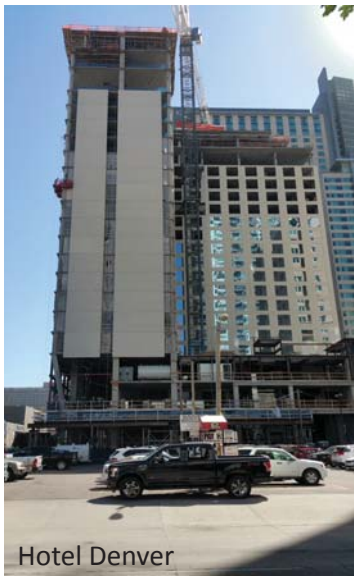


Other Project Updates

1144 15th Street

1144 15th Street, Denver, Colorado

The project is progressing rapidly on schedule, currently with the core being over 22-stories tall and at least 12 levels of floors completed. The core is about half the height of the adjacent Four Seasons Hotel, and can be seen "poking" out of downtown Denver from the nearby Interstate-25. The crane is fixed to the core. The core is nearly half of its' full height. Podium is nearing completion as ramps are being formed to the Level 13 crossover. The core is now at L24.



Hotel Denver

12th & Cherokee, Denver, Colorado

The building has reached its' full height of 16-stories and exterior finishes are being installed. Pre-cast concrete and glass walls give the building a modern look. The upper floors can also be seen from Interstate-25 at the southern end of downtown Denver.

Hotel Denver, Denver, Colorado

The building has reached its full height of 22-stories. Pre-cast exterior panels are being placed and are nearly completed. While it is difficult to see the building from outside of downtown, the L-shaped building is right at the heart of downtown Denver, adjacent to the Denver Convention Center, and stands out from it's surroundings.

12th & Cherokee