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LEED: 15 Years Later

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**On the cover:** Adobe’s new $110 million building in Lehi is one of the most visually-stunning buildings in Utah. (photo by Dana Sohm; Sohm Photografx)
As I was driving south a couple of weeks ago along the new I-15 Utah Country Corridor, on my way for a much-needed soak in the Fifth Water Hot Springs (accessed via Diamond Fork Canyon off U.S. Hwy 6 through Spanish Fork Canyon, for those of you looking to channel your inner-hippie child), I was struck by the magnitude of the new Adobe Building. Everything about the building, from its unique shape, to its stunning curtain wall/glass exterior, just exudes the ‘cool’ factor on such a high level. Adobe wanted a project that represented everything they stand for as a company, and the design and construction team delivered in a big way. Turn to page 34 for a unique look at this cutting-edge project.

This issue of Utah Construction & Design also looks at how the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) process has evolved since it was first created 15 years ago. Utah’s first LEED certified project – the Utah Olympic Oval – happened in 2001. Since then, dozens of projects have achieved LEED certification, including many landmark buildings in the state. And the level of awareness about sustainable design continues to increase, as building owners have finally realized the inherent value of having a building that includes as many sustainable and green elements as possible, despite the additional up-front costs. Included in our LEED article is a list of Utah projects that have achieved LEED Gold or LEED Platinum certification since 2006 – a whopping 53 projects, including 37 in the past two years.

We were excited to host, along with the Utah Mechanical Contractors Association, a Mechanical Roundtable event in early February, which brought together some of the best and brightest mechanical contractors and mechanical engineers in the state to discuss important topics relevant to their respective fields of work.

Other feature projects in this issue include the beautiful, timeless Ogden High School Renovation project, and a deeper look into the genius behind UTA’s FrontRunner South project. In addition, kudos to long-time Salt Lake firm MHTN Architects, which is celebrating its 90th Anniversary this year.

Like I mentioned in our debut issue in January, we hope you will look at Utah Construction & Design as your magazine. We appreciate the overwhelmingly positive collective response we have received thus far, and hope to keep the momentum rolling. We welcome your input and want to know what projects you’re working on, in addition to the topics and trends that are noteworthy and cutting-edge. Our goal is to be read, appreciated and respected by all major decision-makers in this industry throughout the state. Don’t hesitate to contact me if you have any questions about what we aim to accomplish with each issue. I can be reached at (801) 433-7541 or bfullmer@utahcdmag.com.

In the meantime, happy soaking!

Regards,

Brad Fullmer
Publisher/Managing Editor
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### March

13 **American Concrete Institute**, Intermountain Chapter’s 26th Annual ‘Excellence in Concrete’ Awards at The Towers @ Rice-Eccles Stadium in Salt Lake City. www.aciintermountain.com

14 **Concrete Spring Symposium** 8:00 a.m. – 4:00 p.m. @ Warnock Engineering Building at University of Utah. www.aciintermountain.com

15 **Urban Land Institute of Utah** event at Little America Hotel. www.agc-utah.org

20 **Arc Flash Training Seminar** 8:00 a.m. – 4:30 p.m. @ Hunt Electric offices; 1863 W. Alexander Street (2410 South). Register at (801) 975-8844 ext. 8894 or online at www.HuntElectric.com/training.htm.

20 **CSI Salt Lake Educational Tour** @ SME Steel in West Jordan; 11:30 a.m. – 1:30 p.m. www.csi-slc.org

20 **SMPS Utah monthly luncheon** @ Little America Hotel in Salt Lake City, K-12 market focusing on LEED opportunities. www.smpsutah.org

21 **SMPS Utah** Members-only social @ Piper Down Pub in Salt Lake City. 4:00-6:00 p.m. www.smpsutah.org

31 **ABC Utah** Emerging Leaders Quarterly Networking at Zions Bank Building, 14th floor. www.abcutah.org

### April

31 **UMCA Education Seminar** “Planning for Productivity” by Tom Williams, MCAA-NEI at Little America Hotel. www.umca.com

27-28 **Utah Asphalt Conference** at South Towne Expo Center in Sandy. www.utahasphalt.org

28 **International Plumbing Code Requirements** Training at Utah Career Center, Noon to 4:00 p.m. Hosted by UMCA. www.umca.com


10 **ABC Utah Annual State Convention and Excellence in Construction Award** at Little America Hotel in Salt Lake City. http://www.abcutah.org

19 **AGC of Utah Spring Golf Tournament** @ Sunbrook Golf Course in St. George. www.agc-utah.org

May 8

SMPS Utah’s Marketer’s Bootcamp, which will provide A/E/C marketing executives with tools and training to better do their jobs. www.smpsutah.org
Most people are born with some safety sense. However, everyone needs to learn, re-learn, and be reminded of safe behaviors. It doesn’t matter how much previous training your employees have had. You will still need to retrain and orient your employees to the specific safety requirements of your company.

Start your new employees out with a safety orientation that reviews safe procedures and teaches them to control hazards they will face while working for your company. Even though they may have had similar safety training from another job, retraining is still essential. After orientation, allow new employees to adapt to their new work environment and give them on-the-job safety training. Employee orientation is a very critical part of a successful safety program. Early communications from the company should include the concept that we operate safe at this company; it is the way we do business.

**Safety Meetings**

Regular safety meetings give you the opportunity to review the same safety procedures and methods you taught at orientation and during on-the-job safety training. Your continual review in safety meetings helps employees remember and focus on safe ways of doing their work. Holding scheduled safety meetings also helps your employees realize that safe behavior is just as important as any other aspect of their work.

**Daily Safety Messages**

Daily safety messages give another opportunity to reinforce what is taught in your regular safety meetings. Give employees a safety message at the beginning of each shift. The message does not have to be lengthy; it can be a short reminder about a topic or behavior that will help the work day be safe. You can develop a list of important safety topics and your supervisors can select a topic each day.

**Written Safety Program**

Having a written safety program that covers safe procedures, describes unsafe conditions and behavior, and outlines the means to control hazards, provides safe behavior reinforcement. A written resource is valuable because it remains a consistent source of safety for all workers. Employees can turn to the written safety program to find, recall and relearn safe behaviors.

**Safety Surveys**

Completing regular and random safety surveys or audits to find and correct hazardous conditions and behavior also reinforces safe behavior. Involve your employees in the process. Bring the survey findings to your employees and seek their suggestions on preventing the recurrence of these hazards.

**Safety Incentives**

Providing safety incentives is another common way of reinforcing safe behavior. Rewarding safe behavior motivates workers to be careful and cautious. Motivated by goals to reduce the number and severity of accidents, to be accident free, etc., employees re-learn safe behavior. Safety incentives that are meaningful to employees have helped some employers reduce accident frequency and cost.

**Signage**

The use of signage is an important part of a safety program. Signs help to identify hazardous conditions and remind people to work safely. Warning/caution signs should be posted in places to help personnel identify hazardous work operations. Signs are an important part of emergency evacuation and personnel performing safety surveys should be looking for proper signage.

**Supervision**

Line supervisors are critical to the success of your safety program. Supervisors who are trained in safe behavior and understand safety are in a good position to reinforce safe behavior. Supervisors who have the authority to stop and correct unsafe conditions and behavior are a tremendous asset because they can continually observe the workforce and the environment.

**Preventative Maintenance**

A preventative maintenance program reminds employees to maintain equipment in safe operating condition. Completing regular scheduled maintenance according to manufacturers’ specifications helps keeps machinery in good repair and teaches employees the importance of maintenance work. Safe behavior reinforcement is a continual process.

Greg Summerhays is Director of Public Relations at Workers Compensation Fund and has 12 years of experience with the firm. For more information regarding safety resources, visit wcfgroup.com/safety.
Sustainable/green design and construction has been embraced with great enthusiasm over the last several years. This, however, must be tempered with a healthy understanding of the legal issues and risks which accompany “green” design and construction. The U.S. Green Building Council (USGBC) reports that “it is likely that juries will expect builders to do more to ensure proper construction and builders must be prepared to meet the juries’ expectations.” Newman & Dillon, LLP, West Coast Casualty Construction Defect Seminar, 8/8/08.

It is important that contract documents adequately address unique “green” aspects of the project. First, “green” or “sustainable” building elements often do not have standardized meanings and need to be clearly defined. One commentator notes that “When you get down to it, whether a work of architecture is green is usually a shade of gray.” Christopher Hawthorne, Architectural Record, 4/08.

Project documents must also address the “green” expectations the owner may have such as (1) cost savings by using recycled materials, (2) energy savings during occupancy of the building, (3) impact on zoning approvals through green design, (4) public perception of the project, (5) enhanced value from “green” designations, (6) financial incentives (tax, loans, grants, etc), (7) enhanced occupancy and rental rates, etc. Project contracts should address responsibility for such items and the measure of required performance.

Care should be taken to avoid unintended warranties or guarantees which may be hidden in “green” project documentation. For example, the USGBC’s Leadership in Energy and Environmental Design (LEED) program calls for signing a “declaration” or “affirmation” for the LEED certification. The “certification” may also incorporate the green certification program standards into the contract. These green certifications may include terms such as “certify,” “affirm,” “verify,” “warrant,” and “guarantee.” These issues may result in unexpected liability and warranty exposure if not adequately addressed in the contract documents.

Recent construction litigation is illustrative. In Shaw v. Southern Builders, the construction contract called for LEED certification but was ambiguous regarding certification responsibility. The owner sought significant state tax credits which were available for LEED certified projects. The time for application for such credits expired and no LEED certification was obtained. The contractor sued the owner for approximately $50,000 claimed to be due under its contract. The owner counterclaimed for approximately $1,200,000 for damages resulting from the lack of LEED certification and loss of the tax credits.

Another potential pitfall is “green washing.” Enthusiastic representations regarding green design and construction may lead to claims for negligent misrepresentation, fraudulent non-disclosure and/or fraud. Representations should be limited to subjects which are supportable by reasonable documentation. Parties should use caution in communications regarding subjective concepts which may be difficult to objectively measure or verify, such as comfort levels, specific energy efficiency, etc. so as to avoid unrealistic expectations by other parties.

Coordination of design and construction is paramount. This was illustrated in the trial of a construction case we handled a few years ago. The project owner specified a new environmentally friendly, high pressure, dry fire suppression system. Unique structural pressure relief venting required for the system was not coordinated, designed or constructed in the building. Inadvertent activation of the system resulted in explosive impact and claims of approximately $15,000,000 for damage to the building, computer equipment and commercial data and operations. Although we successfully defended our client, extensive litigation and a lengthy federal jury trial could have been avoided by more careful coordination between the parties.

Green construction projects provide sustainable value and can be successfully and beneficially completed with careful coordination and contract documentation between the owner, design professionals and contractors.

Stanford P. Fitts is a partner in the Salt Lake City law firm of Strong & Hanni where he practices in the areas of Construction and Design Law, Design and Construction Liability Defense, Insurance and Surety Defense, Real Estate and Commercial litigation. He can be reached at (801) 532-7080 or sftts@strongandhanni.com.
In the current market, Net Zero has pushed ahead as a highly desired goal for commercial buildings. Several recent projects in Utah have been striving for this somewhat elusive label, though this effort has been limited. However, it is evident that the goal of achieving Net Zero is on the increase. Major industry organizations such as AIA and ASHRAE have committed to steering towards Net Zero and organizations such as Architecture 2030 and the International Living Building Institute have an increased following in their objective of promoting Net Zero facilities.

The challenge of Net Zero from the perspective of the mechanical design is to re-think the application and control of mechanical systems to limit the required energy consumption to a bare minimum. Mechanical systems need to be limited to a point at which the inevitable renewable energy installation – designed to offset the building energy consumption – becomes feasible.

Traditional mechanical systems such as variable air volume (VAV) systems, unitary systems that include packaged air conditioners and fan coils, and plant equipment such as ground heat exchangers need to be re-analyzed to squeeze all available energy potential from each component. In addition, building owners need to be open to ‘unconventional’ HVAC systems including displacement ventilation, displacement air delivery, radiant cooling and chilled beams, as well as hybrid systems which can take advantage of passive heating and natural ventilation.

Before mechanical systems can be addressed, all design disciplines need to work together to reduce the heating and cooling loads the mechanical systems are in place to address. Building massing needs to be leveraged and used to augment the performance of building energy systems using passive heating and natural ventilation strategies. The exterior envelope of the building needs to incorporate efficient design such as ensuring window placement can contribute to passive heating of perimeter spaces, and perhaps be geared towards assisting in improving how air can flow through the building using natural ventilation approaches. Lighting designs need to be optimized to keep gains from artificial lighting to a minimum through the use of daylight harvesting and occupant sensor controls.

The bottom line is that Net Zero buildings are not impossible to design and most challenges are not necessarily difficult to overcome. The true challenge to a successful Net Zero design is that the actual design is only part of the equation. In order to create a successful Net Zero facility, every player involved with the building must be committed to the end result. This means everyone – from the design team to the contractor, and from the Owner/Developer to the day-to-day end users – all must be on-board with the Net Zero goal and be fully committed to maintaining the intended design and operation throughout the life of the building.

Spencer W. Howell is a Mechanical Engineer at Salt Lake-based Van Boerum & Frank Associates. He obtained LEED AP accreditation in 2002 and has extensive knowledge of sustainable design and the intricacies of projects designed for Net Zero. He can be reached at (801) 530-3148 or showell@vbfa.com.
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For 90 years MHTN has been driven to support its clients’ collective visions throughout Utah. Many thanks to these clients and our numerous partners and friends who have offered their trust in our ability to help create such beautiful environments and meaningful memories.
Butterfield was truly humbled with the award. “It’s was extremely nice,” he said. “I’ve had more than my share of recognition within the (Utah) Department of Transportation, but when you get recognition from the industry it means I’ve done something right. It means a lot to me.”

Butterfield began working in the construction industry in 1972 at White Concrete Ready-Mix Company in Salt Lake City, and gained experience through the years with land development site work, curb and gutter, before moving on to flat work in both commercial and residential applications. After owning his own construction company over a five-year period in the mid-80s, Butterfield went to work for UDOT in 1988 in the structural design division.

In 1995, Butterfield became the concrete engineer for the state. He rewrote UDOT concrete materials-related specifications and initiated ACI requirements for all UDOT field personnel. When the I-15 Utah County Corridor (CORE) project was in its infancy, he was charged with overseeing all the concrete and concrete pavement related items. Later, he developed the RFP for the $1.725 billion project and was instrumental in the pavement design and construction oversight. Under his insistence and perseverance, the entire project was reconstructed with Portland Cement Concrete Pavement. Butterfield currently serves as UDOT’s Statewide Materials Program Manager, and was UDOT’s Materials and Pavements Engineer on the I-15 CORE project, which included 2.8 million SY of PCCP.

