

## GH Phipps Breaks Ground on State of Wyoming and University of Wyoming Joint Lab Project

GH Phipps was joined by Wyoming Governor Dave Freudenthal, State officials and University representatives for groundbreaking ceremonies held this spring. The project encompasses developing two laboratory facilities in different locations.

The first facility is located in Cheyenne, Wyoming on state owned land and will be approximately 118,000 square feet including the public health lab, department of environmental quality lab and department of criminal investigation lab. It will also house the Division of Criminal Investigation offices and evidence storage. GH Phipps is nearing completion of the concrete foundations and site utilities. Structural steel erection will follow.

The second facility is the State Veterinary Laboratory addition and renovation located in Laramie, Wyoming on the University of Wyoming Campus. The facility will include approximately 14,700 square feet of addition and 4,400 square feet of renovation. The facility will include biosafety level-3 necropsy and laboratories. The Wyoming State Veterinary Laboratory is designed to meet the needs of animal



GH Phipps is joined by Wyoming Governor Dave Freudenthal (third from the left) and Tom Whetstone from HDR Architects (second from the left) for groundbreaking ceremonies. Also pictured from GH Phipps (l to r): Bernie Heavey, Superintendent; Grace Abbott, Project Coordinator; Jaime Rodriguez, Project Manager; Charlie Graft, CEO; Gary Constant, Director of Preconstruction Services; Mike Robinson, Preconstruction Manager; Scott Metz, Project Engineer; John Ledingham, Field Engineer; and Kevin Barden, Vice President of Operations.

owners, government agencies and others interested in animal health, animal disease and food quality in Wyoming. GH Phipps has just finished footings and will begin slab on grade pours once the underground utilities are installed. Steel erection will follow.

Both projects are scheduled for completion in mid-September, 2010.



New public health lab, environmental quality lab and criminal investigation lab is underway in Cheyenne, Wyoming.



New veterinary laboratory addition on the campus of the University of Wyoming in Laramie, Wyoming.

## Giving Back to the Community

### Successful Golf Tournament Benefits Safe2Tell

The weather at the Colorado Springs Country Club was perfect for GH Phipps third annual Charity Golf Classic benefitting Safe2Tell™. We are very appreciative of the support given by our generous sponsors and 144 golfers who contributed to the success of this annual event.



Pictured (left to right): Safe2Tell's Executive Director Susan Payne, Communications Specialist Natasha Sansoni, Program Manager Jo McGuire, and Board Member Carmen Messina-Velasquez.

Safe2Tell™ provides young people a way to report any threatening behaviors or activities endangering themselves or someone they know, in a way that keeps them safe and anonymous. Safe2Tell™ is a statewide program that is available 24 hours a day for students and adults to report a potential threat to their safety or the safety of others.



Denver Broncos cheerleaders encouraged golfers Gary Reynolds, Facilities Director, UCCS; Charlie Graft, CEO, GH Phipps; Steve Kirkham, Athletics Director, UCCS; and Brian Burnett, Vice Chancellor for Administration and Finance, UCCS.

### The Children's Hospital Courage Classic



On July 25-27, The Children's Hospital Courage Classic raised more than \$2 million for The Children's Hospital. The Classic celebrated its 20th anniversary with a three-day, 157-mile bicycle tour through Copper Mountain in Summit County. There were 2,400 registered riders with seven representing GH Phipps: Annie and Frank Teneralli; Suzanne Martinez; Bruce Schneider; Lisa and Tony Quaranta; and Gregg Behmer (not pictured).

### The Good Sam Bike Jam



The Good Sam Bike Jam raised over \$55,000 for the Exempla Good Samaritan Medical Center Foundation's Cardiac Care Fund. Over 450 riders turned out for the 3rd annual ride. The Good Sam Bike Jam features four bicycle routes of 100, 62, 45, and 32 miles. GH Phipps' participants included (pictured): Ardie and Mark Weimer; Frank and Annie Teneralli; Jerry Leonard; Gregg and Hyun-Jung Behmer; Suzanne Martinez; Christina Manfredonia; Bruce Schneider; Kurt Klanderud; Mark Hawk; and Christopher Guillan.

