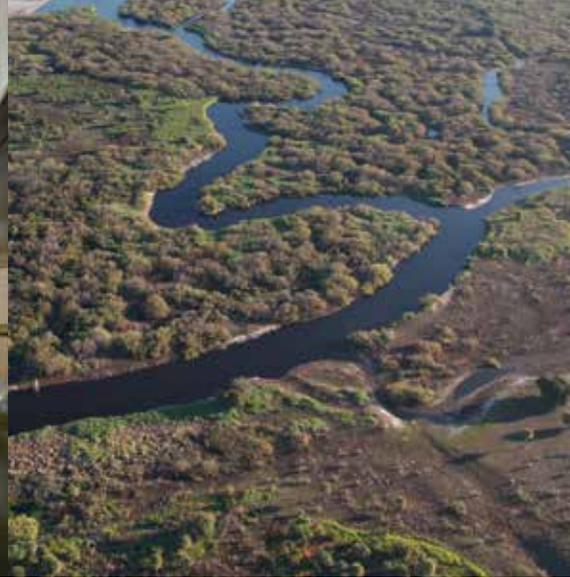


The 2012  
Chief of Engineers  
**AWARDS OF  
EXCELLENCE**



DESIGN

ENVIRONMENTAL

SUSTAINABILITY



**US Army Corps  
of Engineers®**





Program Credits

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Program Management

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## Message from the Chief

Congratulations to the winners of the 2012 Chief of Engineers Awards of Excellence Program! Now in its 46<sup>th</sup> year, our program has expanded once again this year to include the U.S. Army Corps of Engineers' Sustainability Awards Program, which reaffirms the Corps' ongoing commitment to help the Army and the Nation reach its energy security and sustainability goals.

The Chief's Awards of Excellence Program recognizes some of the most innovative projects accomplished by U.S. Army Corps of Engineers (USACE) teammates and our private sector design and construction community around the world. This year, more than seventy nominations were submitted – more than double that over each of the last six years! A jury composed of nationally-recognized design and environmental professionals have singled out fifteen projects and individuals for awards this year. The number and level of awards given by the juries indicate the high standard of work produced by every team who entered.

The projects shown in this brochure demonstrate the diversity of skills that we can offer our customers. These world-class designs are indicative of the contributions that the Corps of Engineers makes to our Nation and the quality of support we provide to the Armed Forces. My congratulations and thanks to everyone who participated in the Chief of Engineers Awards of Excellence Program this year. I look forward to more excellent results in 2014. Keep up the great work!

Army Strong...Building Strong...Essayons!

A handwritten signature in black ink, reading "Thomas P. Bostick". The signature is stylized and cursive.

Thomas P. Bostick  
Lieutenant General, U.S. Army  
Commanding

## The Chief of Engineers Awards of Excellence

**Program** dates to 1965 when it was first held as the Chief of Engineers Distinguished Architectural Achievement Awards with ten entries, for which two awards were given.

In 1966, the name was changed to the Chief of Engineers Distinguished Architectural and Engineering Achievement Awards. The program continued to expand to include Landscape Design in 1968, and in 1969 the name was changed to the Chief of Engineers Distinguished Design Awards. In 1978, a greater emphasis was placed on the environment and the program became the Chief of Engineers Design and Environmental Awards Program. In 2012, the program expanded once again to include the USACE Sustainability Awards to become the Chief of Engineers Awards of Excellence. This combination of awards programs supports the Corps' commitment to implementation of Executive Order (EO) 13514 Federal Leadership in Environment, Energy, and Economic Performance.

From 1965 through 2010, 531 awards have been given. A number of these projects also received other awards, including Department of Defense Design Awards, Federal Design Achievement Awards, and Presidential Design Awards.

## CATEGORIES OF COMPETITION

The program recognizes a wide range of projects and professional work. New this year: recognition for innovation and success in sustainability.

### DESIGN AND ENVIRONMENTAL AWARDS

These awards recognize large-scale USACE projects that demonstrate excellence in design and construction and complete supply chain management, community engagement, employee involvement, and innovation.