“Throughout his career, John has tirelessly pushed quality,” said Mitzi McIntyre, Utah ACPA Executive Director. “Over the years, he has rewritten specifications to ensure that taxpayers were getting the best possible product. He has been instrumental in allowing innovation to be explored through pavement construction and pavement repair methods. He has mentored countless individuals on pavement design, materials, testing, construction practices, and quality control. John is a pioneer in partnering with the construction industry.”

“I’ve been in it so long…it’s been a series of events,” said Butterfield. “I was always fascinated to learn more about the product. I went from ready-mix to construction to school. Everything you learn about one facet pushes you to learn more about another facet.”

Butterfield said what stands out to him on the I-15 CORE project was the fact crews were able to pave concrete all year long, even in the coldest winter months.

“We had wires and sensors sticking out of the sub-grade, in the base course, in the concrete itself, and on the surface – it was like a patient on an operating table. It was critical to monitor temperatures to make sure that the concrete never froze. It allowed us to keep the work progressing.” – John Butterfield, on paving concrete during cold winter months on I-15 CORE project.
**Category:** Municipal Streets (<5,000 SY)
**Project:** Princeton Avenue, Salt Lake City
**Owner:** Salt Lake City Corp.
**Engineer:** SLC Corp. Engineering Division
**Contractor:** Jordan Valley Construction, West Jordan

Princeton Avenue is located in the historical east side of Salt Lake City. Under direction of Salt Lake City Corp., Jordan Valley Construction installed a new water line, replaced existing curb and gutter, driveway approaches and sidewalks, as well as placed 2,400 SY of concrete paving. Traditionally, Salt Lake City has paved roads in this area with concrete pavement to maintain the prominence of the area. Due to weathering and age, the existing 70-plus-year-old concrete street had large cracks and high spalling. By designing the road with a concrete depth of 6 inches on 6 inches of base, the street will require low maintenance and be durable for decades to come.

**Category:** Concrete Pavement Restoration – Highways
**Project:** US-40, Wasatch/Summit County Line to SR-32
**Owner:** UDOT Region 3
**Engineer:** UDOT Region 3
**Contractors:** Dry Creek Structures, Lehi; Penhall Company, SLC; Multiple Concrete Enterprises, Inc., No. Ogden

This was a federally-funded project that included 12 miles of 10” pavement that was dowel bar retrofitted with over 32,000 bars and diamond ground to restore smoothness. Full and partial depth patching was completed along with joint resealing.

**Category:** Parking Lots
**Project:** J.L. Sorensen Recreation Center
**Owner:** Salt Lake County
**Architect:** EDA Architects, Inc.
**Contractor:** ACME Construction, Inc.

Recognizing the value of building for the future, Salt Lake County is seeking LEED certification on its new construction projects. With the goal of lowering long-term maintenance costs, the J.L. Sorensen Recreation Center was built using sustainable materials and building techniques, ultimately achieving LEED Gold Certification. A key element to achieving enough LEED points was the 6-inch, 4,000 SY concrete parking lot, which helped decrease required site lighting, increased solar reflectance index, used local materials and ultimately, decreased long-term operating costs of the facility.

**Category:** Urban Arterials
**Project:** US-89; Intersection at Center Street/500 West in Provo
**Owner:** UDOT Region 3
**Engineer:** UDOT Region 3
**Contractors:** Geneva Rock Products, Murray; Green Construction, Inc., No. Salt Lake

This intersection sees high volumes of traffic daily due to its access to downtown Provo. It was previously paved with concrete, then overlaid many times with asphalt and finally capped with a 4-inch white topping in 2001. Failure of the asphalt pavement sections below the white topping necessitated a complete replacement with a 40-year pavement. Once demolition started it was decided that all sections needed to be removed in order to pave a new 10-inch section of roadway. This 5,000 SY project was completed in two full weekend closures.
The Supply Chain Center for Intermountain Healthcare is a testament in the progression of construction. The building site was a reclaimed industrial site with thousands of cubic yards of slag in the ground. This created numerous protocols and procedures to be followed while constructing on the job site, such as increased safety training and job hazard awareness protocol. In all, 119,139 SF of 6.5-inch PCCP was placed for the parking lot.

Category: Commercial Service Airports
Project: North Cargo Apron Expansion, Phase III, SL Int’l Airport
Owner: Salt Lake City Dept. of Airports
Engineer: Salt Lake City Dept. of Airports
Contractors: Granite Construction Co., No. Salt Lake; Geneva Rock Products, Murray

This was the third phase in a series of projects designed to expand the development of the North Cargo area by providing apron support for future cargo buildings and improve air cargo operations at the airport. The 46-acre project constructed a new 16-inch, 68,500 SY PCCP apron which will be used by Fixed Base Operation air-cargo services and accommodates a variety of aircraft at four deicing parking positions. One 960-foot trench drain separates the pad and allows glycol to be separated from clean storm water, before diverting it into a product recovery system.

Category: State Roads
Project: SR-85, Mountain View Corridor
Owner: UDOT Region 2
Engineer: Lochner, SLC, Michael Baker Jr., Midvale
Contractors: Copper Hills Constructors (joint-venture between Granite Construction, No. Salt Lake, Kiewit, American Fork, W.W. Clyde, Springville)
Project Management: Parsons Brinckerhoff, Murray, HDR, Inc., SLC

This $245 million, 15-mile new highway in southwest Salt Lake County was a CM/GC project. It consisted of one-way roads with two lanes in each direction west of Bangerter Highway that connects Redwood Road near the point-of-the-mountain to 5400 South in West Valley City. The PCCP included 12-inch on mainline and 10-inch on ramps totaling 325,000 SY. It was placed on six of the 15 miles with an additional mile of paving to connect the corridor to Redwood Road. Innovations included maximizing the use of onsite materials with lime treated base to more accurate placement methods with wireless paving technology.

Category: Municipal Streets (>5,000 SY)
Project: Fairbourne Station Phase I Roadways
Owner: West Valley City
Engineer: Great Basin Engineering, Inc., Ogden
Contractor: M C. Green & Sons, Inc., Centerville

Fairbourne Station is a showcase development located in the heart of Utah’s second largest city, and is the home of new high-density development, transit and commerce. The City’s Public Works Dept. understood the importance of having high quality, durable infrastructure in this focal point development and had 6,700 SY of 8-inch PCCP placed (40-year pavement design) in addition to new utilities.
Category: Industrial Paving  
Project: 500/700 South Phase II, Gladiola to Surplus Canal  
Owner: Salt Lake City Corp.  
Engineer: Project Engineering Consultants, LTD, West Jordan  
Contractor: Geneva Rock Products, Murray  

This is a 5,100-foot section that extends from the Surplus Canal to west of Gladiola Street in Salt Lake. The existing roadway was an asphalt road in poor condition that carries excessive truck traffic. This project had a unique design in that the curb and gutter was placed monolithic with the 11-inch pavement section.

Placement of the 27,500 SY of concrete pavement was completed using a Gomaco 2600 4-track paver with a customized curb and gutter mold.

Category: Divided Highways, Urban  
Project: I-15 Utah County Corridor Expansion  
Owner: UDOT Region Three  
Contractor: Provo River Constructors (Joint-venture between Fluor Corp., Irving, TX; Ames Construction, SLC; Ralph L. Wadsworth Construction, Draper; Wadsworth Brothers Construction, Draper  

This is the largest highway project ever constructed in Utah and had the fastest schedule of any billion-dollar-plus highway project in U.S. history. It included the widening of 24 miles of I-15 roadway, rebuilding and reconfiguring 10 interchanges, and the replacement of 63 bridges. The $1.725 billion project included 2.8 million SY of PCCP and was completed in less than 36 months, ahead of schedule and under budget, and features a 40-year pavement design. PRC operated three separate batch plants in order to maintain the high volume of concrete needed. In order to streamline efficiency, Leica’s PaveSmart System – a machine-controlled, wireless paving system that eliminates the need for string line and staking, was utilized. Of the 24 miles of reconstruction, 22 miles were paved with PCCP, from the Lehi Main Street bridge to the north bridge abutment of Spanish Fork Main Street. In addition, four of the 10 interchanges were paved with PCCP.
Two long-time construction industry veterans were installed as leaders of the Associated General Contractors (AGC) of Utah for 2013 at the AGC’s 91st annual convention January 24-26 at Little America Hotel in Salt Lake City.

Mark Green, 59, President/CEO of Centerville-based M.C. Green & Sons, Inc., takes over as Chairman of the Board for outgoing Chairman Randy Okland of Okland Construction of Salt Lake City, while Doug Watts, President of St. George-based Watts Construction, was named Vice Chairman.

The AGC also honored former Okland Construction executive Ben Nilsen as its Eric C. Ryberg Award recipient for his long-time service and career in the industry. Nilsen spent more than four decades at Okland, serving in many capacities over the years before retiring in 2012 as a Senior Vice President of the firm.

Nilsen was hired by Jack Okland in 1969 while still a student at the University of Utah to perform the punch list on the LDS Ogden Temple, and stayed with Okland for the next 43 years. He was named Vice President of Estimating in 1983 and also served as a Project Director/Project Manager on many notable projects including City Creek Center, Intermountain Medical Center, 222 South Main, LDS Nauvoo Illinois Temple, Grand America Hotel and the LDS Conference Center.

Over the course of his career, Nilsen participated in preparing estimates on projects totaling more than $2 billion.

“I was very surprised and honored to receive the award,” said Nilsen. “I have a great appreciation to have spent my life working in an industry which creates beauty and function in the facilities and infrastructure we construct, that each of us can use, experience and enjoy. That has brought great meaning to my work.

“This is an honor that needs to be shared as a result of the contributions of many others to my life’s work experience,” Nilsen added. “The four generations of Okland family members who I worked with for 43 years, an outstanding family of Okland employees who have supported me and been patient with me, and many outstanding owners, architects, engineers, subcontractors and suppliers. I also recognize the great leadership of the AGC and for keeping us focused on skill, integrity and responsibility.”

New Wave of Leaders
Both Green and Watts are second-generation construction veterans and now oversee the companies started by their respective fathers. Green learned the industry from Milt Green, who started M.C. Green & Sons in 1957, a firm specializing in all types of concrete work. Green, 59, took over the company in 1973 and has been intricately involved with every day-to-day detail since then.

“Construction is a very rewarding industry and I feel the need to give back to the best of my abilities,” said Green. “This is a great opportunity to jump in with both feet and serve the AGC. We’re going to try and make a difference and prove we have some ideas that can help the community.”

Watts, 56, started sweeping floors for his father Richard’s company as a teenager. Watts Construction was founded in 1968 in Salt Lake and moved its headquarters to St. George in 1985, where they have been a fixture in the construction industry. Watts has served on the AGC’s board the past two years and will assume the role of Chairman in 2014. He will become just the second person from Southern Utah to serve as Chairman (Cal Carter of Cedar City-based Carter Enterprises in 1992).

“Being on the board has been a great experience,” said Watts. “Contractors have
been battered pretty badly in the past few years by the economy, especially in Southern Utah, and serving the AGC helped bring me out of the darkness and made me realize how important general contractors are. I wanted to stay involved and help grow the membership in Southern Utah and promote the benefits of the AGC.

AGC President/CEO Rich Thorn said membership in Southern Utah has dipped dramatically since the recession hit in 2009. Membership in that area used to be at 200 and is now hovering around 80. One of the main objectives for both Thorn and Watts is helping contractors understand the benefits of AGC membership.

“AGC provides the best training in this market and offers a wide spectrum of discounts on various services,” said Watts. “It’s a great organization just from a networking standpoint.”

Watts also referenced the need to get more young people involved in the construction industry.

“Because baby boomers are retiring, it will affect the construction workforce in a big way,” he said. “Using the AGC as the platform, I would like to take action to get some construction training programs with degrees or certificates through Dixie State or Dixie Applied Technology College or in other areas where we can help, encourage, assist to replace the retiring construction workforce.”

Thorn said he has high expectations from both men and knows they’ll work hard to serve the membership.

“Mark brings an enthusiasm that is contagious,” said Thorn. “Mark is the epitome of a guy who runs a successful small business and it illustrates that the AGC is not just about big companies; a majority of our members are smaller firms and Mark can relate to those members. We view that as a key to attracting new firms to our chapter.”

“Doug is an honest, soft-spoken guy that is well-respected in our association,” Thorn continued. “He’ll be able to bring a Southern Utah perspective to our members and have the opportunity to travel around the west and the U.S. representing our state from a commercial construction standpoint.”

Thorn said growing the chapter’s membership is among the top priorities in 2013, along with helping members understand how to best utilize AGC’s benefits.

“We believe our industry has seen the bottom and that we’re seeing an uptick in growth,” he said. “We need to be prepared for guiding our members through that comeback. We’re fortunate to be in a state with a supportive legislature – they’re doing things to help Utah maintain its strong economic position. We’re at about 425 members right now; it would be nice to get back up to the 500 range. Part of our mission is to help non-members better understand our services, our committees, and our enviable networking ability.”
AGC Recognizes 22 Projects, 12 Individuals, and 6 Firms for Outstanding Contributions to Industry and Community

Cultural Building Project of the Year
Rocky Shores at Hogle Zoo
GC: SIRQ Construction, West Jordan
Rocky Shores is the largest exhibit ever created at Utah’s Hogle Zoo and is a major step in its transformation to a 21st Century zoo. Rocky Shores is designed to resemble a cannery or shipping dock on the northwest coast of the U.S. It occupies 3.5 acres and includes three separate habitats and five water features, including both saltwater and freshwater habitats. The habitats were designed to showcase polar bears, sea lions, harbor seals, eagles, and river otters which were all on site during the project.

Government/Public Building Project of the Year
Garfield County Courthouse Addition & Remodel
GC: Jacobsen Construction, Salt Lake City
The Garfield County Courthouse project consisted of remodeling the existing building (originally built in 1908) and the 1984 addition, as well as constructing a new, two-story addition to the historic structure. The completed project yielded approximately 27,000 SF of new or remodeled space – which was sorely needed in this small-but-growing community.

