Volume 31, Number 2 *Spring 2013*

CLARK CONSTRUCTION

Superstructure

Clark Selected to Extend Metro to Dulles Airport and Beyond

BETHESDA, Md. - The Metropolitan Washington Airports Authority (MWAA) has awarded Capital Rail Constructors, a joint venture of Clark Construction and Kiewit Infrastructure South, a design-build contract for Phase 2 of the Silver Line project. Capital Rail Constructors was selected for the project after submitting a $1.17 billion bid earlier this spring.

Phase 2 will extend the Silver Line 11.4 miles west into Loudoun County, Va., from the Wiehle-Reston East Station. Capital Rail Constructors will design and construct six stations: Reston Town Center, Herndon, Innovation Center, Washington Dulles International Airport, Route 606, and Route 772 Ashburn. Five of the new stations will be built on ground level. At Dulles International Airport, the team will construct an aerial station.

MWAA is undertaking the Silver Line project in partnership with Fairfax and Loudoun counties, as well as the Commonwealth of Virginia. Upon completion, ownership of the Silver Line will be transferred to the Washington Metropolitan Area Transit Authority.

Parsons Transportation Group, Inc., Washington, D.C., and Dewberry and Davis LLC, Fairfax, Va., will serve as the lead designers for the project. Jacobs Engineering, Washington, D.C., will provide MWAA with project management services. Shirley Contracting Company, Clark's heavy civil subsidiary, also will play a key role in the project.

Construction of Phase 2 will begin this summer and completion is anticipated in 2018.

Silver Line station and expansion map (Renderings courtesy of Parsons Transportation Group, Inc., and MWAA)

Design-Build Effort Will Bring Traffic Relief to Southern California

The 91 Project, Riverside County, Calif. (Rendering courtesy of URS)

RIVERSIDE COUNTY, Calif. - The Riverside County Transportation Commission (RCTC) awarded Atkinson Construction, and joint venture partner Walsh Construction, a $632.6 million design-build contract for the State Route 91 Corridor Improvement project. "The 91 Project," as it is nicknamed, will relieve traffic congestion between I-15 and the Orange County/Riverside County border, widely considered one of the biggest choke points in Southern California's freeway system.

Along an eight-mile stretch of highway, the project team will design and build a new general purpose lane in each direction, extend two 91 Express Lanes in each direction, rebuild seven interchanges, make local street and access improvements in the City of Corona, add more express bus service, and add auxiliary lanes to ease access on and off the freeway. The team will make additional improvements to I-15, including adding a direct connector to the Express Lanes for northbound drivers. In converting the current five-lane roadway into an eight-lane highway in each direction, the team will build 32 bridges and install 100 retaining walls.

In a press release, Corona City Councilmember Karen Spiegel, who also is the RCTC Chair, noted that due to the improvements "some drivers will be able to save as much as 90 minutes per day on their round-trip commute during peak hours." In addition, a third-party study indicated that the net economic and time savings benefit of the project will exceed $3.2 billion and

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Clark Begins Construction on Two Howard University Residence Halls

Howard University residence halls, Washington, D.C. (Rendering courtesy of McKissak & McKissak)

WASHINGTON, D.C. - In February, Clark began construction on two residence halls at Howard University. The buildings, located just south of the Howard University Library on 4th Street, NW, were awarded under a contract from Campus Apartments. The project development cost is $107 million.

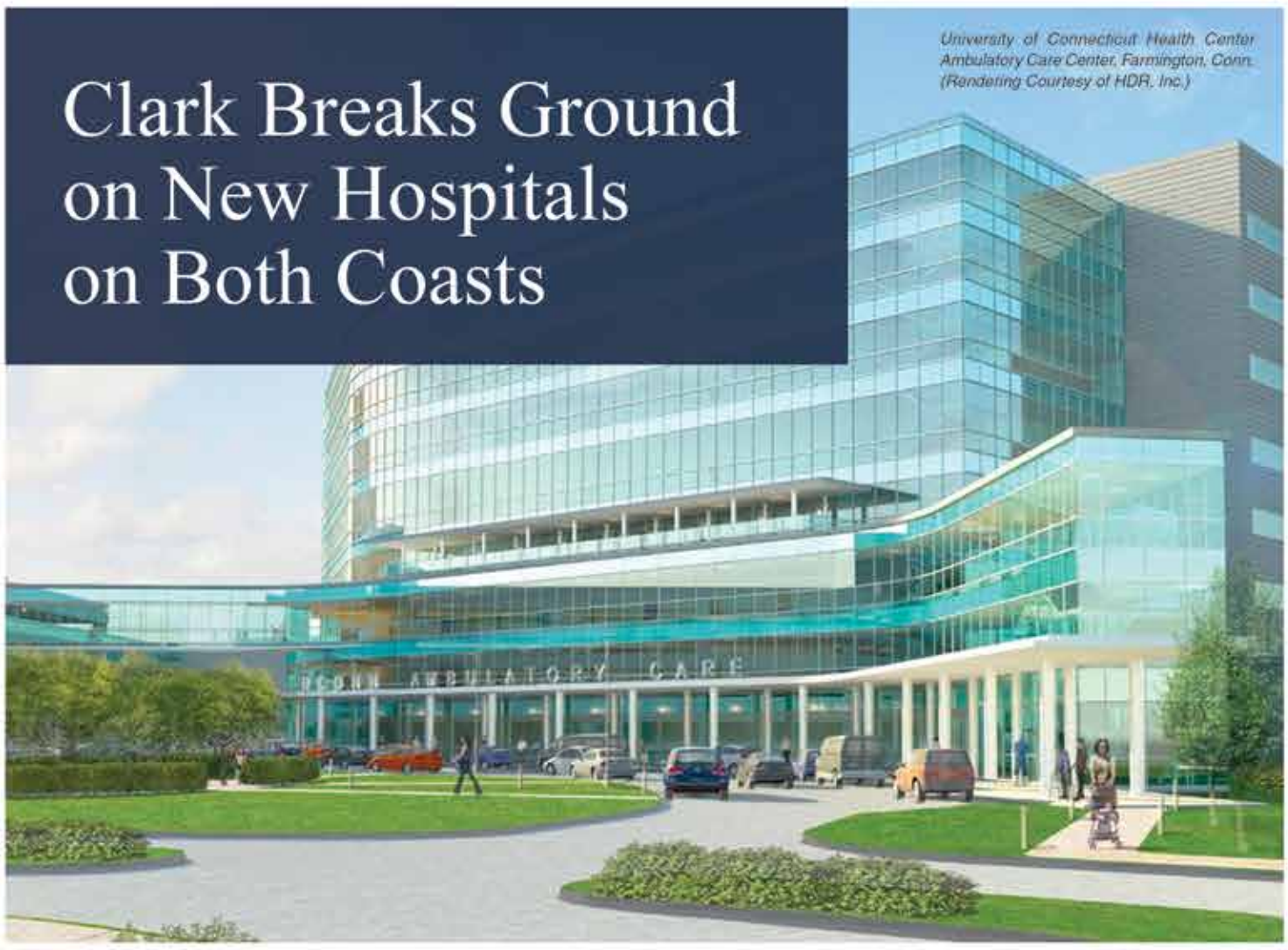
The new residence halls will house approximately 1,360 beds in 700 units, including two-person semi-suites for students and independent apartment units for faculty and staff. At 4th and College streets, the project team will build a seven-story building with a brick and metal façade accentuated by punched windows. The second residence hall, with similar exterior elements, will rise six stories along Bryant Street. The residence halls will include common lounges on each floor with laundry facilities, a game room, and a kitchen area on ground levels. Clark Foundations will perform the support of excavation work on the project.