#### Chief of Engineers Award of Excellence

Requiring unanimous support by the jury, this award goes to an entry that exceeds all major professional design disciplines, including sustainability.

#### Chief of Engineers Building the Future Award

Also requiring unanimous support by the jury, this award goes to an entry that exhibits excellence in sustainability.

#### Honor Awards

Honor Awards are given to entries that demonstrate or stimulate excellence in each of the design disciplines.

#### Merit Awards

Merit Awards are given for projects in a variety of individual disciplines including landscape architecture, interior design, planning, historic preservation, adaptive reuse, sustainable design, and discipline specific engineering.

### SUSTAINABILITY AWARDS

This combination of awards programs supports the Corps' commitment to implementation of Executive Order (EO) 13514 Federal Leadership in Environment, Energy, and Economic Performance.

#### Sustainability Hero Award

This award recognizes an individual whose outstanding leadership in sustainable practices and energy and environmental management is a true sustainability champion and agent of change within USACE.

#### Green Innovation Award

This award recognizes an innovation or idea with clear potential to transform the Federal community's overall energy and environmental performance. It is presented to an individual or team for the development and execution of a novel new product, project, program, design, or revolutionary idea.

#### Lean, Clean, and Green Award

Recognizing outstanding organizational achievement in building or fleet energy efficiency or renewable energy development and deployment, this award recognizes innovative projects that dramatically improve energy efficiency.

#### Good Neighbor Award

This award recognizes a USACE team, project, or facility active engagement in community planning and sustainability initiatives, pursuing collaborative sustainability goals, and demonstrating success in aligning policies and practices with community partners to achieve those goals.

#### Green Dream Team Award

Winners of this award exhibit exceptional leadership in an interagency green team to effectively place a Federal sustainability idea into action. It highlights collaboration through Regional Councils, Federal Executive Boards, workgroups or other interagency organizations.



DESIGN

- 4** **Award of Excellence**  
Tyndall Fitness Center
- 6** **Building the Future Award**  
Community Emergency Services Station
- 8** **Honor Award: Interiors**  
National Geospatial-Intelligence Agency  
Campus East
- 10** **Honor Award: Conceptual Design**  
Weed Army Community Hospital
- 12** **Merit Award: Restoration**  
Building 465 Renovations
- 14** **Merit Award: Engineering**  
Lower Snake and Columbia Rivers Extended  
Navigation Outage for Major Repairs

ENVIRONMENTAL

- 16** **Award of Excellence**  
Tres Rios Environmental Restoration Project,  
Phase II Flow Regulating and Overbank  
Wetlands
- 18** **Honor Award**  
Ecosystem Revitalization at Route 66,  
Middle Rio Grande
- 20** **Merit Award**  
Kissimmee River Restoration - Reach 4  
Backfilling

SUSTAINABILITY

- 22** **Good Neighbor Award**  
Alabama Living Shorelines General Permit
- 24** **Green Dream Team Award**  
High Performance Computing Green Team
- 26** **Green Innovation Award**  
Bioremediation of Solvent-Contaminated  
Low-Permeability Zone
- 6** **Lean, Clean and Green Award**  
Community Emergency Services Station
- Sustainability Hero Award**
- 25** **Dr. Ilker Adiguzel**
- 27** **Sven Lie**





## Fitness Center – Tyndall Air Force Base, Florida

The Tyndall Fitness Center at Tyndall AFB, Florida, is a \$17 million, 75,278 square foot, 2 story, state-of-the-art fitness center designed to follow the “Fit to Fight” maxim recently adopted by the U.S. Air Force. The facility is a bold architectural statement with dynamic interior features. Bringing together a mix of materials with vibrant color, architectural features with dramatic shapes, and an all-time first “green” certification for the U.S. Air Force, the facility exudes energy and fitness throughout a complex of interconnecting athletic spaces.