Green Building Project of the Year
Tracy Aviary Visitors Center
GC: Big-D Construction, Salt Lake City
Located in the heart of Salt Lake City’s Liberty Park, Tracy Aviary is a walkable natural preserve centrally located in the midst of a major metropolitan area. The new 11,470 SF Visitors Center, entry plaza and boardwalk aims to support the experiential, educational and sustainability mission of Tracy Aviary. The LEED Gold-certified project features community connectivity, easy access to public transportation and ample space for pedestrians and bicycles. Key elements of the construction and design include water-use reduction, high-energy performance, natural ventilation, recycling and the use of sustainable materials.

Healthcare Building Project of the Year (Under $25M)
University of Utah Clinical Neurosciences IMRIS Project
GC: Jacobsen Construction
The U of U’s Clinical Neurosciences Center includes a state-of-the-art IMRIS (Intra-operative Magnetic Resonance Imaging System) Suite, one of the first of its kind in the U.S. The suite is comprised of three separate rooms – an MRI room, flanked by an Operating Room and a Biplane Angiogram room. The three Tesla MRI scanner is installed on a ceiling-mounted rail system, allowing it to move into the O.R. or the Angio room and provide real-time MRI images during surgeries. This incredible innovation enables faster responses to stroke victims; it also allows neurosurgeons to perform brain-related procedures with greater precision and improved outcomes.

Healthcare Building Project of the Year (Over $25M)
South Jordan Health Center
GC: Layton Construction, Sandy
The 210,000 SF, three-story South Jordan Health Center opened in January 2012 and brings much-needed healthcare services to the southwest portion of the Salt Lake Valley. The facility offers primary, emergency and specialty care services and features a stand-alone emergency department, AirMed helicopter transport, a full-service pharmacy, in-house branches of the Huntsman Cancer Institute and the Moran Eye Center, a café, espresso bar, and a large conference room with amenities suitable for banquets, seminars and educational trainings. The facility is aiming for LEED Gold certification.
K-12 Education Building Project of the Year  
Centennial Jr. High  
GC: Hughes General Contractors, North Salt Lake  
   The Centennial Jr. High school is a new two-story, 170,000 SF junior high school facility. It was conceived to bring emerging science technologies into the classroom. Photovoltaic panels were installed on the roof and connected to the science labs so that the students could have hands-on experience within the classroom setting. The facilities include a gymnasium with an indoor running track as well as many outdoor sports fields.

Higher Education/Research Building Project of the Year  (Under $25M)  
Thatcher Chemistry Building at the University of Utah  
GC: Okland Construction, Salt Lake City  
   The Thatcher Building for Biological and Biophysical Chemistry is a five-story addition to the existing Henry Eyring Chemistry Building on the University of Utah campus. The building will add needed lab space for both undergraduate teaching and graduate research. There is also a 90-seat auditorium being added as part of this building. This is especially anticipated by the Chemistry Department because it will be an auditorium that is for the sole use of the department and not shared with other schools or departments.

Higher Education/Research Building Project of the Year  (Over $25M)  
Utah Valley University Science Building  
GC: Big-D Construction  
   This 160,000 SF, three-story facility brings together several departments under one roof including general biology, botany, microscopy, physics, zoology, microbiology, anatomy, physiology, and earth science. Within the facility are classrooms, lecture rooms, an auditorium, faculty offices, laboratories and support spaces for teaching. The project scope of work also included upgrades to the electrical substation, central plant and sitework at the Fire Access Road.

Industrial Building Project of the Year  
Utah Bishops Central Storehouse  
GC: Layton Construction  
   The new Utah Bishops Central Storehouse for The Church of Jesus Christ of Latter-day Saints is a 570,400 SF welfare facility complex that was built to assist the owner in responding to disasters and taking care of those in need. The storehouse, located in Salt Lake City, is constructed on 36-plus acres and has the capacity to store 65,000 pallets of food and supplies.

Multi-Family Residential/Hospitality Project of the Year  
The Village at South Campus  
GC: R&O Construction, Ogden  
   The Village at South Campus houses more than 900 Brigham Young University students in five floors. The 236-unit, 371,686 SF project includes two residential towers and a two-story commons area with a swimming pool, grocery store and study area. Each apartment houses four people in private bedrooms, two bathrooms and a laundry area. The complex consists of 690 parking stalls, or enough for about three-fourths of its tenants at any one time. About 590 of those are underground in the one-level parking garage.

Office Building Project of the Year  
Kilgore Office Addition  
GC: Hughes General Contractors  
   Kilgore Paving & Maintenance’s original 7,700 SF architectural concrete tilt-up building was completed eight years ago. The building was designed to minimize both upfront and long term maintenance costs. The architectural tilt-up concrete was the perfect structure for an emerging company: cost effective, quick to construct, and provided a durable life time finish.
Retail Building Project of the Year
Megaplex Theatre at Valley Fair Mall
GC: R&O Construction

This Megaplex Theatre houses 15 separate theatres in 125,000 SF of space, including a 6,500 SF IMAX. Located on the site of the former Mervyn’s Store at Valley Fair Mall, almost 30,000 SF of the theatre footprint was constructed to run right up to the mall’s center concourse. One of the features of the Larry Miller Megaplex chain is how the company has set the standard for using Insulated Concrete Forms (ICF), foam blocks that not only serve as a form for concrete, but add insulation/sound attenuation value. Due to the use of ICF materials plus the location of the project within walking distance of mass transit and other green building criteria, the owners have elected to pursue LEED Silver certification, which would make this the first theatre in Utah to receive the designation.

Renovation/Restoration Building Project of the Year
Ogden High School Auditorium
GC: Hughes General Contractors

In 1936 Ogden High School was reputedly the United States first million dollar high school. At $1.4 million, the cost was double that of Salt Lake’s South High School, built at the same time. Construction was funded by the federal WPA and started at the height of The Great Depression. It is regarded as one of the best examples of art-deco architecture, is on the National Register of Historic Places, and considered a community icon and showpiece.

Sport/Recreation Building Project of the Year
Millcreek Community Center
GC: Big-D Construction

Millcreek Community Center integrates a recreation center with library and senior amenities into a cohesive entity providing a space for all ages. The project also includes a unique cafe which is the first of its kind in the region. The recreation center includes a gymnasium housing one basketball court and multiple volleyball courts, a fitness room containing exercise machines and free weights, an aerobics room/activity room for spin and aerobics classes and women’s and men’s locker rooms including showers. The outdoor park scope of the project includes soccer fields, playgrounds, pavilions and walking trails.

Building Project of the Year
Adobe Corporate Campus
GC: Okland Construction

In 2010, Adobe purchased Utah-based Omniture to combine the parent company’s digital media with Omniture’s web analytics, measurement and optimization technologies. Adobe worked with the Gardner Company and WRNS Studio (Architects) to master plan a 38-acre long, narrow site divided by a road for an entire campus that could eventually hold 3,000 employees in the next 10-20 years. The project is a display of concrete beauty. The exterior walls are board-formed concrete using real cedar planking and invoke an organic texture. The project is registered with USGBC and is slated to earn LEED Gold certification.

AGC Partnered Project of the Year
& Urban Project of the Year
Mountain View Corridor
GC: Copper Hills Constructors (joint-venture between Granite Construction, Kiewit Infrastructure West, and W.W. Clyde & Company)

The Mountain View Corridor (MVC) project is a $245 million 15-mile new highway in southwest Salt Lake County built using the Construction Management/General Contractor (CM/GC) procurement method. The project consisted of five segments of frontage road construction west of Bangerter Highway that connects Redwood Road near the point-of-the-mountain to 5400 South in West Valley City. It will eventually connect to I-80 in Salt Lake. The project includes 6 miles of PCCP concrete paving that was placed with wireless paving technology, in addition to 9 miles of asphalt.

Highway Project of the Year (Under $10M)
Pavement Preservation & Widening North of SR-128
GC: W. W. Clyde & Co.

The project involved widening and improving the roadway along US 191 north of the city of Moab. The width of the roadway was increased for additional lanes as well as shoulders. The existing Courthouse Wash Bridge was replaced with a newer and wider bridge.

Highway Project of the Year (Over $10M)
SR-114 Geneva Road Widening Design-Build Project
GC: Kiewit Infrastructure West Co.

Geneva Road was transformed from an industrial road into a high-capacity, beautifully landscaped and pedestrian-friendly corridor. The project added up to three additional travel lanes to Geneva Road and 60 percent more sidewalk capacity, making it a safe and multi-modal transportation system. A 260 ft. overpass structure on a 62-degree skew was constructed at Geneva Road and the Utah Transit Authority and Union Pacific Railroad (UPRR) crossing.
Rural Highway Project of the Year
U.S. 40; Vernal Main Street to Naples
GC: Burdick Materials

U.S. 40 through Vernal is the major artery for the oil, gas and mining industries that service the Uintah Basin and Main Street in downtown Vernal. Due to high levels of heavy truck traffic, much of U.S. 40 along the route was severely rutted with two major intersections in dire need of repair. The project was successful in part to the partnering process between contractor and UDOT, along with efforts made to minimize impact to traffic and businesses along the route.

Transportation Project of the Year
I-15 Utah County Corridor Expansion
GC: Provo River Constructors (Joint-venture between Fluor Corp., Ames Construction, Ralph L. Wadsworth Construction and Wadsworth Brothers Construction)

Not much more can be said of this multiple award-winning project beyond it being the fastest billion-dollar-plus highway project ever completed ($1.725 billion - $1.1 billion construction cost; completed in less than three years). The project widened 24 miles of highway from Lehi to Spanish Fork, rebuilt or reconfigured 10 major interchanges, and replaced 63 bridges. The project was delivered ahead of schedule and $260 million under budget.

Utility Project of the Year
Provo Reservoir Canal Enclosure Project
GC: Ames Construction, Inc.

This project consisted of the installation of a 21 mile, 126-inch diameter welded steel pipe, with turnout and flow control structures, all controlled by a SCADA electrical system. The projects goal was to safely convey water from the Provo River to the point-of-the-mountain by enclosing an existing open canal. This pipe increased the old canals flow and now has the capacity to carry 400 MGD of water every day, 85 percent of which is delivered and utilized by the Salt Lake Valley.

“60 years later, still building Utah.”

“The success of the company has not come from any brilliance on my part, but rather, employing wonderful, dedicated, loyal people who are allowed to get involved making major decisions, to grow and develop their abilities,”

- Alan W. Layton, Founder (1917-2009)
Civil/Public Works Project of the Year
Barton Creek Flood Control Project
GC: Whitaker Construction Co.

This project required installing approximately 3,100 ft. of 10 ft. x 5 ft. and 9 ft. x 4 ft. box culvert. The work required installing the box underneath an existing overpass, working in the narrow corridor between the UTA frontrunner tracks and I-15 and an open cut crossing of I-15. Extensive coordination with UDOT and UTA was required to accomplish this, including significant traffic control and 24-hour round-the-clock crossing for I-15 while minimizing the closure of the 5th West exit in Bountiful.

2012 AGC/UDOT Best Partnered Project of the Year
SR-154; Bangerter at 7800 South, 7000 South & 6200 South Design-Build
GC: Ralph L. Wadsworth Construction
Engineer: Michael Baker Jr.

The Bangerter Design-Build project consisted of reconstruction of the 7000 South and 6200 South intersections on Bangerter Highway into Continuous Flow Intersections (CFI’s) and converting the 7800 South intersection to a grade-separated interchange. This effort took place on one of the busiest arterial roads in Salt Lake County and impacted thousands of motorists daily, a large retail shopping center and countless local residents. The success of the project required significant outreach to many different public entities in order to ensure community cooperation and buy-in. Equally important was the necessity of developing a strong team structure to promote a true partnering performance and communication at all levels with stakeholders, sub-contractors, consultants and State transportation experts.

2012 UDOT Small Contractor of the Year Award
Flare Construction.
Submitted by: Jeff Roberts, Field Engineer for Project Engineering Consultants of West Jordan

Flare earned this award based on the firm’s safety, ethics, partnering, communication, commitment to quality, and compliance and project closeout on the Echo Trestle Historic Rail Trail Extension project located near Echo Junction where Interstate 8a and 8b connect in Summit County. As an example of commitment to safety while working on the elevated bridge structure, Flare went to the expense of purchasing lanyards and fall protection specific to the application of working on this type of structure. The engineer cited Flare as never cutting corners in regards to quality and paying close attention to even minor details, like placing railroad ties with exposed tar creosote face-down or out of the way for benefit to users of the trail.

Outstanding Architect Firm of the Year
VCBO Architecture

VCBO Architecture has been practicing architecture, planning and interior design for the past 40 years throughout the Intermountain West, the U.S. and abroad. Consistently ranking one of the Top 10 Intermountain Region architects, the firm is known for design excellence, technological innovation, performance and dedication to client services. This focus on excellence has resulted in national, regional and local awards and honors. VCBO was founded on a client-centered approach. This philosophy continues with active participation from each of the eight principals in the design and management of each project. The firm has always sought to keep abreast of innovative concepts in the architectural design field and to attract the very best people, its’ greatest resource, with a broad spectrum of skills, design talents and technical backgrounds.

Consultant/Engineering Firm of the Year
CIVCO Engineering

CIVCO Engineering, Inc. was incorporated in 2000 as a full service civil engineering firm. CIVCO is capable of providing a full range of services on municipal/civil projects, including: feasibility studies, project planning, funding applications, construction, topographic, and mapping surveys, project design, drafting, materials certification, construction inspection and construction management.

UDOT 2012 Service/Supplier of the Year
Oldcastle Precast, Inc. – Utah Division

The Utah Concrete Pipe & Culvert Company was founded in 1948 with production plants in Salt Lake City and Ogden. The company produced concrete pipe and manholes for storm drains, sewers, irrigation and water transmission lines and manufactured headgates for irrigation, as well as concrete and pumice masonry block. The company evolved to become AMCOR, and in 1978 was purchased by Ireland-based CRH, becoming the first company in North America purchased by CRH’s Oldcastle subsidiary. In 2000, Oldcastle purchased W. R. White, increasing the firm’s precast concrete production capabilities along with added products in the Distribution and Waterworks market.
Specialty Contractor of the Year
IMS Masonry
Established in 1989, IMS Masonry, Inc. is a leading commercial and industrial masonry contractor. IMS features an experienced team which has completed projects from coast-to-coast in the U.S., including commercial, industrial, educational, correctional, religious, medical facilities, movie theaters, recreation centers, and more. The firm has always strived to meet strict performance schedules while maintaining the highest standards of quality and safety control. It has the ability to work on multiple projects at one time while delivering exceptional craftsmanship. Some of the firm’s more notable projects include Rio Tinto Stadium, various MegaPlex movie theaters along the Wasatch Front, and Miller MotorSports Park.