Both buildings are designed to achieve LEED® Silver certification.

McKissack & McKissack of Washington, D.C., is the project architect. During this project, Clark will mentor Lanham, Md.-based Estime Enterprises, Inc., a minority-owned subcontractor. An engineer from Estime, a graduate of Clark's Strategic Partnership Program, will integrate with the project team and assume responsibility for several trades.

Project completion is scheduled for August 2014.

Clark Breaks Ground on New Hospitals on Both Coasts



University of Connecticut Health Center Ambulatory Care Center, Farmington, Conn. (Rendering Courtesy of HDR, Inc.)

UConn Health Center Ambulatory Care Center

Farmington, Connecticut

The University of Connecticut Health Center awarded Fusco/Clark, a joint venture, a $79 million contract to design and construct the core and shell of a new outpatient care center and parking garage on its Farmington campus. Construction began earlier this year and completion is expected in 2015.

The ambulatory care center and parking facility are part of Bioscience Connecticut – a forward-thinking plan championed by Connecticut Governor Dannel P. Malloy and approved by the Connecticut General Assembly in 2011. Bioscience Connecticut will create construction-related jobs immediately and generate long-term sustainable economic growth based on bioscience research, innovation, entrepreneurship, and commercialization.

The 300,000 square-foot care center will consolidate an array of outpatient services currently housed in multiple spaces on the UConn Health Center campus. The facility's comprehensive range of services will include diagnostic

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Ventura County Medical Center, Ventura, Calif. (Rendering courtesy of HOK)

imaging, endocrinology, gastroenterology, internal medicine, neurology, occupational medicine, physical therapy, radiation oncology, urology, and vascular surgery. The ambulatory care center also will include 60,000 square feet for new clinician scientist recruits, a cafe, outdoor terraces, and retail space for a commercial pharmacy and optical shop.

The building will be clad in curtain wall and metal panels and will connect to the new 450,000 square-foot, 1,100-space precast concrete parking garage with a pedestrian bridge. The project is expected to achieve LEED Silver certification.

Fusco Corporation of New Haven, Conn., is Clark's joint venture partner. The design team also includes HDR, Inc., Princeton, N.J.; Centerbrook Architects and Planners, Centerbrook, Conn.; Bard, Rao + Athanas Consulting Engineers, Boston; Desman Associates, Rocky Hill, Conn.; and Langan Engineering and Environmental Services, New Haven, Conn.

Ventura County Medical Center Hospital Replacement Wing

Ventura, California

The County of Ventura awarded Clark Construction Group - California, LP, a $216 million contract to design and build the Ventura County Medical Center Hospital Replacement Wing. HOK is the project architect and will lead the design team. Construction began in May and the hospital is expected to be complete in 2017.

The project will replace a 120-bed acute care facility with a state-of-the-art structure at Ventura County Medical Center (VCMC) that meets the state's seismic requirements. The new wing will support numerous medical services, including emergency, surgery, obstetrics, ICU, NICU, PICU, and imaging. In addition to the medical scope of work, the team will add a new central utility plant and loading dock to the VCMC campus.

Planned to achieve LEED for Healthcare Silver certification, the hospital design includes green roofs, a garden, skylights, exterior canopies and screens, and a pediatrics play area that will enhance the healing environment.

Project partners include KPFF Consulting Engineers, Los Angeles, structural engineer; ME Engineers, Culver City, Calif., MEP engineer; RBF Consulting, Los Angeles, civil engineer; and Treadwell & Rollo, Los Angeles, geotechnical engineer.

New Stanford Hospital

Stanford, California

Following two years of design collaboration and preconstruction, Clark/McCarthy, a Joint Venture, broke ground on the new Stanford Hospital in early May. The new facility will dramatically enhance Stanford University Medical Center's (SUMC) capacity, and allow Stanford to accommodate new medical technology, meet updated seismic safety requirements and transform patient care.

The new facility will be located on the SUMC campus, adjacent to the site of the current Stanford Hospital. The facility will have a flexible pavilion design, which will include 368 patient rooms in the new building for a total of 600 patient beds on site; a Level 1 Trauma Center (Emergency Department) three times larger in size than the current Emergency Department; state-of-the-art surgical, diagnostic, and treatment rooms; light-filled corridors with a central courtyard; accessible roof gardens; and views of the surrounding foothills. The project will result in a net increase of approximately 824,000 square feet, which will allow for additional single-patient rooms that reduce infection rates, increase privacy and allow more space for patients and visitors. The new Stanford Hospital will sit on a base isolation system and is designed to remain functional after an 8.0 magnitude earthquake.

This project is part of the Stanford University Medical Center Renewal Project, which also includes the expansion of Lucile Packard Children's Hospital and replacement of School of Medicine facilities.

Construction of the new Stanford Hospital is slated to be completed in 2017 and open for operation in early 2018. Rafael Viñoly Architects, in association with Lee, Burkhart, Liu, Inc., serves as the project architect.

The current Stanford Hospital will remain open and fully operational during construction.

New Stanford Hospital, Stanford, Calif. (Rendering courtesy of Rafael Viñoly Architects)

Design-Build Effort Will Bring Traffic Relief to Southern California

continued

create as many as 16,000 jobs.

Final engineering and design efforts are underway. Construction is anticipated to begin next year and the improved roadway is expected to open to traffic in 2017.

URS Corporation is the lead designer.

PETCO Park Opens Season with New Dimensions

SAN DIEGO - It was a busy offseason for Clark in San Diego. While the hometown Padres were at Spring Training in Peoria, Ariz., Clark was renovating the team's PETCO Park.

The renovation project moved in the right field wall and lowered it to make it consistent with the fence in left and left-center field. The walls were moved in at left-center field and right-center field. The visiting bullpen also was relocated from along the right field foul line to center field behind the home bullpen.