Open since August 2010, the facility is more than three times the size of the original gymnasium built in 1975. This much-needed expansion serves up to 1,000 visitors daily. The site, located within a half-mile walking distance to an existing community and several barracks, encourages walking. To enforce the “green”

spirit of the facility, bike racks, and premium parking were established for low emission, fuel efficient, and alternative fuel vehicles.

Throughout the project, the design team relied on Building Information Modeling (BIM) solutions from Autodesk to explore and refine ideas quickly and efficiently. Early in the design phase, the design team also used sophisticated rendering technology to create preliminary building massing models and renderings to visualize ideas. In pursuit of Leadership in Energy and Environmental Design (LEED) certification, project architects explored multiple approaches to shading and harvesting natural sunlight. Energy-saving features include the building envelope and cooling systems, increased wall insulation, an energy-efficient roof system, and roof mounted photovoltaic solar panels. Other sustainable design features include day lighting; solar

thermal preheating of domestic water; rainwater collection for irrigation systems; low-flow toilets, urinals, and shower systems; and permeable pavers in overflow parking areas.

Receipt of LEED Platinum certification reflects the highest achievement possible in the five categories of green-build construction: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. The many sustainable systems incorporated by the design team to achieve the LEED Platinum level makes this facility representative of “The Building of the Future.” Underscoring the Air Force’s commitment to successful use of energy-efficient and sustainable design, the building is the most energy efficient facility in the U.S. military.

**OWNER:**

325<sup>th</sup> Civil Engineer Squadron

**DESIGN DISTRICT:**

Mobile District, U.S. Army Corps of Engineers

**DESIGN FIRM:**

Atkins (PBS&J) – Tampa, Florida

**CONTRACTOR:**

Carothers Construction, Inc. – Taylor, Mississippi

THIS PROJECT EPITOMIZES THE IDEAL DESIGN SOLUTION: THE SYNTHESIS AND VERNACULAR TRADITION, PASSIVE DESIGN PRINCIPLES AND CUTTING-EDGE SUSTAINABLE STRATEGIES MAKING A BUILDING COMPLEX THAT IS ANCHORED IN TIME AND PLACE.

**JURY COMMENT**





## Community Emergency Services Station – Fort Bragg, North Carolina

Recognizing outstanding organizational achievement in building or fleet energy efficiency or renewable energy development and deployment, the *2012 Lean, Clean, and Green Award* goes to the USACE Savannah District Community Emergency Services Station (CESS) facility. The 8,300 square feet, \$2.6 million project demonstrates a combination of measurable results in energy efficiency, increased use of renewable energy, and reduced greenhouse gas pollution.

Using environmentally-friendly features and a unique partnership, the USACE Savannah District designed and constructed a Community Emergency Services Station (CESS) facility in the new Linden Oaks residential area at Ft. Bragg, N.C. The station was a necessity for the community. Since Linden Oaks is located 10 miles away from the main cantonment area of Fort Bragg, police, emergency medical services (EMS), and fire services had experienced delays in emergency response times to that area.

Supported by a grant of \$1.16 million from the Department of Defense Environmental Security Technology Certification Program (ESTCP) to provide technical support from the Construction Engineering Research Laboratory (CERL), Southface Energy Institute, Installation Management Command-SE, and Pacific Northwest National Laboratory (PNNL), the station houses emergency responder offices, training and physical conditioning rooms, day room, kitchen, dorm area, apparatus room, decontamination room, storage areas, latrines, communication and electrical closets, a mechanical room, and a unique sustainable learning center for children.

The project was initiated with a weeklong charrette, involving more than 40 participants, with the self-imposed goal of producing a LEED Platinum facility. The team developed energy models in balance with the LEED scorecard. Products and materials were examined online through an energy model to assess their usefulness, effectiveness, and efficiency toward achieving a LEED Platinum facility within budget. Roofs were sloped to harvest rainwater to a 10,000 gallon buried cistern. Heating and air conditioning is provided by water source heat pumps via geothermal wells 400 feet below the ground. Hot water is generated with solar panels. Clerestory windows provide natural light. Paving and roofing surfaces do not create heat wells.