Owner of the Year
Central Utah Water Conservancy District
Central Utah Water’s primary responsibility is to deliver clean, useable water to their customers by managing the vast CUP and District network of water facilities. Central Utah Water monitors and tracks precipitation levels and then make decisions on how best to serve current customers and store water for future generations. The District is proud of its role in managing the water in its jurisdiction and using technology, intelligence and hard work to ensure the best possible balance for man and nature.

DFCM Employee of the Year
Rick James; DFCM Program Director
A graduate from the University of Utah with a Masters in Architecture, James has had a distinguished architectural career working with firms such as Holland and Pasker Architects and Thomas Peterson Hammond. He has spent the past 22 years working for the State of Utah’s Division of Facilities and Construction Management. For over 35 years, his work has included project management of many types of projects from large to small with his most favorite projects including the Utah Museum of Natural History, the Carolyn Tanner Irish Humanities building, the Olympic Housing at the University of Utah, and the Utah Museum of Fine Arts.

UDOT Employee of Year
Robert Stewart
Stewart was the Deputy Project Manager for the Utah Department of Transportation’s I-15 CORE project – the largest highway construction project in the state’s history. He has been with UDOT for 11 years, and worked as an Innovative Contracting Engineer evaluating project delivery methods including design-build and construction manager-general contractor (CMGC). He holds Bachelor’s and Master’s degrees in Civil Engineering from the University of Utah. He readily admits that the success of the I-15 CORE project was due to the tremendous relationship with the contractors and UDOT, and each side’s willingness to work together to overcome issues and challenges.

Highway Project Manager of the Year
Steve McPherson; Ames Construction, Inc.
McPherson served as a Work Area 4 Project Manager on the I-15 CORE project, and proved himself as a leader people can rely on. As a 15-year-employee of Ames Construction, he is a fine example of representing Ames’ core values on a daily basis. Many people have experienced the dissatisfaction of observing their leaders step back and watch while everybody pitches in to solve a problem, but on the I-15 CORE project, McPherson’s team experienced firsthand that he was just as much a member of the team by jumping in and helping get the work done.

Transportation/Rail Project Manager of the Year
Ryan Snow; Stacy and Witbeck, Inc.
Snow has been guided by the core principles of skill, integrity and responsibility throughout his career as a project manager with Stacy and Witbeck, Inc. Since 2000, he has managed projects in California and Arizona and recently delivered the Utah Transit Authority’s West Valley and Airport TRAX projects ahead of schedule, under budget and with the highest safety standards. Due to his strong work ethic, technical understanding and fairness to others, he has developed relationships of trust and respect with employees, stakeholders and the community.

Utility Project Manager of the Year
Ken Hamson; Whitaker Construction Co.
Hamson started with Whitaker Construction in 2001 as a junior estimator and has progressively worked his way up to project manager. His father, Brian, has been an employee at Whitaker Construction for more than 40 years and instilled in his sons a love for construction work. The younger Hamson is well-liked by all that know him and always has a good attitude. He is organized and prepared, and shows strong leadership skills in orchestrating the difficult projects he has been asked to manage. He has built excellent relationships between the owners and engineers that work with the firm and has earned the respect of the field personnel that he oversees.

Building Superintendent of the Year
Troy North; Gramoll Construction
North was praised by Barb Remsburg, Director of Housing and Residential Education at the University of Utah, for having “superpowers” in his ability to navigate and negotiate through issues to come to a resolution. The key to this power, she says, is his ability to listen, to really hear what you are trying to say, to honor your vision, and then to come to a resolution that is supported by all parties involved. Troy brought to the conversation new products, technology, and advancements that broadened the viewpoint of those present. With regards to decision-making, he was clear, timely, and communicated outcomes.
Highway Superintendent of the Year
Wes Young; Ames Construction, Inc.
Young, an I-15 CORE Roadway Superintendent, has been with Ames Construction for over 14 years. When he joined I-15 CORE, he was tasked with the responsibility of overseeing Work Area 1 (Lehi Main Street to Lindon 200 South, approximately six miles) roadway operations as well as all finishing crews throughout the project. At the project’s peak, Young managed ten crews and approximately 100 people. From the beginning of construction, he was closely involved developing many of the innovations that Provo River Constructors (PRC) used on I-15 CORE.

Utility Superintendent of the Year
Clyde Brown; Whitaker Construction Co.
Brown has been with Whitaker Construction since 1976, having worked previously as a surveyor. His father was a well-respected civil engineer in the Ogden area and as such Brown has been around the civil construction industry his entire life. He started at Whitaker as a laborer and has since filled virtually every major role in the firm. Years ago when Brown was having trouble communicating with Hispanic workers, he took it upon himself to learn Spanish and is now fluent in that language, which he views as a valuable tool that has greatly aided his career.

Salesperson of the Year
Jim Slade; Komatsu
Slade is the Vice President for the Central Region for Komatsu Equipment Company. He began his career with Komatsu in 1982 as a technician. Over the past 29 years he has held roles such as Rebuild Foreman, Rebuild Manager, Service Manager, PSSR Manager and has been in his current role as Branch Manager/VP since 2001. He attended Utah Technical College where he took classes in business and received his certification for Diesel Mechanics and Machinist. He has received numerous certifications for Komatsu including sales training, failure analysis, hydraulics, transmissions and engines. He is the recipient of Komatsu’s “Service Manager of the Year” award for 1999 and 2000. Under Jim’s management, his branch has received several safety awards from the Utah Safety Council, Kennecott, and the AGC of Utah.

Committee Chairperson of the Year
Carl Clyde; W.W. Clyde & Co. Aggregates & Environmental Committee
Clyde was recognized for his tireless service to this committee and helped pull from a wide variety of AGC resources to shape and develop draft proposals of the new State of Utah PM 2.5 SIP and Salt Lake County ordinances regarding recycled products and landfills.

Service to the Industry
Michael Allegra; General Manager Utah Transit Authority
Allegra has more than 37 years of experience in the transit industry and began his career in 1976 as a transportation engineer for Utah’s Wasatch Front Regional Council. Three years later, he joined the Utah Transit Authority (UTA) as a planner/engineer. Over the course of his career, he worked through nearly every aspect of the UTA organization, directing the planning, funding, design, construction of UTA’s rail system and overseeing a program which will expand UTA’s system to include the addition of 140 miles of rail in just over a decade. This extensive expertise culminated in his selection as UTA’s general manager in 2010.

Service to the Industry
John Njord; Executive Director Utah Department of Transportation
It is hard to think about UDOT and not have the name John Njord pop into your head. Njord has been with the department for 25 years and has served almost half of that time as its Executive Director, a position he has held longer than any other DOT director in the United States, and longer than any UDOT Director in history. When he took the reins of UDOT, building on what his predecessor Tom Warne had started, he keenly understood that Utah was poised to better leverage innovative contracting and design, than any other state in the country. He understood this, because he understood the great partners UDOT has in its contractors and knew that together they could rebuild the state’s highway infrastructure in ways in which other DOT’s still can’t conceive of.

This past December, Njord announced his intentions to retire from the Department.
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Utah Masonry Council Honors Gary Ellis; Names 12 Award-winning Projects

RJ Masonry earns 2012 ‘Golden Trowel’ award for work on Montage Deer Valley

Twelve projects were honored at the Utah Masonry Council’s (UMC) 2012 Excellence in Masonry Design (EMD) Awards event January 25 at the Marriott City Center in Salt Lake City. The 2012 ‘Golden Trowel’ award went to RJ Masonry of Heber City for its work on the Montage Deer Valley project, which took home an Honor Award and Best of Show.

RJ Masonry President Robert Hicken said it’s an honor to earn awards from peers in the industry, particularly on a showcase project like Montage.

“We were surprised and extremely grateful to be chosen,” said Hicken, who founded his company in 1988. “There was a lot of technical work that went into it; we blended a lot of products and materials. More than anything it was an extremely schedule-driven project. The total duration was four-plus years but schedules get compressed and it seems like you do 90 percent of the work in the last 10 percent time frame. We try to be the best we can be all the time.”

In addition, Gary Ellis, a veteran of Utah’s masonry industry for more than 40 years, was honored with the Lifetime Masonry Service Award. Ellis started as a mason in 1968 and became a licensed contractor in 1975, at which point he started Ellis Masonry in Springville (now EMCO Masonry). The firm has received numerous EMD awards from UMC throughout the years, and is renowned for its work on school projects. Ellis was especially proud of Maple Mountain High School in Spanish Fork, which was completed near the end of his career in 2009.

Honor Award & Best of Show
Project: Montage Deer Valley
Owner: Ohana Real Estate Investors (OREI)
Category: Commercial
Architect: HKS Hill Glazier Design Studio
GC: Layton Construction
Mason: RJ Masonry, Inc.
Structural Engineer: Magnusson Klemencic
Suppliers: Delta Stone Products; Mountain Valley Stone; Buehner Block; Interstate Brick

Montage Deer Valley in Park City is one of the preeminent ski resorts in North America, a 980,000 SF, five-start luxury resort that sits on a 16-acre site at 8,600 feet elevation. This project challenged the masonry contractor on many levels, as it features 100,000-plus CMU units, over 83,000 SF of stone veneer, 75,000 SF of brick pavers, 10,000 SF of stone cap and 8,000 SF of thin brick veneer. The project featured multiple stone profiled window and door surrounds, special coping for pools and spas, 90 interior residential fireplace surrounds, and architectural precast elements around chimneys.

Citation Design Award
Project: Swire Coca-Cola Corporate Office
Category: Commercial
Owner: Swire Coca-Cola
Architect: Architectural Nexus
GC: Big-D Construction
Mason: Doyle Hatfield Masonry
Structural Engineer: ARW Engineers
Suppliers: Buehner Block; Interstate Brick; Ashgrove Packaging; Brailsford Cast Stone

The Swire Coca-Cola project in Draper, Utah uses masonry in two distinct ways. The largest portion of the project includes CMU wall construction for the warehouse and distribution facility additions. At these areas durability, efficiency and economy all contributed to the selection of masonry. A combination of light colored smooth block with an accent of a darker colored split face block provides both the durability and aesthetic desired to meet the Owner’s project requirements. The contrasting CMU materials were also used to provide a
subtle abstraction of the “dynamic ribbon” that associates the building with the Coca-Cola brand and provides visual interest to an exceptionally large warehouse wall without the use of paint, or any other applied material.

Citation Design Award
Project: City Creek Reserve Building #4 (Kirton McConkie)
Category: Commercial
Owner: Church of Jesus Christ of Latter-day Saints
Architect: ZGFA, LLP
GC: Okland Construction
Mason: Masonomics
Structural Engineer: Magnusson Klemencic
Suppliers: Interstate Brick; Quikrete

This 32-story, 187-unit condominium project features nearly 315,000 modular brick units in combination with more than 153,000 Norman (12 in. long brick) units and other special shapes. Brick was used rather than stone as the dominant material due to cost effectiveness as well as the brick's ability to articulate the façade more easily than stone. The almond color of the brick was custom created and carefully selected to provide presence to the building’s role as an anchor point of northwest corner of City Creek. Masonry was hand laid on 30 stories of the project.

Merit Design Award
Project: City Creek Center (Retail Portion) (Hobbs & Black)
Category: Commercial
Owner: Church of Jesus Christ of Latter-day Saints
Architect: Hobbs & Black
GC: Jacobsen Construction
Mason: IMS Masonry
Structural Engineer: KPFF Consulting Engineers
Suppliers: Interstate Brick, Ashgrove Packaging

This project earned national recognition at the recently held World of Concrete event in Las Vegas, earning a nod as the Best Masonry Project in the U.S. from 2012. New buildings were designed to retain old city appearances and color, while providing the greatest material life, low life-cycle costs, low maintenance, and using similar exterior materials and details to nearby existing buildings. Rigid masonry materials had to comply with ductile drift requirements of multi-story buildings. Heavy structural precast panels were also integrated with the masonry -- a unique aspect rarely seen in the masonry world. Each floor in the seismic design would need to move independently from floors above and below. The building envelop was designed to last 100 years, which required more durable connections and a more water resistant moisture and air barrier. Special wall systems and details were developed to capture the architectural charm while providing for the new seismic and durability requirements.

Honor Design Award
Project: Big Cottonwood Fire Station #108
Category: Municipal
Owner: Unified Fire Authority
Architect: PGAW, Inc.
GC: Zwick Construction
Mason: Cannon Masonry
Structural Engineer: Dunn Associates
Suppliers: Buehner Block, Beehive Brick, Interstate Brick

The station was designed with extensive masonry on the exterior and interior, lending to the mountain location. The project team ultimately selected the quartzite sandstone used extensively throughout the project, including the detailing around the French doors at each dorm room, the towers, brick/stone
transitions at veneer arch accents, stone piers, etc. The station was designed to much higher building standards; in addition to snow, wind, and seismic factors, the building was also specially designed to specific site conditions such as being in a canyon flood zone and forest fires. A 30 ft. defensible space was designed around the entire facility to assist in protecting the structure, which is built of Class A fire rated materials/assemblies.

**Honor Design Award**  
**Project:** Provo Peaks Elementary  
**Category:** Institutional  
**Owner:** Provo School District  
**Architect:** Sandstrom Associates  
**GC:** Hogan & Associates  
**Mason:** Doyle Hatfield Masonry  
**Structural Engineer:** Bsumek Mu & Associates  
**Suppliers:** Interstate Brick, Buehner Block; Ashgrove Packaging; Brailsford Cast Stone

The recent recipient of a national MCAA award for Best K-8 School, Provo Peaks Elementary is a masterpiece of masonry that involves new construction, restoration, and innovative techniques. Saving pieces from the original school was always a priority and one that was taken very seriously in order to preserve the rich heritage of the old building. Original terracotta tiles were uninstalled from the original wall with painstaking delicacy and then numbered and palletized to ensure the pieces would fit back together in perfect unison as they had been before.