In addition to altering the field dimensions, the Clark team built a concrete party deck in right field and modified an existing ramp to provide accessibility to the deck and the park's beach area.

Clark led the original construction of PETCO Park, completing the 42,445-seat facility in 2004. Populous, Inc., of Kansas City, Mo., was the architect of the park's renovation and part of the design team for the original project.

Music City Center, Nashville, Tenn. (photos by Aerial Innovations)

Music City Center Puts Nashville on the World's Stage

While Nashville residents explored their city's newest landmark, the Bell/Clark joint venture team celebrated the Music City Center's on-time and on-budget delivery. The $415 million, 2.1 million square-foot convention center held a public grand opening on May 19 and 20 and officially opened for business in early June. Located in downtown Nashville, adjacent to the Country Music Hall of Fame and the Bridgestone Arena, the Music City Center immediately vaulted the city into the top tier of convention destinations.

The convention center, which spans three city blocks, boasts a 350,000 square-foot exhibition hall, a 57,000 square-foot grand ballroom that also is designed to serve as a music venue and an 18,000 square-foot junior ballroom, 60 meeting rooms, more than 80 pieces of art, 32 loading docks, and an 1,800-vehicle parking garage. The Music City Center can accommodate 75 percent of the convention center market and is averaging 6,500 attendees for its earliest bookings.

Tvsdesign, of Atlanta, in conjunction with Nashville's Tuck-Hinton Architects and Moody-Nolan, Inc., designed the convention center to reflect Nashville's geography and culture and be a welcoming environment for conventioneers and the local community. The building's 14-acre rolling roof resembles the gentle hills of central Tennessee. And, like the nearby hills, Music City Center's roof is covered in vegetation. The facility's 175,000 square feet of green roof space is the largest of its kind in the southeastern United States. Also on the roof, the building's guitar-shaped mechanical penthouse is a nod to the city's heritage and nickname.

The design team sought to maximize natural light throughout the facility and better link interior and exterior spaces. Large skylights and a 14-story glass curtain wall system allow daylight into the exhibit hall and concourse, making the convention center a warm space from within, and an inviting presence from outside.

The Music City Center will have a lasting impact on Nashville. Its construction was a boon to the local building industry. More than 7,300 workers participated in the construction efforts and over 130 Diversity Business Enterprise program firms were awarded contracts on the project, totaling $124.5 million. Bell/Clark's workforce development efforts included awarding contracts to 44 minority-owned companies, 39 woman-owned businesses, and 44 small businesses.

The Bell/Clark joint venture team is comprised of Bell & Associates Construction, LP, of Brentwood, Tenn., and Clark Construction Group, LLC, in association with Harmony Construction Group, LLC, of Nashville. Additional Nashville-based project partners include Ross Bryan & Associates and Logan Patri Engineering, structural engineers; I.C. Thomasson Associates Inc., and ECS, mechanical engineers; and Barge Waggoner Sumner and Cannon, Inc., civil engineers.

"The entire project and construction management team and all the subcontractors and suppliers have proven their commitment to the project and the city of Nashville throughout the last three years, giving us regular updates that validated our confidence in them. They have done an outstanding job."

Marty Dickens, Chair, Convention Center Authority


Bell/Clark project team

Promises Made, Promises Kept: Innovations Key to Music City Center's On-Budget Success

In an effort to meet bond requirements during the project's planning phase, the Music City Center budget was cut by $50 million. The Bell/Clark team - suddenly faced with fulfilling the convention center's design intent with a $415 million budget, 10 percent less than expected - vowed to find innovative ways to satisfy the project's design intent and stay on budget.

"We worked early on with the Convention Authority and the architects to make sure that we delivered this project on budget," said Clark Vice President Lee Delong. "We had very strict cost parameters and we had to determine prices four to five years in advance. It had to be a collaborative process with constant dialogue among all parties to establish and maintain the budget. That's how we approached this project and that's how we delivered on our promise to the city."

The construction team found creative ways to meet the project's design and quality expectations without exceeding the budget. "We were constantly proposing solutions and opportunities to maximize the city's investment," said Delong.

One of the most innovative strategies controlled costs while realizing one of the project's most ambitious design elements. The 270-foot spans between columns in the exhibit hall were virtually unprecedented in a convention center. The team needed to hoist 12 sets of catenary trusses 33 feet high to facilitate the column-free design. Rather than incur the expense of the cranes traditionally used to lift and place structural steel, the team turned to a construction method most commonly used in building arenas: truss jacking.

After careful pre-planning, including consultations and inspections with an independent structural engineer, the team brought four 125-ton Enerpac/Hydrospex jacks and a hydraulic cable system on site. Jacking the trusses allowed the steel members to be assembled on the ground, increasing both safety and quality. It took the team six months to jack and place all of the trusses, but the process shaved three weeks from the schedule and saved approximately half a million dollars.

After the trusses were in place, the team used laser scanning to verify the Music City Center's structure and develop an accurate as-built 3-D model. The metal panel subcontractor relied on the model during metal panel fabrication and installation of the articular façade, which helped expedite production, dramatically reduced RFIs, and eliminated measurement errors and re-work in the process.

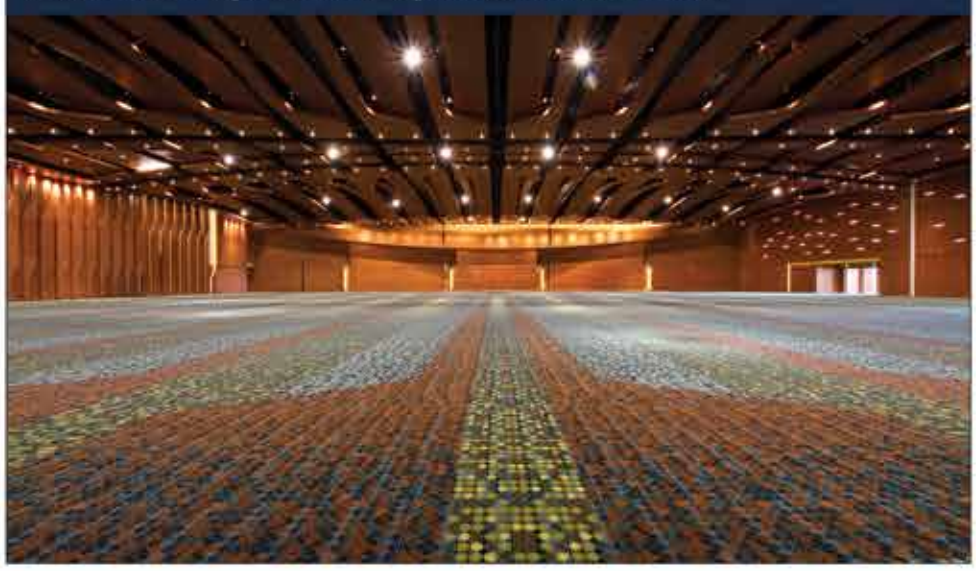
The Music City Center was the largest municipal project in Nashville's history. Facilitating its construction and funding took more than a decade of planning but, once ground was broken, the project's schedule and budget were firm. The construction team vowed to complete the Music City Center on time and on budget without sacrificing any design intent or amenities. From the planning phase through substantial completion, Bell/Clark kept their promise and delivered a world-class convention center to Nashville.