The Community Emergency Services Center is outstanding in form and function. It provides a facility that performs a very important community service and that the employees will be proud to work in for years to come. In addition, the emphasis on sustainability provides a unique platform to educate future generations on the importance of preserving the world's environment and energy.

**OWNER:**

Fort Bragg Directorate of Public Works

**DESIGN DISTRICT:**

Savannah District, U.S. Army Corps of Engineers

**DESIGN FIRM:**

AECOM - Charlotte, North Carolina

**CONTRACTOR:**

R.A. Connelly, Inc.

ACHIEVING LEED PLATINUM THROUGH INTELLIGENT INTEGRATION OF OFF-THE-SHELF TECHNOLOGY AND SOUND GREEN BUILDING PRINCIPLES IS A MODEL FOR FUTURE AND CURRENT PROJECTS TO EMULATE.

**JURY COMMENT**





## National Geospatial-Intelligence Agency Campus East – Fort Belvoir, Virginia

The National Geospatial-Intelligence Agency (NGA) is the nation's primary source of geospatial-intelligence (GEO-INT) for the Department of Defense (DoD) and the U.S. Intelligence Community (IC). GEOINT is the collection and analysis of imagery and geospatial information that describes, assesses, and visually depicts physical features and geographically referenced activities on the Earth. The Campus East project has its origins in Base Realignment and Closure (BRAC) legislation. The project consolidates six Washington area sites to the Fort Belvoir North Area in Springfield, Virginia.

Driven by a cultural transformation mandate and strict requirements for sustainability, reliability, flexibility, and expandability all constrained by stringent security criteria, the design for the facility expresses an open, trusting, and collaborative knowledge-based environment with a single main office building of two wings curving around a central atrium that provides primary circulation and

access to shared conference rooms and break areas. Security requirements are met by layered hierarchical zones. Reliability standards are met by the configuration of the central plant and distribution pathways. Flexibility is provided through a modular approach in all aspects of the project. Expansion is reserved in the site plan for the main office building (MOB), technology center (Tech Center), and central utilities plant (CUP).

The design for the MOB is rooted in the Agency's motto of "Know the Earth...Show the Way." The base is an extension of the landscape. The lower levels emulate strata and contours of natural landforms. The terrestrial base houses the more public functions. Upper portions of the building are more futuristic; the mass of the building appears to hover above the earth. The interior scheme emphasizes a series of "neighborhoods" designed to enhance business processes and foster an efficient and collaborative work environment.

NGA Campus East is the largest single project in the USACE North Atlantic Division. The Main Office Building is the second largest single occupancy office building in the world after the Pentagon. And, the NGA program is the largest single procurement of furniture ever in the U.S. Government's history. The design of Campus East results in a work environment that enables the workforce of the future. Incorporating space for collaboration and learning, it provides technology to enable mission success, reflects the NGA mission, and includes amenities that make NGA an employer of choice. Completed on time and under budget, this signature project has achieved a higher than mandated LEED Gold certification and exceeded EPACT 2005 energy reduction goals.