**Merit Design Award**  
**Project:** Spanish Fork North Park Pavilion  
**Category:** Municipal  
**Owner:** Spanish Fork City  
**Architect:** WPA Architecture  
**GC:** Nichols Development Group  
**Mason:** A Good Brick Mason

The 4,300 square foot North Park Pavilion is one of three concrete block buildings constructed for Spanish Fork City’s new park. Designed for flexibility and year-round use, the grand pavilion anchors the east end of the park. The mason was key in working through the connection between the masonry pilasters and the arched glulam beams. Limited space at the connection point made for a very challenging and technical effort. Working with the mason, a bond beam was developed to provide for the architect’s design. Delicate coordination was required by the mason for transitions due to the use of both 12 in. and 8 in. block.
**Merit Design Award**
*Project:* Rosecrest Fire Station #123  
*Category:* Municipal  
*Owner:* Unified Fire Authority  
*Architect:* PGAW, Inc.  
*GC:* Zwick Construction  
*Mason:* Cannon Masonry  
*Structural Engineer:* Dunn Associates  
*Suppliers:* Buehner Block, Beehive Brick, Interstate Brick

This building combines the traditional functions of fire station facilities with a 6,800 square foot training facility that also doubles as a community meeting room for local residents. These separate building functions are joined together with a glass link at the accessible ramp which transitions between different finish floor elevations along this long and sloped site. Natural stone veneer was used to emphasize a sense of permanence which Herriman City desired for their new station. The quality of stone and brick veneer construction has superb detailing at the transitions, accent veneer arches, veneer inlay, and in the elevations.

**Merit Design Award**
*Project:* Centennial Junior High  
*Category:* Institutional  
*Owner:* Davis School District  
*Architect:* VCBO Architecture  
*GC:* Hughes General Contractors  
*Mason:* Doyle Hatfield Masonry  
*Structural Engineer:* Bsumek Mu & Associates  
*Suppliers:* Buehner Block, Ashgrove Packaging

The design concept is based on depicting unique land formations in Utah. The building will serve as “the third teacher” depicting land movement at seismic fault lines, along with effects due to wind, rain, and erosion. All five of Utah’s national parks are depicted subtly in the building design, explaining the formations of mountains, caves and canyons. The main entrance to the school depicts the Delicate Arch. The school’s east side depicts shifting earth layers (indicated with white accent bands) at fault lines (indicated with black curved lines) and formation of mountains (indicated with gray accents) above the fault lines. The brick veneer resembles the Zebra Canyons.

**Merit Design Award**
*Project:* Midvale Elementary  
*Category:* Institutional  
*Owner:* Canyons School District  
*Architect:* NJRA Architects  
*GC:* Westland Construction  
*Mason:* Masonomics  
*Structural Engineer:* CRC Engineers  
*Suppliers:* Amcor Utah Block, Quikrete, Interstate Brick, Quality Building Stones, Brailsford Cast Stone

The design concept is based on depicting unique land formations in Utah. The building will serve as “the third teacher” depicting land movement at seismic fault lines, along with effects due to wind, rain, and erosion. All five of Utah’s national parks are depicted subtly in the building design, explaining the formations of mountains, caves and canyons. The main entrance to the school depicts the Delicate Arch. The school’s east side depicts shifting earth layers (indicated with white accent bands) at fault lines (indicated with black curved lines) and formation of mountains (indicated with gray accents) above the fault lines. The brick veneer resembles the Zebra Canyons.

**Honor Design Award**
*Project:* The Nemelka Veranda  
*Category:* Residential  
*Owner:* Dave Nemelka  
*Mason:* Doyle Hatfield Masonry, Inc.  
*Suppliers:* Brailsford Cast Stone

Nestled in the beautiful mountains of Springville, Utah, the Nemelka residence is a classic example of how elegant precast concrete can enhance a project. The most recent addition to this residence is a stunning veranda entirely clad in precast. Working from the inside out, a box frame soffit was utilized, requiring heavy-duty lathe on the framing and individual anchoring of each precast stone to maintain structural integrity.
Adobe Software’s Lehi campus was the first facility the company had built from scratch and leaders wanted it to make a statement about the firm’s values of innovation and exceptional work and products. The site affords views of Utah Lake and the Wasatch and Oquirrh Mountains. The extensive glass curtain wall not only allows workers views to the outside but is meant to pique the curiosity of those traveling along Interstate 15.
Adobe’s New Abode

Software giant’s stunning new $120 million campus in Lehi marks the first of three phases that will eventually be built.

By Brian Fryer Photos by Dana Sohm; Sohm Photografx

Software giant Adobe Systems, Inc. has always had what could be called a quiet connection to the Beehive State. Company co-founder Dr. John Warnock is an alumnus of the University of Utah, and in 2009 Adobe purchased web analytics company Omiture, founded and developed by Brigham Young University student Josh James. In addition, each year thousands of digital marketing entrepreneurs, web designers and players in the digital design world descend on Salt Lake City for the Adobe Summit, a renowned digital marketing conference.

But if all those were merely subtle announcements of the company’s Utah ties, its stunning new 280,000 SF campus just off I-15 in Lehi announced Adobe’s presence loud and clear.
Making an Impression
The current buildings on site mark the first of three phases for the Adobe campus. Owners put the price tag of this first phase at approximately $110 million, while various sources – including Forbes magazine – stated the firm was spending up to $5 million a day to complete the project on a rigorous 18-month schedule.

“Everything about this job was hyperspeed for the volume we were building,” said Aaron Hall, Project Manager for general contractor Okland Construction of Salt Lake City. “This building has a lot of innovative features and some things we hadn’t worked with before, so every day was a new challenge. At the peak we had about 500 people a day working on this.”

Innovation and challenge was precisely what Adobe was looking for during initial meetings with San Francisco-based architects NWRS Studio and GSBS Architects of Salt Lake City. Jonathan Francom, Director of Global Workplace Strategic Programs at Adobe, said the company had several goals in mind with design for the new campus.

“We wanted something that made a bold statement and that would embody what Adobe is as a company and culture. Our values are innovative, involved, genuine and exceptional and there are a lot of aspects of this building, inside and out, that speak to each of these values in meaningful ways.”

Because Adobe had never built a project like this from the ground up, it retained Gardner Company of Salt Lake City to serve as its construction management representative.

“Adobe acted as the bank, we acted as everything else, from finding the site to hiring the architect and general contractor,” said John Bankhead, Vice President of Development for Gardner Company.

Only Just Beginning
The first phase of the campus construction includes two structures; a 200,000 SF, four-story office building and an 80,000 SF amenities building that includes a basketball court, cafeteria, dining spaces, atrium and fitness center. Office buildings scheduled for the next two phases will join the amenities building, which will act as a central common space.

Hall said the site required considerable work prior to building, with crews moving roughly 100,000 CY of earth to configure the slopes needed. Phil Miller of Salt Lake City-based structural engineer Dunn Associates said two different foundation systems were needed for the buildings.

“We used cast-in-place concrete piers that go underground 40 ft. in some places,” he said. “We also used micropiles with rebar under the footings. There is almost a whole other building underground. On the amenities side we did soil improvements and geo columns.”

The amenities building is a steel-framed structure with a zinc skin and extensive curtain walls that afford views of Utah Lake, along with the Wasatch and Oquirrh mountains. It contains one of the building’s cantilever features that challenged builders. A portion of the building that houses the basketball court extends approximately 30 ft. away from the main building.

A meeting room on the main floor of the office building with a whimsical “Lava Lamp” feature on one wall. Interactive and kinetic art pieces appear regularly throughout the building.
Miller said the team quickly realized the design would require five custom fabricated beams. “We had to have plate steel brought in from all over the country to have the beams made here,” said Miller. The customized girders are 50 in. tall and weigh 900 lbs. per foot.

Miller said engineers also created a system to join the two buildings together structurally, but allow for differences in how each would react to seismic forces. “The trusses from the atrium rest on the concrete office building on Teflon pads to allow them to move separately in a seismic event and transfer very little force from friction,” he said.

“Everything about this job was hyper-speed for the volume we were building,” said Aaron Hall, project manager for general contractors Okland Construction. “This building has a lot of innovative features and some things we hadn’t worked with before so every day was a new challenge.”

Aaron Hall, Project Manager for Okland Constrcution

Inverted, V-shaped king trusses spanning up to 100 ft. in some places over the atrium are covered with wood slats to dampen sound in the expansive space. Hall said the slats were hung from the trusses with a system of wires and proved to be a time-consuming feature.

“We had five different lifts in this space each with five different crews,” Hall said. “Some were putting cables in place, some were doing the sprinkler system, others the lighting. It took us six weeks to do.”

One rather obvious and unusual building feature is that the north end is built over a four-lane road used to access shops and homes in the Traverse Mountain development, including Cabela’s.

The long, narrow building provides employees with copious amounts of natural daylight throughout the entire building. Open, clustered work spaces are separated on each floor by meeting rooms and common areas for impromptu meetings to help develop synergy among the nearly 1,000 employees.

The curtain wall is a product of Kawneer window systems. The panels were assembled and installed by Steel Encounters, Inc. of Salt Lake City. The atrium is highlighted by 44 ft. tall spans of glass. The multiple panels of glass were connected using aluminum mullions to minimize obstructions, according to Derek Losee of Steel Encounters. The panels were numbered and shipped to the site in exact order so they could be placed quickly.

“The challenge was keeping to the schedule with these large unitized curtain wall systems,” said Losee. Using a lift and power cups the sections were unloaded and “snapped into place like Lego blocks” said Hall, adding that crews could install up to 150 ft. of curtain wall a day at the peak of operations.

In addition to the unique glass systems, concrete is the other prominent building material. Hall said nearly a dozen different mixes of varying colors and textures were used on the project. Much of the exposed concrete was mixed with slag, a by-product of steel production, to create the “warm” colors designers wanted. To create a texture to the concrete, designers decided on rough-cut cedar planks for the concrete forms.

Hall said the cedar forms could only be used twice, once on either side of the board, and then new, clean planks were needed. Hall said it was fortunate that Ogden-based Staker-Parson Companies, the concrete supplier, had several batch plants near the site including one just across I-15 to the west. The proximity of suppliers and concrete mixes utilizing waste products helped toward Adobe’s goal of LEED Gold certification for the building.

Project Team

Owner: Adobe Systems Incorporated
Architects: Site planning, programming and design: WRNS Studio, San Francisco; GSBS Architects, SLC. Interior design: RAPT Studio, San Francisco
Construction Management: Gardner Company, SLC
General Contractor: Okland Construction, SLC
Structural: Dunn Associates, SLC
Electrical: Spectrum Engineers, SLC
Mechanical: Colvin Engineering, SLC
Civil: Ensign Engineering, Midvale
Glazing/Curtain Wall: Steel Encounters, SLC

The main floor lobby (page 35) of the building features informal gathering spaces and the security desk. Spaces on all floors receive ample natural light from the glass curtain walls on all sides of the building.
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Ogden High School’s auditorium is highlighted by intricate, delicate design work. (Inset) A pleasant open space features a unique ceiling mural. (All photos courtesy EDA Architects; © 2012-13 Paul Richer; Richer Images.)
Often regarded as the finest example of Art Deco architecture in Utah, Ogden High School was the first $1 million school in the U.S. when it was built as a Depression Era project by the Works Progress Administration in 1937. Over the years, renovations were made and enrollment grew, but by 2006 Ogden School District officials were faced with the need to replace or restore the historic school. A bond issue passed by voters provided some funding for the $58 million project, which was augmented by nearly $9 million raised by a group of enthusiastic alumni.

Not only did alumni pitch in to help with the restoration but the job of designing the project fell to Robert Herman, AIA, of Salt Lake City-based EDA Architects and an Ogden High graduate.

"To be able to come back, all these years later to a building I knew and grew up with and do this renovation was a unique experience," said Herman.

The renovation/restoration was carried out in three phases beginning with the construction of a new field house, followed by a new cafeteria and commons area, seismic upgrading of the foundation and shear walls with the restoration of the historic auditorium.

On solid ground
Corey Price, a structural engineer for Reaveley Engineers and Associates of Salt Lake City said the foundation of the school needed rehabilitating first.

“In some places the soil under the building had settled and there were some big voids under some of the slabs. We did a lot of replacement of slab-on-grade," said Price. "We also went in with mining equipment and drill rigs and put in new micro-piles to support the existing footings. Some of them went 60 to 90 ft into the ground.”

Project Manager Patrick Alcorn of Hughes General Contractors of North Salt Lake, said around 200 micro-piles were installed at various points around the building’s exiting foundation. Price said new shear walls were installed or retrofitted to existing walls.

Alcorn said none of the existing walls in the historic building were moved in the process.

“There were some strict guidelines on what could be changed," said Alcorn.

Price said walls were also braced and the exterior brick veneer was secured with a system of helotie bolts.

The new shear walls were tied to the floor and into a new roof diaphragm after the removal and replacement of the original roof.
Raising the curtain on the next act
But while the shoring, shear walls and bracing were all necessary, a highlight of the project was the restoration of the school’s auditorium. The 33,700 sq ft facility with its intricate, Art Deco plasterwork is one of the best examples of this form in Utah according to EDA.

Again, reinforcing work was required before restoration could go on. Seismic reinforcement of the walls in the space was complicated according to Alcorn. Traditional center coring work could damage the plaster work from water used in the process and vibration. Alcorn said the team reached out to a California subcontractor specializing in “dry-coring” reinforcement work in historic buildings. The process drills cores without using water as a lubricant and drilling proceeds slowly enough to minimize vibrations.

“That was a tough part of the job,” said Alcorn. “Some of the cores we drilled down the walls had to be about 40 ft long. We had to do about 100 of them and we averaged about three a day. The other issue is that if you are off by as much as a quarter inch at the top, you could end up drilling out of the wall.”

Alcorn said inside the auditorium the seats in the best condition were repaired and moved to the balcony while new seating, designed to resemble the originals, was installed on the main floor.

Herman said little work had ever been done to repair or restore the decorative plasterwork with its large amounts of gold and silver leaf accents and vibrant colors. “There was good documentation on what the original work looked like so we used that for the restoration,” he said.

Original wood wainscoting in the auditorium and in the school’s library was also restored. Above the auditorium stage, a new catwalk system was added along with new lighting and controls.

Alcorn said extra reinforcing work was done around the stage area and the fly-loft. “There was unreinforced masonry there so we added a brace frame there,” he said. “We added steel beams that run the full height of the fly-loft and reinforced it with rebar and shotcrete.”

Replacing the roof of the auditorium caused some anxious days. “We did the roof replacement in the summer; that was a 24 hours a day, seven days a week effort to prevent the weather or anything like that ruining the artwork,” he said. “There were a few times we had to seal everything off and wait for a storm to come through, but most of them seemed to miss us.”

In with the new
As important as it was, the restoration and reinforcing of the existing structure was, it was only part of the project. New sections needed to be added and in a way that was complimentary to the existing building, said Herman.

“We needed to make a 21st Century-learning environment using a 75-year-old building,” he said. “Trying to integrate those two requirements while respecting the building was a real balancing act from a design standpoint.”

The new additions to the campus include a new 54,000 sq ft athletic field house to the east of the existing building. A new 8,500 sq ft cafeteria and commons area was attached to the east wall of the existing building, filling a space formerly occupied by a parking lot.