An innovative truss jacking method saved both time and money during construction.

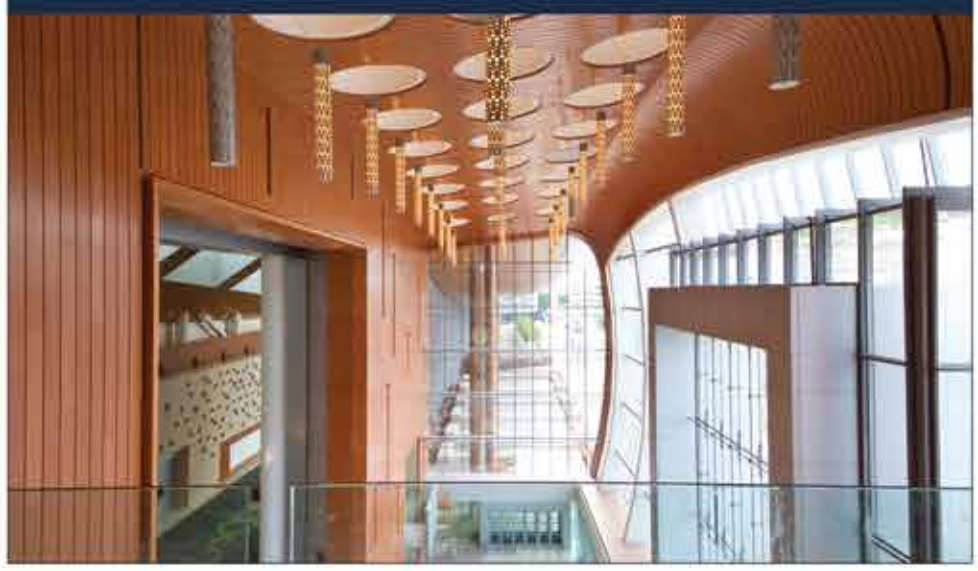
"Some people would have looked at this project and thought, 'how in the world are we going to make this happen?' Instead, this team looked at every potential obstacle as an opportunity and asked 'how do we capitalize on that?'"

Charles Starks, President and CEO, Music City Center

The convention center's grand ballroom is designed to double as a live music venue.



A 14-story glass curtain wall system allows natural light to fill interior spaces.



The building's guitar shaped mechanical penthouse is a nod to the city's heritage.

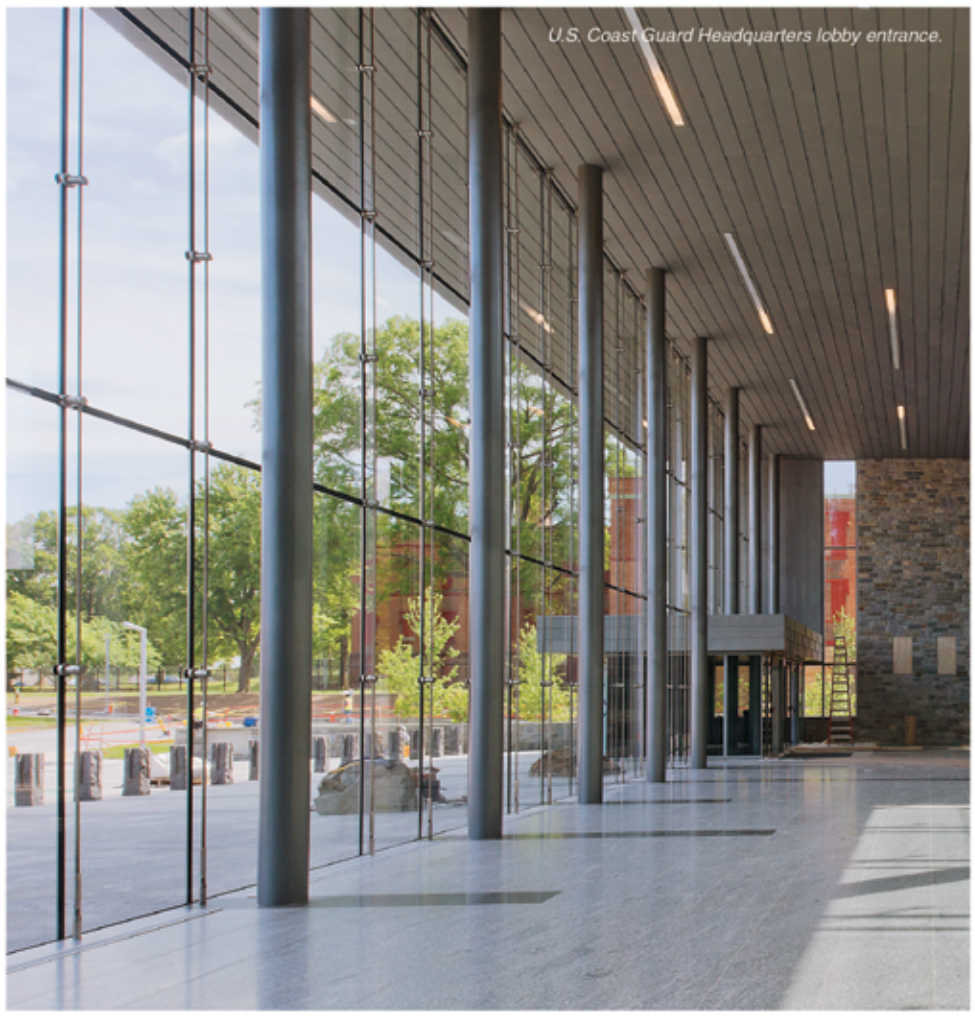
At night, the Music City Center radiates a warm glow from within.

U.S. Coast Guard Headquarters
Washington, D.C.
(Photos by Hasselbaugh Davis)

Clark Delivers New U.S. Coast Guard Headquarters

In May, Clark Construction achieved substantial completion on the U.S. Coast Guard Headquarters project in Washington, D.C.'s Anacostia neighborhood. The project, completed under a $435 million design-build contract, sits on the west campus of the former St. Elizabeths Hospital and is the first phase of the Department of Homeland Security's planned relocation. The Coast Guard will begin moving into the new headquarters in August.