**OWNER:**  
National Geospatial-Intelligence Agency

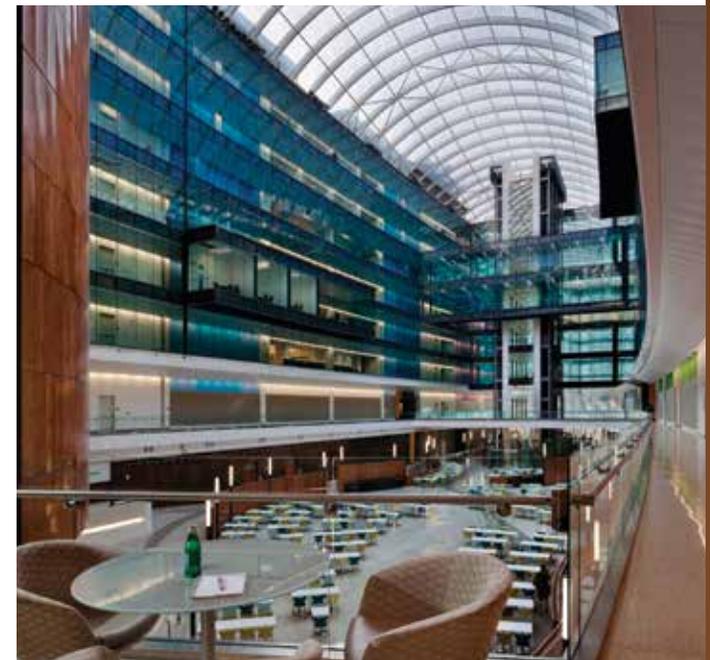
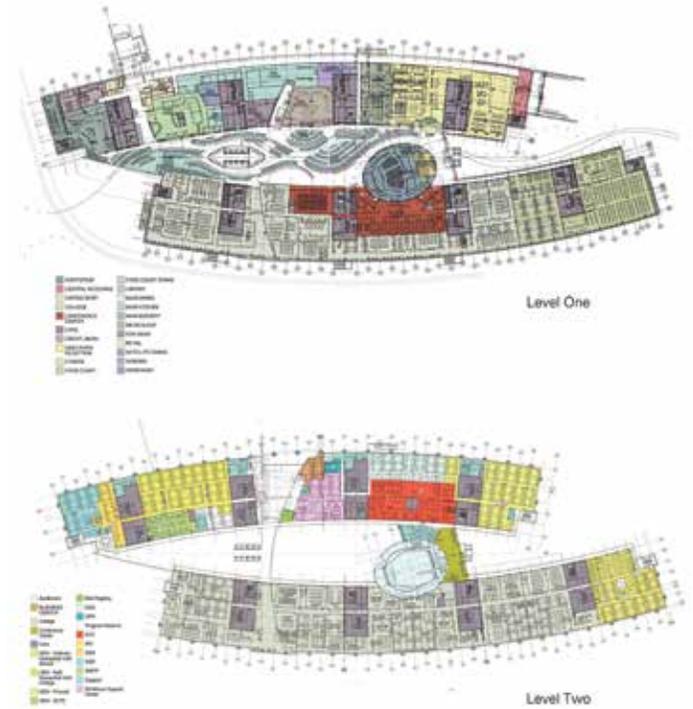
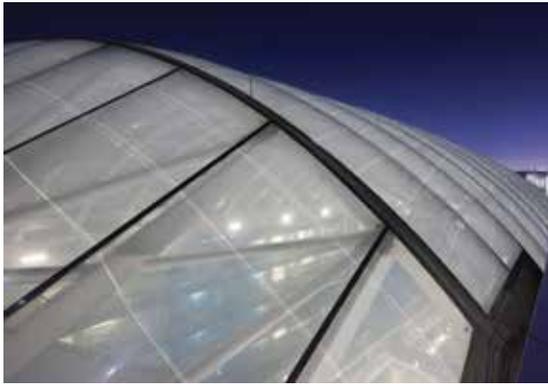
**DESIGN DISTRICT:**  
Baltimore District, U.S. Army Corps of Engineers

**DESIGN FIRM:**  
RTKL Associates, Inc./KlingStubbins

**CONTRACTOR:**  
Clark Construction Group, LLC/Balfour Beatty plc.

THE NATURALLY LIT ATRIUM ANIMATES THE  
THEMATIC COLOR PALETTE AND TEXTURE TO  
CREATE A SUMPTUOUS INTERIOR.

**JURY COMMENT**





## Weed Army Community Hospital – Fort Irwin, California

The Weed Army Community Hospital replacement project was conceived to improve the medical care provided to soldiers, military families, and retirees in the Fort Irwin community. This mission-critical project includes the design of a replacement hospital, clinic alterations, utility plant building, ambulance shelter, and helipad. Combining state-of-the-art facility design with innovative energy conservation and generation, this is the nation's first carbon-neutral hospital, and it sets a precedent for future military facilities.