The new construction is distinct in materials, utilizing aluminum and glass while incorporating signage and decorative elements referencing the art deco design of the original building.

Price said structurally the new sections were attached to the existing building as minimally as possible.

“We didn’t want to do anything to the existing building we couldn’t reverse,” said Price. The school was kept open through the renovation and completed near the end of 2012.

Project Team
Owner: Ogden City School District
Architects: EDA (design), CRSA (historical)
GC: Hughes General Contractors
Structural: Reaveley Engineers + Associates
Mechanical: Colvin Engineering
Electrical: Spectrum Engineers
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Jordan Narrows
Most Challenging Aspect of Frontrunner South

Despite complex engineering and construction requirements, the $850 million, 45-mile long project was completed two years ahead of schedule.

By Brad Fullmer

The Jordan Narrows section of Frontrunner South, west of point-of-the-mountain, was an engineering and construction marvel. (All photos by Richard Green; Don Green Photography)

Project Statistics
Clear and grub: 307 acres (nearly 450 football fields)
Pipeline placed: 106,505 LF
Dirt moved: 1,719,762 CY
Concrete Ties: 118,272
Rail: 53 Miles (10,500 tons)
Walls: 475,065 SF
Structures: 52
Platforms: 9
Sub ballast: 391,073 tons
Ballasts: 515,845 tons
GeoFoam: 1,271 CY
Fence: 182,684 LF
Total Man Hours: 2,182,237

When engineers and contractors working on the Frontrunner South first started their initial approach on the job, they targeted the Jordan Narrows – an approximate 4.5 mile stretch west of the point-of-the-mountain – as the most challenging section over the more than 45-mile corridor from Salt Lake City to Provo.

“It was easily the most difficult part of Frontrunner South,” said Clayton Gilliland, Project Manager for Stacy and Witbeck in Salt Lake City, part of the general contractor joint-venture team along with Herzog of Long Beach, Calif. “We had to phase construction over three seasons because of interaction with canal companies and Union Pacific Railroad (UPRR), plus it had an extremely limited access. We knew it would be a difficult area, so we focused design to get that area rolling initially. It was one of the top five critical paths on the job.”

“It was a very difficult section for the entire team,” said Jon Cluff, Project Manager for Utah Transit Authority (UTA). “They had to contend with the Jordan River and various canal companies, and were limited to working during winter months. It was a tremendous accomplishment from everyone involved with the project.”

One of the innovations in the Jordan Narrows was eliminating several bridge structures through the installation of steel multi-plate and box culverts, which were more economical and efficient to
Construct. The team also eliminated bridge spans over roadways by constructing MSE wall abutments, which reduced the bridge footprint and roadway impacts.

Constructed from June 2008 to December 2012, the new line runs from UTA’s Central Hub in Salt Lake City to the new Provo station, and traverses more than 45 miles of corridor running through 14 cities. Other challenges including UPRR track relocations, the construction of more than 60 structures consisting of multi-span and single-span bridges, a flyover of UTA over UPRR tracks, soil nail retaining walls, box culverts, 380,000 SF of MSE retaining walls, 40,000 SF of post-and-panel retaining walls, and over 50 existing at-grade crossings. The construction also built eight station platforms and four park-and-ride lots.

“One of the top five critical paths on the job.” – Clayton Gilliland, Project Manager for Stacy and Witbeck, Inc.

“(Jordan Narrows) was easily the most difficult part of FrontRunner South. We had to phase construction over three seasons...plus it had an extremely limited access. It was one of the top five critical paths on the job.” – Clayton Gilliland, Project Manager for Stacy and Witbeck, Inc.

Project Team
FrontRunner South – Salt Lake City to Provo
Cost: $850 Million
Owner: Utah Transit Authority
GC: Commuter Rail Constructors (Stacy and Witbeck/Herzog JV)
Design: Parsons Transportation Group (prime)
Design Subconsultants: HDR Engineering; Horrocks Engineers; Terracon; Psomas; McNeil Group; CRSA; InterPlan; Riley Transportation; Hegerhorst Power Engineering
Program Management: Parsons
Brinckerhoff (prime); Cordova Design Inc
Key Subs: Ralph L. Wadsworth Construction; Rocky Mountain Signal Services; Ralph Smith Trucking; Brinckerhoff Excavation; Geneva Rock; Construction Materials Company; Innovative Excavation
LEED-ing the Way to Greater Sustainability

Like it or not, the USGBC’s LEED certification process has raised the bar on sustainable design and construction in Utah. It’s been 12 years since the state’s first LEED certified project, when LEED was an unknown entity. In recent years it has become more of a norm than an exception.

By Brad Fullmer

When it comes to designing and building sustainable, ‘green’ projects, in the minds of many A/E/C professionals nothing has raised the bar higher than LEED.

An acronym for Leadership in Energy and Environmental Design created in 1998 by the U.S. Green Building Council (USGBC), the program has been embraced as the go-to sustainability standard by many people in the commercial design and construction industry, including owners, architects, engineers and contractors.

In Utah, the LEED certification process has made major strides since the Utah Olympic Oval in Kearns earned the state’s first LEED certification in 2001. Designed by GSBS Architects of Salt Lake City and constructed by Layton Construction of Sandy, the project was one of the first 13 LEED certified buildings in the world, according to GSBS principal David Brems.

In the 12 years since in Utah, the entire LEED process has transformed considerably from LEED Version 1.0 to the upcoming LEED Version 4.0, all the while helping educate the people who ultimately make the final decision on whether or not buildings achieve LEED certifications – owners.

“The public is certainly more aware of LEED as time goes on,” said Brems. “Owners have become much more knowledgeable of the benefits of having a LEED certified building.”

“LEED has done a lot for the building industry in making green buildings more visible and educating the public on what sustainability means,” said Whitney Ward,
Sustainable Systems Manager at Salt Lake-based VCBO Architecture. “Its prevalence in the marketplace has been fantastic for educating owners and building officials; it’s pushed people to be more sustainable. The value that comes from LEED has been important for our market specifically.”

“The USGBC has done what it set out to accomplish and that is transform the marketplace,” added Kenner Kingston, Director of Sustainability for Architectural Nexus of Salt Lake City. Kingston said that while the architectural community has always been conscious of including sustainable aspects in its designs, the fact that owners and contractors have also become well-versed in what it takes to get LEED points shows just how far the concept of ‘green building’ has grown.

“Something like documenting recycled content has become routine,” said Kingston. “90 percent of the projects we see max out (LEED) points in many categories. LEED Gold used to be considered something that was difficult to achieve. Now, the majority of LEED certifications are Gold or Platinum.”

“(LEED) is a big deal,” said Patrick McLaughlin, a Senior Associate for MHTN Architects of Salt Lake City. “It sets an expectation in the market. It can be a marketing tool for owners.”

Indeed, in the past two years according to information on the USGBC’s website, 37 Utah projects earned either LEED Gold or LEED Platinum certification – more than double the amount to earn either of those designations combined since 2006. It’s a trend that won’t be going away anytime soon, despite the fact that the LEED certification process can be rather expensive and increase up-front costs from one to two percent of a building’s total cost on average.

“(LEED) is an environmentally sound process, one that makes a more efficient use of limited resources,” said Bruce Bingham, a founding partner with Hamilton Partners in Salt Lake City, which built the 22-story 222 South Main project, Utah’s first high-rise building to earn a LEED Gold certification. “The other thing is that it’s appreciated by the tenants, who are more likely to lease from you if your building is LEED certified. We find it’s worth doing. We’re willing to pay a little more for it.”

**What is LEED?**

LEED is a consensus-based, market-driven program that provides third-party verification of green buildings. LEED’s focus is on ensuring that a building owner takes necessary steps to make their building sustainable, which includes things like greater energy efficiency, lower water consumption, an increased amount of natural daylighting, and low levels of volatile organic compounds (VOC) in paints and adhesives in a building.

There are a requisite number of ‘points’ that can be earned through myriad
Buildings that earn a higher number of points are designated at a higher level (i.e. LEED Silver, LEED Gold, LEED Platinum). According to the USGBC, since 1998 there have been more than 7,000 U.S. projects to earn LEED certification, accounting for approximately 1.5 billion sq ft of building space.

Commercial buildings must achieve a minimum of 40 points on a 110-point LEED rating system scale. LEED has progressed from Version 1.0 to its newest incantation, Version 4.0, which is open for public comment from March 1-31, and will be voted on for final approval in the summer of 2013.

The USGBC states that its primary LEED goals in regards to making buildings more sustainable include:

- Lower operating costs and increase asset value
- Reduce waste sent to landfills
- Conserve energy and water
- Be healthier and safer for occupants
- Reduce harmful greenhouse gas emissions
- Qualify for tax rebates, zoning allowances and other government incentives

While owners are always loathe at spending more money on something that might seem hard to quantify, with LEED many owners see a tangible return on investment (ROI), particularly if they plan on owning the building long-term. Owners who just develop a project with the intention of selling it quickly might view LEED as an unnecessary expenditure.

While many owners see a tangible return on investment (ROI), particularly if they plan on owning the building long-term. Owners who just develop a project with the intention of selling it quickly might view LEED as an unnecessary expenditure.

“Its prevalence in the marketplace has been fantastic for educating owners and building officials; it’s pushed people to be more sustainable. The value that comes from LEED has been important for our market specifically.”


Public owners in Utah seem to have caught the vision, with many agencies, universities, and cities viewing LEED as a system that puts in place a measurable way to achieve not only greater energy efficiency and lower water consumption, but a ‘healthier’, more ‘user-friendly’ building which contributes to hard-to-measure variables like greater productivity and overall better moods among occupants.

“It fulfills some of our needs as a building owner,” said John Burningham, Energy Program Director for the State of Utah’s Division of Facilities and
According to information gathered from the USGBC's website, the number of projects in Utah that attain either LEED Gold or LEED Platinum certification has skyrocketed since 2006, when only two projects earned LEED Gold status. In 2012, 15 projects were certified LEED Gold by the USGBC, bringing the total number of LEED Gold or Platinum projects in the Beehive State to 53 (since 2006). In 2011, 19 projects earned LEED Gold and three earned LEED Platinum. Since 2008, eight projects have earned LEED Platinum certification.

<table>
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<tr>
<th>Project Name</th>
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Construction Management (DFCM), the largest public owner in the state which approximately four years ago started requiring that DFCM projects earn at least LEED Silver certification. “Over the last three or four years LEED has provided an excellent means for the state to effectively communicate to design and construction teams many of the goals the state has for energy efficiency and sustainability. “I like that it provides a level of third-party verification,” he added. “I appreciate the effort that the USGBC invests to always be looking for ways to make the built environment better for occupants as well as the environment.

Bingham also said the LEED process is not without its faults. “Many of the credits require a fair amount of effort to demonstrate compliance,” he said. “Often the amount of effort, cost, and documentation is not proportional to the goals of the state institution or agency but yet we have to chase these points in order to meet the requirement that we have set for ourselves. In short, we end up chasing our own tail a bit. I am currently working with the design and construction professionals who do work for the state to find more effective and efficient ways within LEED as well as beyond LEED to meet the goals we have for state buildings.”

Brems said many owners have just accepted the fact that the costs associated with LEED certification are simply the price of doing business in the 21st Century. “It’s not even a valid conversation anymore,” Brems said of LEED’s extra up-front costs. “An owner like the University of Utah understands it is part of the cost of the building. Owners believe that they will save money long-term, and even recapture that cost quickly. Everybody has a different (ROI) threshold; some people say three years, some seven, some 12 years.”

“(LEED) is an environmentally sound process, one that makes a more efficient use of limited resources. We’re willing to pay a little more for it.”
– Bruce Bingham, Hamilton Partners.

The Associated General Contractors of Utah’s headquarters earned LEED Gold certification in 2010, illustrating that firms directly working in the A/E/C industry have a keen sense of the importance of LEED.

LEED: 15 Years Later

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Is Net-Zero Next?

Salt Lake City Corporation’s new Public Safety Building is an example of a building that is aiming for Net-Zero status, according to Brems. “We designed it to be Net-Zero,” said Brems. “What’s remarkable about the building is how low the energy use is. The average workstation in the new building is 85 watts, which almost sounds impossible. It’s a whole new way of thinking about reducing energy use of a building. This is the future of buildings.”

Kingston agrees that Net-Zero is a worthy and necessary goal, but said true sustainability and energy efficiency is still in the hands of the people who use the building.

“The need to move toward Net-Zero architecture,” said Kingston. “But you have to realize that sustainability still comes down to the people occupying the building. You can have a building that is optimized for high performance, but the largest single use of energy is the people inside. A high performance building requires high performance occupants. Owners often get their LEED plaques and then stop thinking about sustainability.”

“(LEED) is an environmentally sound process, one that makes a more efficient use of limited resources. We’re willing to pay a little more for it.”
– Bruce Bingham, Hamilton Partners.
In nearly three and a half decades at MHTN, company CEO Dennis Cecchini has seen it all, including the recent recession that forced the long-time Salt Lake-based architectural firm to make some difficult decisions in order to stay in business.

“First and foremost we had to survive the economic downturn,” said Cecchini, a Wisconsin-native who came to Salt Lake in the early 70’s and has been with MHTN since 1979. “One of the first orders of business was to figure out how to stay afloat. We had to downsize our firm, unfortunately, and streamline our operations. We started into the healthcare market and looked at other markets that would be growing. We revamped our entire company setup, with new corporate bylaws and a stockholder purchasing agreement. We had to make the company more nimble and able to respond quickly to changing market needs.”

So as MHTN celebrates its 90th anniversary in 2013, by and large firm leaders are grateful and optimistic about a future they feel is exceedingly bright. Led by Cecchini, who has been CEO since 2007, and Peggy McDonough, named President in early 2010, as well as 10 other principals, MHTN is known for its strong educational work, including the design of K-12 schools and various higher education projects, particularly student union buildings.

And the fact that the firm is smaller now than what it once was has little bearing on its ability to deliver well-designed, technically sound projects, says Kyle Taft, who has been with the firm for 34 years, including a principal for the past 14.

“We’ve come into a new era and a better way of doing things,” said Taft. “We’ve come through a recession that was very difficult. I tell people that architects are like the canaries of the construction world. We feel it first. When the economy tanked we felt it almost instantly. We had one project with a potential for $10 million in fees and it was gone, literally, overnight.”

“When I began working here we had three or four owners who made all the major decisions,” Taft continued. “We have a more collaborative leadership, which I think is fabulous. We’re able to draw on the experiences of many people rather than one or two individuals. Our new leadership has allowed us to weather that storm, the way we’re organized has made all the difference in our success.”