The central component of the 176-acre campus is a 1.2 million square-foot office building. The 11-level facility will consolidate a workforce of nearly 4,000, who were previously scattered among 24 locations around Washington, D.C. The building's design accounts for a 120-foot change in elevation on the site. The structure is built into the sloping hillside and only two of the levels are entirely above-grade. The lower nine are built into - and extend out from - the hill. Below an entry courtyard at the site's highest location, the building consists of linked, quadrangles. Clad in brick, schist stone, glass, and metal, they cascade toward the Anacostia River. The building's wings, with a red brick skin, further break down the scale of the massive facility, as well as allow for greater penetration of natural daylight to internal areas. Clark was responsible for the headquarters' core and shell construction and interior fit-out.



U.S. Coast Guard Headquarters lobby entrance.

"From the beginning, Clark provided outstanding project leadership, building collaborative relationships with everyone involved. From coordinating the site logistics for this large-scale project, to providing unparalleled technical expertise, craftsmanship, and construction ingenuity, Clark set the bar high for quality and ensured that the integrity of the project was never compromised."

James P. Fortinsky, Project Manager,
General Services Administration,
National Capital Region
Office of Infrastructure and Campus Development

In addition to the headquarters building, the Clark team was responsible for an 800,000 square-foot, 1,973-space parking garage, improvements to the Firth Sterling Avenue/West Access Road intersection, and a central utility plant (CUP). The CUP supports the USCG campus' HVAC system through two 400-horsepower, gas-and-fuel-oil boilers for 100 percent redundancy, four 950-ton chillers, two 15,000-gallon fuel oil storage tanks, and two 20,000-gallon emergency cooling towers for make-up water. Under separate contracts totaling $53 million, Clark also delivered the Department of Homeland Security's National Operations Center, a mission critical space located within the headquarters building.

The U.S. Coast Guard Headquarters project was one of the largest construction efforts in recent Washington, D.C. history. The completed project features 500,000 bricks, more than eight million pounds of stone, 300 miles of electrical wire, and 55 miles of piping.

The design team was led by the Washington, D.C., offices of WDG Architecture (headquarters building), HOK, Inc., (headquarters building landscape and interior design), McKissack & McKissack (parking garage and CUP), and Perkins + Will (bridging design). Additional project partners include Girard Engineering, Falls Church, Va., mechanical engineer; Cagley & Associates, Rockville, Md., structural engineer; and Loiderman Soltesz Associates, Inc., Rockville, Md., civil engineer. Tishman-AECOM, Washington, D.C., was the GSA's construction manager.

Significant Self Performance Showcased During Construction of Coast Guard Facility

Clark companies self-performed 33 percent of the work on the U.S. Coast Guard Headquarters project including the excavation, support of excavation, and cast-in-place concrete. Here is a look at Clark's self-perform efforts on the job.

Metro Earthworks

Performed massive site excavation as part of Metro/Total JV

- Excavated 1.6 million cubic yards of soil and rock
- Averaged 8,000 cubic yards of excavation per day
- Traveled to Richmond, Pittsburgh, and Buffalo to remediate contaminated soil
- Earned an ABC National Excellence in Construction Pyramid Award

Clark Foundations

Designed and installed support-of-excavation system

- Drove and drilled 1,500 soldier piles (30-100 feet long)
- Placed 300,000 square feet of timber lagging
- Utilized 800 tons of wales, rakers, and cross slot braces
- Installed 1,600 global stability caissons
- Earned an ABC of Metropolitan Washington Excellence in Construction Award

Clark Concrete

Led cast-in-place concrete operations on the largest local project since the Pentagon

- Poured 220,000 cubic yards of concrete
- Erected 11 tower cranes on-site - nine simultaneously
- Placed 15,000 tons of rebar
- Averaged 3,500 cubic yards of concrete poured for 42 weeks
- Earned an ABC of Metropolitan Washington Excellence in Construction Award, WBC Craftsmanship Award, and ENR Mid-Atlantic Best Specialty Contracting Project of 2012 Award

Company Wins Small Business Administration's Dwight D. Eisenhower Award

WASHINGTON, D.C. - The U.S. Small Business Administration (SBA) selected Clark Construction Group as the national winner of the 2013 Dwight D. Eisenhower Award for Excellence, Construction Category. This award recognizes large prime contractors who have excelled in their utilization of small businesses as suppliers and subcontractors. Clark received the award during the SBA's National Small Business Week celebration in Washington, D.C. Since 2007, Clark has awarded nearly $2 billion of contracts to hundreds of small businesses.

This award recognizes the efforts of Clark's Subcontractor Development Group (SDG), which is responsible for identifying, training, mentoring, and counseling local, small, and minority-owned businesses. Through the SDG, Clark identifies ways for small businesses to increase their capacity and provides business and industry resources, including the Strategic Partnership (SPP), a 10-month executive MBA-style program to help small business owners and executives improve their construction management and business skills. Since its inception, 217 small businesses have graduated from the program. These companies have been awarded $170 million in Clark subcontracts.

In addition to the SPP, Clark's commitment to growing small businesses includes formal and informal mentor/protégé arrangements. In 2012, the company mentored four small businesses through GSA's Mentor-Protégé Program and two in the Veterans Affairs Mentor-Protégé Program.

Going Above and Beyond to Keep Our People Safe

This summer, a new hand protection policy will go into effect on Clark projects across the country. All individuals will be required to wear gloves rated ANSI Level One or EN Level Two or higher and even greater protection is required for certain tasks. This new policy, which is stricter than current Occupational Safety and Health Administration (OSHA) regulations, addresses a specific issue but speaks volumes about Clark's approach to safety; we place a premium on identifying the most potentially-hazardous aspects of construction and addressing them with policies that protect the entire workforce. Going above and beyond OSHA standards is a critical part of our zero/zero safety culture.

According to the Bureau of Labor Statistics, there is a hand injury every 32 seconds in the construction industry. And, a review of Clark's 2012 safety performance showed that nearly one quarter of all incidents on our projects involved a hand injury. This new policy will further help protect Clark and subcontractor employees from all manner of injuries - from bee stings and insect bites to punctures and chemical burns.

The hand protection policy is the latest in a series of policies we have developed in response to trends, both on our jobsites and within the industry, that are more stringent than any government requirement. Hand protection joins hard hats, eye protection, and highly-visible vests or shirts as mandatory personal protective equipment on active Clark job sites.

In some cases, policies are strengthened as the result of a single incident.

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Music City Center's green roof (photo by Aerial Innovations)

U.S. Coast Guard Headquarters' green roof (Photo by Hoachlander Davis)

2 Projects Sustainable from Top to Bottom

Though separated by about 650 miles and built for two entirely different purposes, the U.S. Coast Guard Headquarters and the Music City Center have a few things in common. Most notably, each project has a massive green roof system as the centerpiece of its sustainability program.