Client/design teams relationships were streamlined for faster completion. Real-time quality controls were coupled with an “out-of-the-box” approach to scheduling. Army and government representatives worked with the design team on a daily basis to expedite the feedback process. Combined with the use of building information modeling (BIM) software platforms, this approach allowed the

design team to receive and incorporate real-time feedback without waiting for validation, thus enabling the team to complete design, from schematics through construction documents, on an accelerated timeline of less than 18 months, about 40 percent of the time a project of this nature typically takes.

During the course of the design process, the team analyzed alternatives and strategies related to sustainability. The most notable strategy implemented, the photovoltaic (PV) array, is eligible for refund incentives from the local utility provider, Southern California Edison. Based on the PV's energy production, these incentives will amount to approximately \$1.5 million over five years. The design also incorporates state-of-the-art technology for clinical care within military hospitals. Integrated operating rooms feature robotic and information systems for careful, efficient management of patient data. These expanded rooms

accommodate the newest equipment including digitized radiological equipment. Recovery rooms feature patient lifts and family areas. The project also includes installation of an intrusion detection system and provides connection to the energy monitoring and control system.

By incorporating the best practices of premier health facilities throughout the country, implementing targeted sustainability measures to reach significant milestones for healthcare design, and working collaboratively among military healthcare professionals in a tight, streamlined approach, the design of the Weed Army Community Hospital stands as a substantial accomplishment for military healthcare. Under the US Green Building Council's LEED-BD+C rating system, the design should achieve 87 credits, seven more than required for Platinum status.

**OWNER:**

Health Facilities Planning Agency, Fort Bliss, Texas

**DESIGN DISTRICT:**

Los Angeles District, U.S. Army Corps of Engineers

**DESIGN FIRM:**

RLF

BY AIMING FOR NET-ZERO ENERGY USE, A NOTEWORTHY, IF NOT REMARKABLE, ACHIEVEMENT ON ANY PROJECT - LET ALONE A HOSPITAL - THIS PROJECT SEEKS TO BREAK THE PAST STEREOTYPES IN MEDICAL DESIGN OF RELIANCE ON ENERGY AND NATURAL RESOURCES.

**JURY COMMENT**





## Building 465 Renovation – Fort Leavenworth, Kansas

Home to the Army Management Staff College (AMSC), one of the most important training programs offered by the US Army, Historic Building 465 was constructed in 1929 as the United States Disciplinary Barracks (USDB) hospital. This remarkable 36,000 square foot structure was converted into a barracks in 1975 before falling vacant in 2002. In 2009, the building was targeted for transformation into classroom space in a building that complements the overall revitalization of Fort Leavenworth's historic prison district. This repurposed space brings the AMSC back under one roof in the first academic facility designed specifically to support extensive classroom use of personal computing and help instructors focus on students rather than IT devices for the College's unique requirements.

Equipped with its own wireless network, the facility allows centralized imaging of all 300+ students and faculty computing devices from a central location. The "virtual auditorium" connects all 14 classrooms in any combination, conference rooms, private offices, vestibule kiosks, and the Network Operations Center (NOC) with full audio/visual capability. The facility is also equipped with video teleconferencing (VTC) capability that allows four simultaneous high-definition connections with external sites making it possible for experts and leaders to join interactive classroom discussions from any worldwide location. Saving more than 24,000 pages of printed material annually, paperwork associated with equipment use and policy acknowledgement is now done digitally.

Technological enhancements were essential, but so was preserving the historic nature of the building. The historic renovation included a complete adaptive renovation of this building. Vacant for seven years prior to the start of this project, the building had incurred major damage. Restoration included terrazzo flooring, a central stairwell, handrails, plaster cove moldings, stone and brick veneer, windows, concrete cornice, and an entry porch framed by four Doric columns, as well as abatement and remediation of lead paint, mold, asbestos, and other hazardous materials. Frequent design meetings, reviews, pre-planning and onsite interaction made it possible to complete the project ahead of schedule to all stakeholders' satisfaction.