“We adjusted our internal strategy so our people are in more collaborative roles,” said McDonough. “It’s made our firm more efficient. From a growth strategy we made a strategic decision to enter the healthcare market.”

And that decision is already bearing fruit, as evidenced by MHTN’s design of the new Ambulatory Care Center for Primary Children’s Hospital (PCH) at the University of Utah. The new state-of-the-art, $110 million facility is under construction and will finish in the fall of 2014.

“We started working with MHTN a year ago and knew they had done a lot of work on the University of Utah campus,” said Mike Creason, Assistant Administrator of Facilities Management for PCH. “We were really pleased with how things were going along so we invited them to design our North Lobby Expansion and a Ronald McDonald Family Room.

“I’m very impressed with their creativity, their programming capabilities, and their interior design is about the best I’ve seen,” he added. “They’ve taken us to the next level in terms of getting us modernized.”
Their construction documents have been very good and they’re really easy to work with.”

**Strong Education Experience**
MHTN has long been known as a strong firm in the area of educational design, both K-12 and Higher Education facilities. In the late 90’s, Taft said the firm made real progress in the realm of high school design with two Jordan School District projects – Jordan High School and Copper Hills High School. Since then the firm has designed many K-12 projects throughout Utah. The firm has designed two prototype schools, both junior high and elementary, for Weber School District, which the District will repeat in the future.

“I’ve worked with MHTN for 12 years and the most positive aspect of their design is they want an educational facility where the design has a proper learning environment,” said Drew Wilson, Director of Facilities and Operations for Weber SD. “We go through a process with our staff and the community and they try and match the design to what is out there in the community. Their goal is to deliver whatever is best for the school district.”

“It’s not just a matter of designing great buildings, but designing buildings that identify with a client’s needs,” said Cecchini. “We want our staff to never lose sight of what a client needs, and of course, to deliver the very best architecture we can deliver.”
“People who grow up in Utah have a unique perspective on how to design in this environment,” adds McDonough. “It’s a balance of respect for the outdoor geology, that strong, physical landscape. We want to respond to that. Even though we’re creating physical buildings, which is completely opposite of nature, we want to keep that dynamic in place.”

The firm is also renowned for its design of Student Union facilities across the U.S. during the past dozen years, and even internationally, with completed projects in England, as well as Vancouver, Canada. Taft says MHTN has designed more than 50 Student Union facilities, which is his area of expertise. He says the projects go beyond just another educational building.

“The Student Union is a place where student get another kind of education,” Taft says. “We get to work with people who like building people up and like helping people become better all around. It’s exciting to work with people who are creative. Education is the best our society provides in terms of making students better people.”

Future in Good Hands

Cecchini, who served as President of the Utah chapter of the American Institute of Architects (AIA) in 2012, acknowledges that he’ll step down as CEO and retire someday. It’s a decision that he says will be easier to make given the firm’s new structure and overall philosophy.

“I want people to be responsible for themselves,” he says. “I don’t micro-manage. It’s up to them to use their intellectual capital to the best of their ability. Peggy is a wonderful officer – she’s very innovative, very detailed, and identifies with people and understands them. We’re in a stronger position than we’ve ever been before.”

“Dennis is a true leader,” said Michael Buell, Director of Marketing and Client Development for MHTN. “He allows people the opportunity to shine. He encourages and inspires people to utilize their personal strengths to be as profound as they want to be. We talk about a collaborative approach – it’s not just a buzzword. We have teams for each project and we have what is called ‘pinup sessions’ where we’re in the middle of schematic design and the entire office can come in and everybody has the opportunity to give their input. Ego doesn’t get in the way of making an idea even better. That’s unusual in the field of architecture.”

“We view the design of a project as a partnership with an owner and that permeates the office,” said McDonough. “We’re very excited about our future.”

“We revamped our entire company setup, with new corporate by laws and a stockholder purchasing agreement. We had to make the company more nimble and able to respond quickly to changing market needs. We’re in a stronger position than we’ve ever been before.” – Dennis Cecchini, CEO.

Student Union facilities, which is his area of expertise. He says the projects go beyond just another educational building.
Virtual Reality in Architectural Rendering
A Useful A/E/C Tech Innovation

By Brian Fryer

The A/E/C industry is no stranger to technology. A new system, software package or piece of equipment that can get a job done quicker, improve quality, lower costs or improve safety is quickly adopted and implemented by innovative firms seeking a competitive advantage.

In the world of architectural rendering, a designer can literally take an owner, builder or city permitting official to a potential building site simply by pulling out their smart phone and showing off a virtual building, with the ability to review potential sightlines, elevations and even exterior finishes in real time and as they would actually appear.

A real-time, virtual building tour is one of the eventualities Brent Bowen, Owner of Bowen Studios in Salt Lake City, said is the next step in his field of architectural illustration and animation.

Bowen has been working in the A/E/C industry since 1996 when he served as an architectural illustrator at GSBS Architects in Salt Lake City. Bowen watched as illustrations moved from pen and ink to being done almost completely on computer as the machines got faster and utilized more, less expensive memory.

“Today, we’ve worked with architects thorough the design process all the way from cocktail napkin-sketches to rough hand-drawn elevations,” said Bowen.

Basil Harb, Senior Designer at Salt Lake City-based Method Studios said design programs such as Trimble’s SketchUp (formerly owned by Google), and Autodesk’s Revit have sped up processes and increased competitiveness.

“Utah is no different than other markets in that it is very competitive,” said Harb. “We still use hand sketches but once we have some basic parameters narrowed down we can move quickly to SketchUp or CAD.”

Bowen says even with preliminary designs his studio is able and often asked to “fill in the holes.”

“Once we get to that point,” he added, “we can render at much higher resolutions (5000 x 7000 polygons) in a few hours – the drawings are much more complex but take less time.”

Bowen said using programs like Global Illumination, it is possible to add details to a rendering like light reflection and saturation.

The other technology and service Bowen said he is excited to see in the Utah market is Virtual Presentation. The technology allows for an individual to make a three-dimensional presentation with no actual models present. A 3-D model is built on a computer program then using hand motions, a presenter is able to manipulate a three-dimensional computer model stretching forms, highlighting points on the virtual model or revealing “slices” of a building. The process is similar to using an interactive video game.

Harb said while he had not personally used Virtual Presentation, he was familiar with it and said it could be a useful process along with other imaging.

“Virtual modeling and things like that are a great way to get everyone seeing the same thing. It also helps us strategize our approach when you can break things down into chunks with the 3-D modeling,” he said.

Bowen has created a demonstration of Virtual Presentation at youtube.com/bowenstudios.
In recent years, despite often challenging economic times, the Utah Mechanical Contractors Association (UMCA) has made gradual progress on becoming a more effective organization for its members. UMCA provides a host of benefits to its contractor, associate and affiliate member firms, including training, education, legislative affairs and labor relations, according to Bob Bergman, Executive Vice President. “The level of issues we deal with is more significant,” said Bergman, who will mark 20 years at UMCA on August 1 of this year, after spending three years prior to that at the MCA of Indiana. “Our contractors and members expect tangible benefits; it’s not just getting together for dinner or going out to a party.”

Education and training is a major emphasis of UMCA. The association, which is signatory to, and partners with, the UA Local 140 Union (plumbers, pipe fitters, welders, HVAC and refrigeration), has a new, state-of-the-art training facility – the Utah Career Center at the International Center in Salt Lake City – and spends countless hours annually hosting continuing education programs. “Technology has changed how companies do business, so beyond our training center we spend a fair amount of money with contractor education programs,” said Bergman. “It includes jobsite productivity, project manager training, job profitability, pre-fabrication, anything that can help make contractors more competitive. We look at code issues, seismic issues, safety...it’s comprehensive.”

Founded in 1948 in Salt Lake City, UMCA historically represented both signatory union and merit shop contractors, but became the exclusive representative for signatory contractors 10 years ago. The association’s membership is currently comprised of 40 mechanical contractors, 38 associate members, and four affiliate member companies. It acts as a spokesman for the mechanical contracting industry in dealing with public, government, other construction industry associations, manufacturers and labor.
Pat Lynch, Vice President of Salt Lake-based CCI Mechanical, has been UMCA’s President since October 2010 and will conclude his four-year term this fall. Lynch said UMCA has remained strong, even through the recession, which shows the resilience of the mechanical contracting industry.

“We have maintained a very viable organization in terms of membership and financially,” said Lynch. “We’ve maintained our reserves, maintained our membership—that’s been a great thing. The biggest thing that has happened the past few years is our new training center. It was a partnership between our management partners and our labor partners and speaks volumes that our organizations are committed to training, professionalism, and putting out the highest quality people we can.”

The Utah Career Center was completed in 2011 at a cost of approximately $7 million. The facility includes state-of-the-art training areas, where workers can learn virtually everything there is to know about mechanical contracting. The fact that the center is nearly paid for is another testament to the dedication of UMCA and its partners.

“Our members have been willing to make more of an investment into the association,” said Bergman. “In the mid-90’s we were in a bind financially. Now, we’re in a financial position we didn’t think was possible. We have the kind of reserves and investment plan that we don’t have to be so reactionary when the economy goes south.’’ Part of that is the strategic side of the organization.

“The speed at which the industry is changing means we have to be able to change and adapt faster than ever before,” Bergman added. “We’re required to make three- and five-year plans. The nature of our association has become more strategic.”

Indeed, getting new blood into the industry has been a priority for virtually every construction trade, and UMCA’s new training facility and its emphasis on
Spotlight: Utah Mechanical Contractors Association

recruiting higher caliber workers is paying off handsomely.

Approximately 18 months ago UMCA established new criteria for evaluating incoming applicants to its training program. Spearheaded by Jason Bleak of Salt Lake-based Industrial Piping and Welding, it’s thus far yielded positive results.

“It’s really changed the level of applicants we’ve been getting lately,” said Derrick Sander, President of A&B Mechanical Contractors of Salt Lake City, and a current UMCA board member. “It’s a higher-educated workforce. That, along with the training center has helped our industry greatly.”

“Recently, we’ve seen some really good people come into the industry,” added Lynch. “This is a great way to make a living. It’s not just a job, it’s a career. We went through an age when people thought holding a wrench and putting systems together didn’t seem to be that exciting. It used to be painted as a trade, now it’s viewed as a career. We still have a lot of work to do to get the message out there that this is a great career.”

Sander said UMCA is a valuable resource for people who utilize everything that is available to them.

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“UMCA looks out for our tradesmen,” said Sander, whose father, Gary Sander, served as UMCA president from 1986-90.

“They’ve structured the compensation package to enhance the standard of living for the craftsmen. It also gives our company a great opportunity for training, and gives me a voice to communicate my thoughts with other mechanical contractors.”

Bergman believes his membership will remain strong, and is “cautiously optimistic” the economy will continue to tick upward.

“Contractors aren’t booking the backlog they would like, but we’re starting to hear that industrial and manufacturing are poised to expand,” he said. “We view 2013 as a flat year but by the end of the year things should improve. From a financial standpoint we haven’t had to reduce member benefits at all, haven’t had to touch our reserves, so we’re well-positioned for the future.”

The state-of-the-art Utah Career Center (top, below), completed in 2011, illustrates UMCA’s commitment to ensuring the mechanical contracting industry has a well-trained, top-flight workforce.
Mechanical Roundtable: Contractors, Engineers Discuss Industry Issues

IPD/BIM, LEED, Commissioning Agents among main topics discussed by industry professionals from major local mechanical firms.

Participants:
Pat Lynch, Vice President, CCI Mechanical
Derrick Sander, President, A&B Mechanical Contractors
Brett Christiansen, President, Palmer Christiansen Company
Jason Hilton, President, KHI Mechanical
Neil Spencer, Principal, Van Boerum & Frank Associates
Roger Hamlet, Vice President, Colvin Engineering
Bob Bergman, Executive V.P., UMCA
Craig Coburn, Richards Brandt Miller Nelson
John Young, Young Hoffman, LLC

Utah Construction & Design, in conjunction with the Utah Mechanical Contractors Association, hosted a mechanical roundtable forum February 6 at the Utah Career Center in Salt Lake City. Representatives from four prominent Utah mechanical contractors, along with representatives from two of the largest mechanical engineering firms in the state, met to discuss key issues within the local design and construction market. The roundtable was moderated by attorneys Craig Coburn of Richards Brandt Miller Nelson, and John Young of Young Hoffman, LLC, along with Brad Fullmer, publisher/managing editor of UC&D.

Coburn: What is the general consensus of where BIM (Building Integrated Modeling) is in the market? In an ideal world we see IPD (Integrated Project Delivery) and BIM working together if it’s implemented at the right level and deep enough into the process. Is that happening in the market?

Christiansen: If you’re really going to do IPD, you have to have the mechanical and electrical subs on board at the beginning, or early in the design process, rather than get the drawings to 90%, bring a couple of subs on, and then you have the realities of the construction schedule overlapping with the design and that’s the problems we’ve seen. If you really are going to do IPD, you need to bring subs in at an early stage. A lot of owners are reluctant to do that because they’re afraid of paying too much for those services.
**Hamlet:** The irony of that is that the percentage of total project cost that is allocated for design is less than one percent, when you figure in financing, long-term maintenance, and all that, bringing in the trades (subcontractors) to work on the design is such a small component of the long-term cost of that project.

**Lynch:** How do we get a message to owners, or begin to educate them as to the benefit of integrating design. You hear words integration and collaborative. Those are the fundamental pieces that somehow get disrupted. At the end of the day an engineer has a design centered on functionality and we want to figure out how to get it installed the most efficient way we can so the customer is happy. We have the same goals, but we get pushed in different boxes and the collaborative part seems to get lost.

**Coburn:** Why is that? Is it a matter of contracting and education?

**Christiansen:** The problem is there are different funding mechanisms. You have the DFCM funding the initial construction of a big state project, but then you have the end user, be it Salt Lake Community College, the University of Utah or whoever that has the mechanism for funding the maintenance and long-term operation of the building.

**Spencer:** It is a contracting issue. 20 years ago the State of Utah was doing partnering. They would cover the design team under the same liability and insurance as the construction project. We were all supposed to be partners, but they never changed their contracts to reflect that. People who make the contracts, the building owners, need to be sold on the concept (of collaboration) and then address it in their contracts.