The Music City Center's rolling roof is accented with 175,000 square feet of vegetation, making it the largest green roof surface in the southeastern United States. Stormwater drains through the roof and collects in a 350,000 square-foot cistern located under the site's pedestrian plaza, where it joins condensate from the facility's HVAC system. The water is filtered in the cistern and then becomes part of the convention center's greywater system. The green roof and cistern, combined with water-efficient fixtures, result in an 80 percent reduction in potable water use.

Above the grand ballroom, the Music City Center's roof supports a 70,000 square-foot photovotaic solar panel array. The 221-kilowatt solar program will power portions of the facility's HVAC system and escalators. The convention center's innovative design and lighting system further reduces energy use. Photo sensors in the exhibit hall monitor the amount of daylight in the space and automatically adjust artificial light levels. Each light in the exhibit hall can be controlled independently to meet specific event needs and maximize efficiency.

Additional features that will contribute toward Music City Center earning LEED Silver certification include a continuous insulation plane in wall cavities to minimize thermal bridging, overhangs and glazed curtain wall that provide shade and lower solar heat gain but still allow natural light penetration, and LED exterior lighting.

What prevents the Music City Center's green roof from being the largest in a greater geographical area is the U.S. Coast Guard Headquarters. Between the 11-story office building and eight-story parking garage, the campus boasts more than 450,000 square feet of green roof space. The project also included a $22 million landscaping package to populate the site's many courtyards and to aid in reforestation of the historic campus with native plants that had long since been overtaken.

The office building is divided into four zones that are marked by terrain-based coloration. The site's courtyards reinforce this and feature flora native to the Blue Ridge, Northern Piedmont, Southeastern Plains, and Middle Atlantic Coastal Plain areas, respectively. Between the green roof space and the landscaping, the 176-acre campus includes 550,000 plug plants, 17,000 shrubs, 900 trees, and 150,000 square feet of sedum mats. The project's green space ties into an expansive stormwater management system that feeds into ponds, bioswales, and step pools.

Originally designed to earn LEED Silver certification, the U.S. Coast Guard Headquarters is on pace to earn Gold certification.

Going Above and Beyond to Keep Our People Safe *continued*

In 2009, a mobile truck crane collapsed on the Walter Reed National Military Medical Center project in Bethesda, Md. The crane failed and its main boom landed on an office trailer. The subsequent investigation indicated defective parts and mechanisms.

The equipment, which was brought to the site by a subcontractor, had passed its OSHA-mandated annual inspection, so Clark tightened its company-wide crane policies to ensure greater crane safety. Now, before any mobile crane is allowed on one of our sites, it must be checked by a qualified third-party inspector selected by Clark. In addition, a "crane packet" must be developed and given to the Clark project team. This comprehensive packet of information includes all relevant inspection information, maintenance records, load charts, and lifting plans.

Falls are the leading cause of fatalities in the construction industry and, in the mid-2000s, were responsible for a number of incidents on Clark job sites. OSHA standards for fall protection vary by task - certain steel erection activities do not require positive fall protection at heights less than 25 feet. To directly address the potential hazards of working above grade, we enacted a 100 percent, six-foot fall protection policy in 2006. Any worker completing any task at or above this height must maintain positive means of fall protection (personal fall arrest systems, nets, guardrails) at all times. In accordance with this policy, Clark's program also requires concrete subcontractors to install concrete anchor straps in all exterior building columns so that all subcontractor employees have a proper point to anchor their personal fall protection system. Last year, we further strengthened our policy by requiring netting at the end of outrigger platforms to protect workers and prevent falling debris.

To complement our fall protection standards, we also have modified our ladder safety program. All ladders on Clark sites must be rated Class 1-A or higher and all stationary fiberglass extension ladders require walkthrough brackets to prevent people from accidently stumbling when trying to access a building level. OSHA regulations allow for attached ladders to be used on the outside of tubular scaffolds. These ladders go straight up the side of the scaffold and require a person to climb over a guardrail to access a building level. Last year, Clark eliminated this potential hazard by requiring scaffold swing gates or diversions that allow safe transfer from a ladder to a working platform.

Clark's stringent fall protection and ladder policies - like much of the company's safety program - far exceed common industry standards and serve to protect everyone on site from potential hazards.

Tips for Building a Green Roof

A staple of sustainable construction for many years, green roofs are more popular than ever. As evidenced by the U.S. Coast Guard Headquarters and Music City Center, green roofs are no longer confined to urban commercial buildings - public and private clients in all climate zones are adding them to their projects in order to reduce stormwater runoff and heat island effect, improve air quality, and increase overall efficiency.

Although green roofs have a cost premium over conventional roofs, the return on investment is quick; green roofs significantly extend the lifespan of a roof membrane by shielding it from sunlight and protecting it from extreme temperature variations. Penn State University's Green Roof Research Center's research shows that green roofs typically last two or three times longer than conventional surfaces.

Getting the maximum benefit out of a green roof isn't as simple as laying down some sod next to a mechanical penthouse. Based on our experience, here are some tips for a healthier and better-performing green roof.

Proper Plant Density

More isn't always better. Surfaces with dense plantation may look great at first, but as the plants mature, they will run out of space to grow and thrive.

Off-Season Installation

Green roofs should adapt to a project's construction schedule, not the other way around. If a spring installation isn't viable, fall and even winter is an option. With flexible green roof specifications, proper sedum selection, and a proactive approach, off-season installations can be successful.

Mature Compost Only

Always use mature compost. If compost is not mature enough, its bacteria will compete for nitrogen with the plants it is supposed to feed. It is imperative to define compost nitrogen levels in any green roof specifications.

Avoid Vertical Glass

Green roof areas should never be located next to vertical glass surfaces, as the sunlight reflected from the glass will harm the plants. Design a minimum five-foot band of pavers between the green roof and any windows or curtain wall system.

Regular Maintenance

Regular, quarterly maintenance is critical to any green roof's lifespan. Maintenance requirements and associated costs should be provided by the installer.

Traffic

Pedestrian and equipment traffic on green roofs are harmful and should be avoided. Traffic compacts the roof substrate which stunts roots and prevents them from growing. Design a green roof with walking pavers where necessary to eliminate any traffic on the substrate area.

Plant Diversity

A green roof design should include between 10 and 15 different seed varieties. As the young plants grow, some species may not survive harsh weather conditions in summer and winter. Ensure your green roof thrives and don't risk planting just a handful of seeds types.

Drip Irrigation

In their early stages, plant roots do not go deep enough to reach water provided by drip irrigation. Installing a temporary overhead irrigation system could be a solution as the young plants grow. For long-term maintenance, consider a spigot every 5,000 square feet.