To contact GH Phipps Construction Companies, call 1-877-5PHIPPS or visit [www.GHPhipps.com](http://www.GHPhipps.com)

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# PHIPPS NEWS



GENUINE PEOPLE *Genuine Progress*

Fall 2009 Volume 6

## A Revolutionary Wind Energy Solution for Businesses and Residences with Less Environmental Impacts

GH Phipps Construction Companies has formed a strategic partnership with Cheyenne-based Terra Moya Aqua (TMA) Global Wind Energy Systems – a manufacturer of wind energy systems that can be used by commercial industry, utility companies, small businesses and homeowners for electrical power on and off the grid.

Global wind power has averaged over 30 percent growth per year for the past six years. This expansion, coupled with ever-increasing costs of fossil fuels, heightened sensitivity regarding the killing of federally protected avian species, and major global warming concerns calls for new technologies. TMA's cutting-edge wind turbine is an innovative product that provides a solution that addresses these concerns.

TMA has designed, engineered and patented issued on a revolutionary new wind turbine design that is small and vertically oriented, unlike propeller systems which are usually over 300 feet tall and rotate in a horizontal orientation. It is one of the most efficient vertical wind turbines in the world and offers substantial advantages over conventional propeller-style wind turbines in increased power generation capability in high winds; ease of maintenance and operation because major components are at ground level;

lower profile creating less visual pollution; no interference with aircraft navigation from magnetic field interference; is much quieter in operation; and does not kill bats or birds.

"GH Phipps was attracted to TMA because of their revolutionary environmentally-sound innovation. Phipps has been committed to sustainable building since 1994 and partnering in a clean energy industry will expand GH Phipps' commitment to "green" construction," said Charlie Graft, CEO of GH Phipps.

GH Phipps will provide expert installations of TMA's larger wind turbines.

The TMA system harvests 35 to 40 percent of the wind's available energy at nameplate wind speed, compared to conventional propeller-style turbines which have efficiencies of 20 to 30 percent in comparable winds. The TMA system has a vertical rotor, scientifically engineered to catch the wind and rotate about a central axis, while the outer, wind-gathering, directional airfoils are fixed. The interaction between the rotor and airfoils increases the speed of the wind and the rate of rotation. The TMA design is rated by structural engineers to handle winds in excess of 150 mph without any damage to the structure. This is just below a category "F3" tornado wind speed.



The TMA vertical axis wind turbine has a smaller footprint, is easy to maintain, is quieter and doesn't kill birds. Pictured (L to R): From GH Phipps: Kevin Barden, Vice President of Operations; Charlie Graft, Chief Executive Officer; Lisa Knight, Business Development; From TMA: Duane Rasmussen, President; Ron Taylor, Chairman of the Board and Chief Operating Officer.

TMA has engineered and tested several turbines with differing outputs, and multiple units can be installed to facilitate maximum output for a given application. Installation of a TMA turbine is easier than propeller turbines due to the smaller size and having the power generation systems at ground level.

The multi-faceted TMA turbine can also utilize additional systems to purify water and store potable water within the major airfoil. Additionally, by adding a solar panel to the airfoils and battery backup in the base building, TMA has the ability provide customers with three distinct renewable energy solutions in one unit.

## UCCS Science and Engineering Building Earns LEED™ Gold Certification

The new five-story, 160,000 square-foot Science and Engineering Building on the campus of the University of Colorado at Colorado Springs, is the second LEED™ building on campus and surpassed the expectation of receiving a LEED™ Silver certification with Gold. The LEED™ Gold Certification by the U.S. Green Building Council (USGBC) was awarded for achieving a high level of sustainable, green building attributes.

The Science and Engineering Building is a regional asset to Southern Colorado and houses the departments of biology, physics, mechanical and aerospace engineering as well as the CU Institute for Bioenergetics and the National Institute for Science, Space and Security Centers. The building features classrooms, offices, laboratories and an interactive K-12 Center to promote science to young people.