The final construction contract value was \$16 million. In addition, the project included a \$2.9 million IT package and a \$750,000 Furniture Fixture and Equipment package. The result is an historic renovation refitted to meet the future needs of AMSC.

**OWNER:**

Directorate of Public Works, Fort Leavenworth, Kansas

**DESIGN DISTRICT:**

Kansas City District, U.S. Army Corps of Engineers

**DESIGN FIRM:**

Gastinger Walker Harden Architects, Inc.

**CONTRACTOR:**

JE Dunn Construction Group, Inc.

SECURE WITHIN THE HISTORICAL CONTEXT OF A MILITARY PENITENTIARY THE TEAM REFORMED A DERELICT SITE INTO A PLEASING, FUNCTIONAL AND HIGHLY ADAPTABLE WORKHORSE.

**JURY COMMENT**





## Lower Snake and Columbia Rivers Extended Navigation Outage for Major Repairs – Portland, Oregon

According to the Northwest Waterways Association, more than 8 million tons of cargo valued in excess of \$2 billion, is shipped annually on the Snake-Columbia River system through lock gates at The Dalles, John Day, and Lower Monumental dams. All three massive gates and two friction sheaves, each a crucial element in the regional navigation system, needed replacing and updating. This monumental engineering and construction feat also came with critical timelines and great risks. With carefully planned downtime for shipping traffic and truly extraordinary engineering and construction planning and execution, this project promises to extend the life of a critically important lock system on the Lower Snake River well beyond its 50 year plan.

Over the past 20 years, the downstream navigation lock gates at The Dalles, John Day, and Lower Monumental had

required higher than usual maintenance and had become high-risk structures. All three gates have had unscheduled outages for crack repair and what had become “routine” annual crack weld repair procedures during scheduled outages. Ultimately, no amount of repair work or routine maintenance would assure long-term functionality of the navigation system. Replacement was the only viable solution. An unprecedented system-wide navigation outage to support these major, non-routine, repairs was required.

The gates at Lower Monumental and John Day Dam, both vertical lift gates, are among the largest in the world. The gate at The Dalles, an arched miter gate, is also one of the largest of its type. Although the new gates could be mistaken for mere replacements, they all incorporate the latest advances in fracture and fatigue engineering. And, these

massive, precision structures—88 to 98 feet wide and 84 to 120 feet tall and weighing between 1.5 and 1.8 million pounds—seal up like valves to safely lock commercial and pleasure craft through the system.

This large-scale and highly successful project reflects extraordinary vision, coordination, and innovation. Design, construction, and installation of the new lock gates represents a huge feat in itself. Coordinating a stoppage of traffic for four months and reopening on time is an equally impressive achievement. Far exceeding customer expectations, all this work was completed within 16 weeks at a cost of \$67 million and re-establishes reliable navigation on the Lower Columbia and Snake River system for the next 50+ years.