**Hamlet:** Often times in an owners mind when they’re trying to consider payback of first time costs, most owners won’t go beyond seven years. Some clients, if they are manufacturers, they will take that capital and invest it into something else that is directly related to manufacturing, and if they don’t get a payback within six months it doesn’t even enter into the equation. We’re talking about very long periods. If we try and shrink (the ROI) down to where most realistic financial decisions take place, that’s where it loses traction.

"If you’re really going to do (IPD), you have to have the mechanical and electrical subs on board at the beginning, or early in the design process, rather than get the drawings to 90%, bring a couple of subs on, and then you have the realities of the construction schedule overlapping with the design and that’s the problems we’ve seen. A lot of owners are reluctant to do that because they’re afraid of paying too much for those services.” – Brett Christiansen

**Coburn:** So does that mean IPD may have a place in the institutional work, but maybe not in the private sector as much?

**Hamlet:** There are some private groups that aren’t planning on selling a building immediately after it’s built, but they still have to weigh that (first time) cost benefit and see if they can take that money and invest it in something else that would have a higher rate of return in that limited period of time.

**Lynch:** There are some owners who a driven strictly by first time costs and that’s their whole focus. In talking about Integrated Project Delivery, in my mind the

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**Coburn:** So does that mean IPD may have a place in the institutional work, but maybe not in the private sector as much?

**Hamlet:** There are some private groups that aren’t planning on selling a building immediately after it’s built, but they still have to weigh that (first time) cost benefit long-term payback on maintenance costs is just one element of really applying IPD.
Christiansen: Correct. This is one of the downsides of BIM in that it’s a marketing tool for architects. (Architects) are going to mechanical and electrical consultants and requiring a 3D Revit model along with the design. So it’s increasing the hours of design work involved in creating construction documents because they’re trying to also use a 3D Revit model to show work on drawings. Drawings become fuzzy, they’re not clear. I think the use of Revit in construction bid set models is a bad trend, personally.

Spencer: I think the rub is people look at BIM or look at a Revit mechanical drawing and expect a shop drawing level of quality on it and it’s not there for a number of reasons. One is in the design business we (consultants, architects) all finish up on the same day. We don’t have the luxury of looking at everyone’s drawings and doing a show drawing level. So when someone says there are 10,000 (plus) clashes on these drawings, I’m not the least bit surprised. People need to realize there are going to be 10,000 clashes unless owners want to pay the design teams a lot more money to produce a shop drawing quality set of documents.

Young: There seems to be at least a blurring of responsibility for resolving design issues as opposed to having a clear definition of what is design and what is coordination.

Christiansen: Occasionally we’ll say to the GC (conflicts) need to be resolved by the engineer and they’ll say, ‘oh no, you guys can make it work’. It’s not like that in every case, but it does happen. Our national trade association (MCA) has tried to come up with a definition of what 3D coordination is and contractually what we should be obligated to do, or not do. They’ve issued that BIM standard and are trying to get it adopted as an industry standard.

Hamlet: I think it would be a smart thing regarding IPD to get all the associations together on this issue.

Christiansen: In talking about IPD, I know of a general contractor in California where they did IPD. Early in the process (the owner) picked a general, they picked an electrical (contractor), they picked a mechanical (contractor), they picked an architect. They rented a building and everybody spent the entire design process working side-by-side. It was a giant hospital project and the owner understood the additional design costs in doing it and supposedly it went very well.

Coburn: There are a lot of IPD models out there and some contain contractual risk transfer provisions. Construction is so difficult whether it’s design-build or design-bid-build. Pure IPD projects where everybody comes in with a pre-allocation of economic risk and opportunity; those are the ones that work, and they work even better when you bring the major trade subs during design.

Hilton: I think there is a difference in talking about a project that is design-bid-build vs. design-build. To defend BIM a little bit, I find it quite useful as an information device to show owners when there is a conflict.

“\textbf{We think LEED is a great program. Firms have been able to adapt to figuring out ways to make (the LEED process) work better. The challenge for us is implementing a plan on achieving certain LEED points that have been identified earlier in the process.}”\quad -\textbf{Pat Lynch}

Young: The whole concept of integration of all information for a building, does a design-build method of delivery work better than design-bid-build?

Sander: The design-build method brings the user into the whole formula, makes them an integral part of the team and opens a dialogue between the people building it and people using it. That’s where the 3D model comes into play so well because you can incorporate all their thoughts, their changes and show them graphically what that does to pipe routing, to conduit routing to duct routing. I can show them how financially that affected their bid and they can make a decision on.
whether it was a good call or maybe we don’t add that capacity to the building by minimizing conflict.

Fullmer: Let’s talk about Leadership in Energy and Environmental Design. This year is the 15th anniversary since the U.S. Green Building Council implemented the LEED process. The first LEED certified project in Utah was in 2001. Some owners are for it, some are against it. From a contractor’s perspective, what challenges do you have with LEED? Do you have LEED Accredited Professionals on staff? Is LEED a good thing?

Hilton: The only real impact that I’ve seen is when we’re in on the design of the project. Otherwise the general contractor and engineers take care of LEED issues.

Lynch: We’ve had LEED Accredited Professionals on our staff for quite awhile. We think LEED is a great program. There has been, over the 15 years, a great amount of education that has taken that first cost increment and it’s been figured out how to reduce that. I remember having conversations regarding segregating waste and how that costs money. Some general contractors have figured out a system that has lessened or eliminated any cost impact in that respect. Firms have been able to adapt to figuring out ways to make (the LEED process) work better. The challenge for us is implementing a plan on achieving certain LEED points that have been identified earlier in the process.

Sander: We’re seeing LEED on most of our jobs. The technology is advancing as fast as we’re able to use it. The pricing isn’t always concurrent with technology so engineers may have products available to them that our market may not have current pricing on, so it can be tricky.

Christiansen: LEED has been a positive influence in terms of buildings becoming more sustainable. If you get into the intricacies of LEED, if you want a really green building, it has to be a more energy efficient building. That’s where the big (LEED) points are. Several of the LEED points are just check off boxes and easy to get, others are difficult. As a mechanical contractor, the only trouble we can get into is using the wrong solvents or adhesives. We have LEED Accredited Professionals on staff and it helps. You don’t want to be responsible for losing a point they were counting on.

Hamlet: When LEED was first introduced we would see more owners who were pushing to just trying to get certified, they wouldn’t necessarily make the extra effort to get to one of the higher designations. That’s less the case now. Silver seems to be the old certified, and some owners are setting Gold as a minimum standard.

Spencer: LEED has raised people’s awareness of sustainability and energy savings. Engineers as a group have been pushing for improved efficiency years before LEED came around. LEED has given us ammunition. Owners and architects have come around. It’s been great for the entire building industry. Everything LEED is trying to do, I think it’s accomplishing.

Young: With respect to the various categories of Silver, Gold and Platinum, are you finding that more owners will take the Silver just to get the plaque, but they’re not willing to go to the next level, or is there a great desire on the owners side to get to the Platinum level?

Hilton: The biggest problem I’m running into is it’s their job to find problems, even if they’re not there, they have to create them sometimes.

Bergman: Are they finding legitimate issues?

Hamlet: Sometimes they’re legitimate issues that we’ve overlooked or items where we made mistakes. Other times they’re pinning you against the engineer a bit. We just finished a project where the general contractor hired a commissioning agent and the school district hired a different commissioning agent, neither was involved in the design process at the end they both were trying to put their imprint on the project and justify why they should be hired for the next project. It makes it really difficult.”
Fullmer: How much is it to hire a commissioning agent?

Hamlet: Generally it’s more than what the mechanical engineer is on a project.

Spencer: The rule of thumb is it’s 1.5 percent to 2 percent of the mechanical costs. If they do more total building commissioning to include the envelope and the electrical system, it may be 1 percent of a total building costs.

Sander: We’ve always performed pre-functional checklists that the manufacturer recommends and then we have our control contractors perform verification tests on all systems, which includes the shut-down. What I’m seeing with commissioning agents is that they’re bringing up access requirements and they’ve kind of become the owner’s voice on equipment maintenance. This goes back to the BIM issue. Once a system is built, to modify the access is costly. That’s a difficult thing for me as a contractor for someone to come up at the end of the job and say ‘you’ve got to re-route all this piping or conduit or ductwork to provide access’. Access is a relative term. Access for me, being 150 pounds, is a piece of cake. Access for someone 6-foot-5 might be more difficult. Anytime there is a gray area that involves costs, there’s going to be an issue.

Christiansen: In terms of pre-function and functionality checklists, if you have a good construction team, I sometimes question whether spending the money for commissioning is worthwhile. If you have a good control contractor that is running through those sequences and working with the engineer at start up to verify things like safety, functionality and sequences of controls, I think it’s just another set of eyes doing the same thing that would get done otherwise by the balancing contractor and the control contractor. If an owner picks the right team going in, I’m not sure there is a benefit to justify that additional cost.

Young: How often are owners using third-party commissioners?

Christiansen: Almost every single LEED project has a commissioning agent. There are some great commissioning agents out there that we love to have on projects. Other guys are out there just to write there lists, make a name for themselves and write up things that may or may not be issues.

Sander: It’s becoming more of a trend, the past seven or eight years. It would help if they brought a commissioning agent on at the first of the project, especially on design-development remodels because remodels are complicated.
The Timing is Perfect to Tap into Solar Energy

By Brok Thayn

Turning light into electric current isn’t a new idea and although photovoltaic technology goes back to 1883, generating solar energy on an efficient and commercially viable scale has been elusive until somewhat recently. Today’s solar market makes the return on the initial investment both fiscally and environmentally responsible, a great combination that will help you breathe easier both at the board room table as well as around the community.

**Why Solar?**

The benefits of solar energy are substantial, quantifiable, and reinforce your good corporate citizenship image. A typical commercial 250kW solar array will generate over 349MWh per year resulting in nearly $25,200 in annual energy savings based on current energy rates. The resulting energy not produced using fossil fuels is equivalent to pulling 50 passenger cars off the road or a staggering 235 metric tons of CO2! Talk about bragging rights... and that’s just for the first year. Even after 25 years of service, most solar panels still produce at 80% efficiency or better.

**What is the Impact to Your Facility?**

Most arrays are installed on a building’s roof, one example is USANA Health Sciences, where solar panels atop the roof reduce the HVAC loading while maintaining an average of $14,000 in annual savings. And that’s just the second phase. Other facilities may not have a rooftop that is suitable or large enough for an array. In these instances, the solar panels may be located near the building or even in a remote location where real estate prices may be far less expensive. The energy generated may be applied to the building, using a practice called virtual metering where energy production is sold to the company with a power purchasing agreement. This really gives greater flexibility where space is a premium while still realizing the energy and economic benefits of solar panels. In more traditional configurations where panels are installed on rooftops, engineers should study building structures and ensure terms of roof warranties remain intact as a result of the new loading.

**Why Now?**

For better or for worse, globalization has changed the way we do business. Although energy costs here in Utah are somewhat less than the national average, the fact remains that the cost of energy is rising and keeping pace with the Consumer Price Index. If those two trends weren’t a convincing enough argument, incentives offered by Rocky Mountain Power for solar power installations extend through 2017. Both small-scale and large-scale commercial applications up to 1 MW as well as residences qualify. The timing is perfect to tap into the benefits of solar energy.

Brok Thayn, PE, LEED AP, serves as Hunt Electric’s Energy Department Manager and is a NABCEP-Certified PV Installer. He can be reached at 801 303 8893 or brok@huntelectric.com.

Solar panels, manufactured in China, had previously been subsidized by their government to undercut U.S. manufacturers. While that drove the prices down, it hurt the U.S. solar industry. The U.S. government responded by enacting tariffs to equalize the disparity and stabilize prices. This means that those investing in solar energy can take advantage of the lowest prices in history and support American business in the process.

Brok Thayn
A traditional campus icon, the bell tower, steeped in college tradition and history, is being reinterpreted into a modern form to signal the advent of Dixie State College’s new era and transition to University status.

The design and construction of this innovative, new bell tower envisioned for the College is being facilitated through the use of leading edge architectural modeling software. In fact, the striking form of the bell tower was first presented to Dixie State College in a physical model that had been digitally produced using fused deposition modeling technology whereby plastic material is deposited in layers to form a three dimensional model of the tower directly from a 3D computer model. It was the unique silhouette of the tower that captured the interest of the college. The bell tower is one-of-a-kind, both in its look and in the functions it will be able to perform.

Further development of the design of the tower was done using Building Integrated Modeling (BIM) software where the work from each member of the design team (architect, structural engineer, mechanical engineer, electrical engineer, lighting designer, audio engineer, landscape architect), is integrated into a 3-D digital model. In this model, the interface of the tower’s intricate steel structure can be viewed in relation to its complex skin system. Incorporation of the audio, video, lighting and ventilation systems embedded in the tower can be precisely placed into the tower’s infrastructure. This comprehensive digital model allows the team to accurately coordinate building elements, and also allows additional studies and analyses heretofore unimaginable with traditional architectural modeling.

For instance, the photometric available for the light fixtures utilized in the tower allow photo accurate renderings of the light distribution and lighting foot-candle measurements at any location. In addition, the structural steel framework can be analyzed directly from the 3D model for gravity and seismic loading on the tower.

Another important factor in the development of the design was being able to use the digital model to illustrate to Dixie State College the different aspects of the design in a fully rendered view to show the lighting effects and realistic material studies of different finishes available for the tower construction. In fact, it was during the presentation of these illustrations that the College determined the lighting effects that they wanted. For instance, a red light will emanate from the tower when the Dixie
State College wins athletic events. As the project moves into the construction phase the digital model information can be used by the subcontractors to manufacture and fabricate the different components of the tower. The structural steel subcontractor will use the design team’s steel framework model as the basis from which to begin fabricating the steel elements. The tower’s exterior architectural skin system, comprised of a perforated metal skin that will allow natural ventilation through the tower as well as create exceptional architectural lighting effects, and a durable fiber reinforced concrete panel that can be easily put into production from the model’s digital information, are all clearly illustrated and detailed in the digital model.

Designing and documenting the proposed tower with the use of digital technology has allowed a compression of the design schedule due to gaining critical feedback from the owner more quickly and through more complete and nimble coordination of the tower’s complex systems. Valuable construction time will also be saved by subcontractors using the digital model information as the basis for shop drawings and submittals and for the ultimate fabrication of materials for the tower. Nothing could be more appropriate and symbolic of Dixie State College’s future than the building of a new tower using architectural design and construction technology of the future.

As a partner at Salt Lake-based VCBO Architecture, Derek Payne has planned and designed a variety of award-winning architectural projects, with a special emphasis on higher educational facility projects. He can be reached at (801) 575-8800.

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