The success in achieving LEED™ Gold certification for the building was a



result of the collaboration with the University, AR7 Architects and GH Phipps. The building features a modern reflective roof, solar energy panels, windows that mitigate indoor temperature fluctuations, energy-efficient lighting with occupancy sensors, water saving fixtures, and extensive use of low-chemical paints, adhesives, sealant, carpet and wood products. Each laboratory required different ventilation systems and wall thicknesses.

"The tremendous success of this project is attributable to a collaborative approach which was instrumental in helping UCCS achieve their vision for a LEED™ certified, high-technology science and engineering learning center," said Charlie Graft, CEO of GH Phipps. "Congratulations to Chancellor Pam Shockley-Zalabak; Vice Chancellor Brian Burnett and Gary Desmond at AR7 Architects," said Graft.



The LEED™ Green Building Rating System is a third-party certification program administered by the USGBC, a Washington D.C.-based, nonprofit coalition of building industry leaders and the nationally accepted benchmark for the design, construction and operation of high-performance green buildings.

GH Phipps is committed to sustainable building and has 27 LEED Accredited Professionals on staff. LEED APs have demonstrated a thorough understanding of green building practices.

## Historic Transformation of Denver Botanic Gardens

Denver Botanic Gardens, Tryba Architects and GH Phipps have worked side-by-side to develop plans and transform the Gardens in a revamp of the 23-acre site.

In conjunction with their 50th anniversary, the Gardens held a *Transformation Celebration* and dedication on July 28 to recognize the progression of the metamorphosis. Hundreds attended including Denver Mayor John Hickenlooper, city council members and state legislators.

The groundbreaking and dedication included the new Mordecai Children's Garden, Parking Structure & Colorado Garden Show Promenade, Bonfils-Stanton Visitor Center, Welcome Garden, Offshoots at the Gardens Cafe, Schlessman Fragrance Garden, Laine's Cutting Garden, Le Potager Garden, Darlene Radichel Garden and the new Greenhouse Complex.

The evening's events started at the Mordecai Children's Garden. Scheduled to open in 2010, it will bring families together to explore an alpine, riparian and grassland habitat—sloping from



Mordecai Children's Garden



street level to the top level of the parking structure.

The new three-level parking structure between York and Josephine streets is complete and increases parking from 180 spaces to more than 300 spaces. "Living" walls with vertically-growing plants will cover the structure to filter noise and pollution.

The Bonfils-Stanton Visitor Center is complete and is a welcoming entrance to the Gardens. It includes the gift shop and ticketing and information desk.

"We are thrilled to be evolving one of Denver's sources of civic pride," said Kurt Klanderud, President of GH Phipps. "Our employees really have a sense of gratification in working on something that will serve generations to come."

The evening concluded at the Greenhouse Complex which is scheduled to be completed by the end of 2010. Demolition of the old greenhouses at York Street is nearly complete and the upcoming construction of the new, \$16 million, 15,000 square-foot Greenhouse Complex is underway. The new greenhouses will promote interaction between research, horticulture and education by adding production capacity, support space and a public area.



GH Phipps President Kurt Klanderud addresses the crowd for the dedication of the new parking structure while Denver Mayor John Hickenlooper looks on (far right).



The gift store is open for business inside the new Bonfils-Stanton Visitor Center.

## Colorado State University Project Outlines a Model of Success

Having a visionary project manager/owner representative leading the process for this project was the reason for the success of the Diagnostic Medicine Center at Colorado State University. It started with an atmosphere of trust, respect and collaboration spearheaded by Tommy Moss, the principal representative for CSU and THM Consulting. He pulled the team together and defined a unified vision to build "the number one Veterinary School in the country."