Understanding the Code

ANSI/SPRI Vegetative Roof Standards will be included in the 2015 IBC, which will be incorporated in many jurisdictions with the new code cycle. There are two approved standards: " External Fire Design Standard for Vegetative Roofs" and "Wind Design Standard for Vegetative Roofing Systems." These two standards will change the way green roofs are designed after 2015.

Hall of Justice Team Utilizes Innovative Methods to Complete Renovation

The task in front of the Hall of Justice team sounded like a riddle straight out of Engineering 101: How do you get four 40-foot, 20,000-pound steel beams inside an existing building? The answer is as simple as the solution is complicated: through the window.

Since August 2011, a Clark project team has been renovating and restoring Los Angeles' Hall of Justice. Originally constructed in the 1920s, a $151 million design-build effort is transforming the Beaux Arts landmark from an abandoned county jail to the new home for the Los Angeles County Sherriff's Department and members of the Los Angeles County District Attorneys office. In addition to careful restoration of exterior elements, the project team is performing significant interior construction. The design includes a large media room with unobstructed views on the building's ground floor. The team could easily remove four existing ground-floor columns to accommodate the space, but would need to find a new way to support the weight of the building's upper floors.

Working closely with Englekirk Structural Engineers and steel subcontractor Cal-State Steel, Clark formulated a plan to retrofit four (W36x441) structural steel beams - each 40 feet long - at the building's second floor. These reinforced beams could support the load of the 10 upper floors - 930 tons - carried by the existing columns. If the team was constructing the Hall of Justice from the ground up, the beams could be easily placed and the facility's upper floors built on top. As a renovation project, though, there was only one natural access point to hoist the beams: a second-story window.

New steel support beams are ready to be hoisted into place at the Hall of Justice.

The team spent several weeks devising a step-by-step plan to hoist the 20,000-pound beams through the window, temporarily rest them on a few load-bearing columns, and manually set them in place.

To prepare the building for the new load, the team enlarged the facility's below-grade spread footings and reinforced the existing columns from the basement through the second floor. A 120-ton hydraulic crane lifted each beam up to the window aperture and inserted it 14 feet inside. With more than 25 feet remaining outside, a second crane took over the load, allowing ironworkers to pull the beams inside using rollers, chains, and come-alongs.

Once the beams were safely inside the building, the team began the installation process. Using a system of chains and pulleys, they carefully hoisted each piece of steel into position on the ceiling then bolted and welded it into place. It took the team one day to hoist all four beams into the building, and another week to install them in their final resting place.

With the Hall of Justice's structure properly reinforced, the team has turned its attention to restoring the historic façade and beginning work on the interior finishes.

Using cranes, the team lifted steel beams into the building through a second-story window.

community connection

Second Annual Everyday Blessings Benefit Car Show a Runaway Hit

This spring, Clark's Southern Region hosted the Second Annual Everyday Blessings Benefit Car Show in Wesley Chapel, Fla. The event raised money for Everyday Blessings, a foster care facility in the Tampa area dedicated to keeping siblings together and providing children with emotional and social support, transportation, and counseling through live-in caregivers.

Of the 45 cars entered in the show, the Everyday Blessings Best of Show award went to "El Chromino," a 1969 El Camino with chrome hardware under the hood. Clark's Best of Show award went to a national-award-winning 1957 Chevrolet Bel-Air convertible. The winner in each category received a trophy.

Through donations from corporate sponsors, a silent auction, and raffle tickets, the event raised $22,800 for Everyday Blessings, bringing the two-year total to $40,500.

Clark's Southern Region employees planned and executed the entire event, including soliciting donations, securing the location, and promoting the show. Plans are already underway for a third show in 2014.

The winner of Clark's Best in Show Award proudly displays his 1st Place trophy.

Rebuilding Together From Coast to Coast

Clark has been a long-time partner of Rebuilding Together, a nationwide organization that provides critical repairs and renovations to low-income homeowners. For more than two decades, Clark employees have participated in National Rebuilding Day, the group's signature event that is the culmination of weeks and months of planned renovation work. This year, Clark's volunteers carried out three renovation efforts across the country.

In northeast Washington, D.C., the City Market at O team rebuilt the Lyles family home. The retired Mr. Lyles began caring for his niece - a stroke victim - when her mother passed away.

To address the home's most pressing needs, the volunteers installed a new roof, water heater, and a washer and dryer. The project team also completed substantial plumbing and electrical repairs and upgrades to the residence. To complement the new items, a fresh coat of paint was applied to the house and new bathroom tile and fixtures were installed. The team finished the day with landscaping and major cleanup of the grounds.

Employees in the Northern Region worked with Rebuilding Together's Metro Chicago Charity chapter to repair the Lawrence family home. Mr. and Mrs. Lawrence are raising two children, including an adult son with cognitive delay. The team addressed carpentry items throughout the house and installed new carpeting and linoleum. After completing the new flooring, the volunteers repainted the entire residence. Clark employees delivered and installed new appliances in the family's kitchen and installed new toilets in the bathrooms.

In some parts of the country, National Rebuilding Day addresses more than just homes. The Replacement Naval Hospital at Camp Pendleton team joined forces with the San Diego Private Office Building team to rehabilitate a church in downtown San Diego by repainting the interior and exterior. The team also installed a new roof and stair handrails.

Clark employees in Chicago spent the day rehabilitating the Lawrence family home.

Giving Back an Integral Part of Coast Guard Team's Mission

When they moved on site in early 2010, the U.S. Coast Guard Headquarters team wanted to do more than just build the first piece of the Department of Homeland Security's consolidated campus. They wanted to become part of the surrounding Anacostia neighborhood, a community rich with history, but also one of city's most underserved and underprivileged areas. Over the past three years, the team delivered on their commitment to be a good neighbor and has formed lasting relationships with a number of community groups.

Bread for the City is one of the largest and most comprehensive aid providers in Washington, D.C. Over the course of construction, the USCG team maintained a strong partnership with the organization. In addition to contributing to the organization financially, project team members volunteered to deliver fresh vegetables from Bread for the City to local food banks and assembled and distributed "welcome baskets" for first-time city homebuyers. The organization also was the prime beneficiary of the project team's annual St. Elizabeths Charity Golf Tournament. With help from project partners and subcontractors, the event drew more than 110 participants and raised more than $17,000. The team's commitment to the organization will continue, as Senior Project Manager Dave Pastrick has joined the Board of Directors, and is working to advance Bread for the City's mission.

In addition to Bread for the City, the team dedicated time to other city organizations, including taking on multiple shifts serving food in the So Others Might Eat dining room, sponsoring families living in transitional housing through Community of Hope, and donating to Dreams for Kids, a group that provides at-risk children with life and career skills.

The USCG project team also leveraged its massive workforce - 1,200 at peak construction - to host Toys for Tots drives each holiday season. They also organized a food drive for the nearby Browne Education Campus and collected winter coats for a homeless shelter located across the street on St. Elizabeths East Campus.