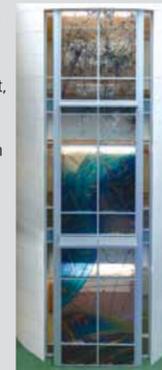


Belief in the vision and relaying the big picture were critical in getting all parties to see the same vision. The team was seen, not as separate entities, but as a problem-solving think tank. The key attributes for the team were defined in the beginning and included honesty, collaborative mindset, respect, good communication, enthusiasm, willingness to have fun, effective decision-



Architect: The FWA Group of Fort Collins, Colorado. The new 3-story and penthouse LEED Sustainable building is 290,000 square feet and houses veterinary classrooms and lab facilities, high bay necropsy facility, 3-story atrium, 800 car parking lot, modified detention pond and expanded radiation protection area.

making, and personal ownership. The project started with Owner, Architect, Contractor meetings before there was a true design. The team defined quality, cost, and size of building in the beginning of project meetings instead of waiting until the conclusion of schematic design to determine if the project was buildable. Subcontractors



were brought in early to gain their input and advice on systems. Cost study reports were developed on building finish systems, electrical/mechanical and different structure approaches. Discussing and visualizing potential pitfalls before they ever happened and creating a continuance plan avoided costly delays. The team defined goals, deliverables and accountability to ensure success of the project.

The common goal was to build the best building possible and it was accomplished.

## Phipps Completes New Medical Center



The Design/Build team of GH Phipps and Boulder Associates recently completed the new Lincoln Medical Center located in Parker, Colorado. Spearheaded by Development Solutions Group, the 121,000 square-foot facility included multiple tenant finish of office and clinical space for pediatrics, orthopedics, eye care, athletic rehabilitation, hand surgery, urology and internal medicine. It also houses the Lincoln Surgery Center with extended-care rooms, Sally Jobe Women's Center and Sky Ridge Medical Center's Imaging Center offering MRI, CT, Ultrasound and X-Ray services.



A fireplace greets you as you enter the two-story building with brick veneer exterior and artful touches inside.

## Executives' Corner



Kurt Klanderud, President

### Current Construction Industry Environment

In today's economic climate, construction project costs are 25 to 30 percent lower than they were just over a year ago due to reduced materials, equipment and transportation costs. Contractors and subcontractors alike are donating more of their services and reducing fees to keep their personnel busy. The downturn in the economy has caused some vertical building markets to evaporate, and as a result, contractors are competing in markets they haven't been in before to keep people employed and stay afloat. A weak economy offers a prime opportunity to build.

### Risk in a Highly-Competitive Market

Today's construction projects can present risks that were not at the forefront

before the recession began. Because contractors and subcontractors are shifting from their traditional vertical markets to other niche markets, their experience level may not be as deep in their new areas of interest. The abundance of companies pursuing projects has created stiff competition and perhaps unrealistic expectations by owners interested in receiving a bargain. This has resulted in some projects being bid below cost, which for some contractors and subcontractors, presents obstacles in covering costs through the entire project life cycle. As the economy starts to recover, prices will increase. While an owner can save up front, there could be potential repercussions on the backend as markets continue to be in flux.

While there may be an inclination to go with a hard bid rather than a CM/GC relationship to save on "first cost," the result can be disastrous by creating a contentious environment amplified by a shortage of funds as the project progresses. Documents can be scrutinized and change orders generated to make up margins. While a contractor may have cut costs to win a job, or used subcontractors that they are unfamiliar with, there is an increased risk that they may not have the financial wherewithal to complete a project.

## Construction Trends When is the Right Time to Build?



There is a balance between low cost and lowest responsible cost.

If a subcontractor were to abandon a project or are unable to keep their doors open, it can create unexpected delays and have a financial impact.

When economic recovery happens, clients/owners need to be aware that project inflation will more than likely escalate at a greater percentage than the general economy. Because of the life cycle for a building project (typically 12 to 18 months after the design team is selected), projects budgeted in today's dollars may not be in budget as the project moves along its timeline if proper escalation is not included. At the end of the last recession in 2000-2001, commodities shot up 300 to 600

percent in a five-month period which impacted overall project budgets by 8 to 12 percent. Reinforcing steel material alone moved from the mid \$400 per ton to in excess of \$1,100 per ton during this period.