While much of the project team's service efforts focused on giving back to the local community, other initiatives focused on introducing students to the construction industry. For two years, the team has sponsored four Don Bosco Cristo Rey High School students who split the duties of a full time employee. Each student spent five days a month on site, assisting in a variety of administrative and project management tasks (for more about the Cristo Rey Work Study Program, see the Fall 2012 edition of Superstructure). The team also has hosted dozens of workshops and tours for the ACE Mentor Program and the GSA's Pre-Apprenticeship Program.

Though the members of Clark's project team will soon take on new responsibilities, they leave the Anacotia neighborhood knowing that they not only built a landmark facility, but made an impact on the local community.

St. Elizabeths Charity Golf Tournament


Toys for Tots Drive


Bread for the City gift baskets

601 Massachusetts Avenue Project Team Diverts Construction Waste...to the Library

It is not unusual for our project teams to find undocumented items on the job site. At times, these items are recycled or refurbished and incorporated back into the project's design. At 601 Massachusetts Avenue, however, the project team sent their undocumented items to the library.

When the team discovered hundreds of books scattered throughout a building set to be demolished, they knew they couldn't just throw them away. Instead, they collected, organized, and boxed more than 2,000 books, and donated them to the Martin Luther King, Jr., Public Library in Washington, D.C. The tomes became part of the library's book recycling program that helps raise funds to operate its program.


The 601 Massachusetts Avenue project team delivered more than 2,000 books to the local library

Western Region employees brought a little extra Clark spirit to the Walk MS event in Irvine, Calif.

Western Region Supports Walk MS

In April, a team of Western Region employees were among 3,000 people participating in the MS Society's Pacific South Coast Chapter's Walk MS event at the University of California, Irvine. The Clark team raised money to help support the MS Society's life -changing programs and cutting-edge research. In all, the event raised more than $450,000.

Robert Moser, Jr. Assumes Role of Chief Executive Officer

Clark Construction Group is pleased to announce that President Robert D. Moser, Jr., will also take on the role of Chief Executive Officer. Peter C. Forster has transitioned to a full-time Clark Construction Group Board role. With Mr. Forster's shift to the board role, Dan T. Montgomery is now Chairman of the Board.

Before his promotion to President in 2011, Mr. Moser was Division President, National Group. In this role, he coordinated construction activities on a national scale for both building and civil construction, including the acquisition of work, operations, and general and administrative functions.

Mr. Moser joined Clark in 1997 as a field engineer on the Parc Somerset Condominiums project in Chevy Chase, Md. In the years that followed, he led construction operations on Mid-Atlantic Region projects, supported the region's preconstruction efforts, and joined the National Operations team. In 2003, Mr. Moser led Clark's efforts to complete over 80 construction projects and the closure of four regional offices of a bankrupt national general contractor for Firemen Fund Insurance and AIG. The following year, he assumed responsibility for Clark Concrete. Under his leadership, the business unit successfully completed a number of complex projects, including the Dulles International Airport East Automated People Mover, Nationals Park, the U.S. Department of Transportation Headquarters, and DC USA.

Mr. Moser holds a bachelor's degree in civil engineering from Virginia Polytechnic Institute and State University. Additionally, he completed the Executive Program at the University of Virginia Darden School of Business in 2007.

Brandon Dully Promoted to Vice President

Guy F. Atkinson Construction is pleased to announce that Brandon Dully has been promoted to Vice President. Mr. Dully joined Atkinson in March 2010 after 10 years of service with General Construction Company.

Since October 2012, Mr. Dully has served as Operations Manager for the Northwest Division, and was responsible for multiple projects in the Puget Sound region. This includes two SR 522 Corridor projects in Bothell, the SR 9/SR 92 Intersection design-build project in Marysville, the I-405/SR 518 PCCP design-build project in Bellevue, and the Strander Blvd. Extension and Boeing North Bridge projects in Renton.

Previously, Mr. Dully was project manager on the SR 522 Corridor Improvements Stage 2A, Bothell Crossroads, and Strander Blvd. Extension projects and served as General Superintendent on the SR 520/I-405 Vicinity Seismic Retrofit and $110 million I-405/NE 8th to SR 520 Braided Ramps Design-Build project in Bellevue.

Prior to joining Atkinson, Mr. Dully advanced from engineer, to superintendent, to construction manager on marine, bridge, pier, and heavy civil projects for clients including the Navy and Port of Seattle.

Mr. Dully has a bachelor's degree in civil engineering from Washington State University and is a registered professional engineer in Washington state.

National Honors for Clark and Atkinson's Safety Programs

Both Clark Construction and Atkinson Construction received a first place Associated General Contractors of America (AGC) Willis Safety Excellence Award for their commitment to safety. Clark earned honors in the Building division and Atkinson in the Highway and Transportation division. The companies received the honors during AGC's Annual Convention earlier this year.

To earn a Willis Safety Excellence Award, Clark and Atkinson first had to submit information on their safety programs, including employee participation, management commitment, training, work site hazard identification and control, and innovation. After being selected as finalists, safety personnel from Clark and Atkinson traveled to the AGC's Annual Convention to present to the AGC Safety and Health Committee.

With safety as a core value, the Clark companies continue to strive toward a goal of zero incidents and zero injuries on all projects. As these honors demonstrate, our commitment to training, hazard control, and innovation continues to set us apart from the industry.

Clark's Bill Calhoun, Fred Wilton, and Tim Sirofchuck (center) accept the Willis Safety Award from AGC President and Clark Senior Vice President, Joe Jarboe (far right).

Atkinson Construction's Al Gonzales and Brian Van (center) accept the Willis Safety Excellent Award from AGC representatives, Paul Becker (left) and Joe Jarboe (right).

Clark Opens Doors to Two New Texas Offices

Clark Construction has opened new offices in Houston and San Antonio to better serve clients in Texas and the surrounding states. The two offices mark the beginning of another chapter of Clark's history in the Lone Star State, which dates back more than 30 years. Led by General Manager - Texas Region Jim Ansari, the Texas offices will focus on healthcare, education, aviation, and commercial building projects.

Clark has had a steady presence in Texas since 1982 and was named "Contractor of the Year" in 2011 by ENR Texas & Louisiana. Over the past three decades, the company has delivered nearly $3 billion of work in Texas, including notable projects such as Brooke Army Medical Center and the San Antonio Military Medical Center at Fort Sam Houston, University of Texas Southwestern Medical Center in Dallas, University of Texas Animal Research Facility and the San Antonio Convention Center Expansion in San Antonio, and 1500 Louisiana (formerly Enron Tower 2) and the M.D. Anderson Cancer Center, in Houston. The company also has completed multiple projects at George W. Bush Intercontinental, San Antonio International, and William P. Hobby Airports.

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