### Build Now or Wait Until Your Bottom Line Improves?

Because construction will lag behind the general economy in recovery, now is the right time to build as long as there is selectivity about who is doing the job. GH Phipps has been proactive in taking measures to withstand a drawn out economic recovery. Anyone considering a project should check a potential construction company's financial strength and determine whether they will be around for the duration.

Now is a great time to build as commodities and labor costs are down. The caveat in doing so is prudence in budgeting based on quarterly inflation projections rather than annual. There is a balance between low cost and lowest responsible cost which in turn, affects quality, scheduling and project cost.



Kurt Klanderud, President  
GH Phipps Construction Companies

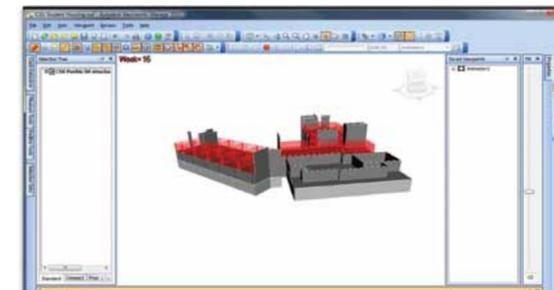
## Virtual Construction at CSU-Pueblo—Enabling Faster Decision-Making

For the Colorado State University-Pueblo student housing project, GH Phipps is using Building Information Modeling (BIM) and Virtual Design and Construction (VDC) processes to improve project outcomes. BIM can be utilized to support project estimates, evaluate site logistics, animate project schedules, visualize specific construction work, and clash detect building systems.

The new student housing project calls for two mid-rise buildings (Building 2 and 3), each featuring four levels, approximately 76,000 square feet and housing 250 beds. Each building will contain one-, two-, and four-bed dormitory rooms, common areas, laundry, offices, study lounges, computer lab and mail room.

### What if Scenario

For Building 2, a 4D schedule simulation demonstrated the option of an alternate precast core construction as a method to improve the construction schedule. While efficiencies could be realized, there would have been a higher cost for the precast and the owner decided to proceed with concrete masonry unit cores as designed. By offering the owner real data, better decisions can be made earlier in the building life cycle.



4D construction schedule simulation was utilized to assess the pros and cons of expediting the schedule with an alternative core construction.

### Planning Ahead

A 3D site logistics plan was created that incorporated critical construction information "to scale" to indicate site access, construction trailer locations, material staging and lay down areas, as well as the proposed building location. This site logistics plan was incorporated into a safety pamphlet distributed to employees and subcontractors on the jobsite. Separate models were utilized for site logistics and phasing study and 4D construction schedule simulation was communicated to the entire project team.

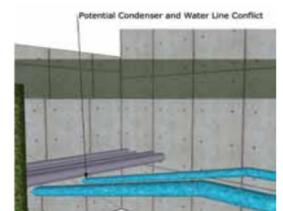
Project Engineer Ryan McAllister developed a 3D model for improved RFI (Request For Information) communication related to underground

utilities routing. This model effectively coordinated and optimized utility line elevations with respect to building foundation and site retaining walls. Project Engineer Jason Wulf created a 3d model of the entire Building 2 foundation. This 3D model was used for quality control of concrete subcontractor's 2D lift drawings and formwork placement. The 3D model was available to reference any view of the proposed concrete work.

GH Phipps also utilized 3D modeling and clash detect technology to coordinate the installation of above ceiling systems such as mechanical, electrical, plumbing, and fire protection. This effort included modeling critical architectural and structural elements

This type of virtual construction analysis allows the entire team to plan more effectively prior to actual construction and provide project inputs earlier than with traditional methods. As a result, conflicts can be identified and alternatives recommended while the cost benefits to the project can still be realized.

that were only available in 2D format from the design team. These systems were clash detected using Autodesk NavisWorks to resolve conflicts prior to installation. This process allowed a much higher level of offsite fabrication and component pre-assembly creating a cleaner and safer jobsite with a faster installation schedule.



This CSU-Pueblo student housing model shows the foundation, retaining walls, and incoming utilities to be reviewed with the design team in order to confirm utility routing.