**OWNER:**

Portland District/Walla Walla District,  
U.S. Army Corps of Engineers

**DESIGN DISTRICT:**

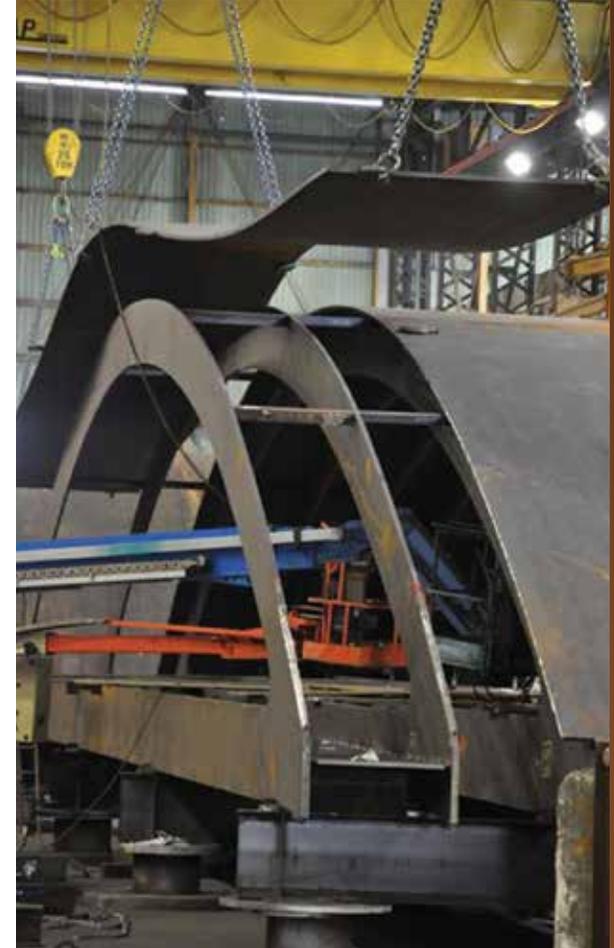
Portland District/Walla Walla District,  
U.S. Army Corps of Engineers

**CONTRACTOR:**

DIX Corporation Contractors

THIS PROJECT IS A REMARKABLE ENGINEERING ACCOMPLISHMENT. NOT BECAUSE OF ITS SIZE, WHICH IS ENORMOUS, BUT FOR ITS EFFICIENCY IN THE WING DESIGN AND BEAUTY OF EXPRESSED FUNCTION.

**JURY COMMENT**





## Tres Rios Environmental Restoration Project, Phase II Flow Regulating and Overbank Wetlands – Phoenix, Arizona

The Tres Rios Environmental Restoration Project evolved from an early proposal for advanced nitrogen removal of effluent discharged from the 91<sup>st</sup> Avenue Wastewater Treatment Plant (WWTP) in Phoenix, Arizona, into a large scale habitat restoration, environmental education, flood control, and public recreation project. Flow Regulating Wetlands (FRW) and Overbank Wetlands (OBW) form the backbone of the project. The FRW buffers diurnal flow rate fluctuations from the WWTP, regulates, and discharges treated effluent into the OBW through automatic control gates, spillways, and channels. Requiring extensive coordination between USACE, City of Phoenix Water Services Department, Archer Western Contractors (AWC), the design/construction engineers, Jacobs Engineering (formerly Damon S. Williams and Associates), and Wass Gerke and Associates, the project comprised moving over three million cubic yards of material around the 580 acre site to create a wetland system providing over 450 acres of diverse aquatic and riparian habitat.

Planning began in the early 1990's and the project originated as a collaborative effort involving multiple stakeholders including USACE, City of Phoenix, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, Arizona Department of Game & Fish, City of Avondale, Gila River Indian Community, the Flood Control District of Maricopa County, and the Environmental Protection Agency.

Treated effluent from the 91st Avenue WWTP is pumped over a mile to the intake structure at the FRW, which provides a platform for a variety of emergent plants. Normal supply of effluent entering the system is between 15 and 120 million gallons per day (mgd), and the wetlands can support up to 450 mgd during storm events. A second tier of water polishing removes total residual chlorine, ammonia, and whole effluent toxicity for flows up to approximately 45 mgd. This natural method costs about one tenth the cost of traditional wastewater treatment. Polished water passes through the wetland system before being discharged into the Salt River. The OBW are designed to bring the public closer to the restored riparian environment. As funds allow, trails and amenities will be added.

In the two years since the project was planted and the wetland basins filled with water, bobcats, bald eagles, beavers, turtles, and snakes have all visited the area. More than 147 species of birds have been identified in the vicinity. Diversity and abundance of wildlife species are expected to increase as the project matures. In addition, this project has been used in several Riparian Prospect Courses sharing the innovative technology of the project with USACE staff throughout the country.

**OWNER:**

City of Phoenix Water Services Department

**DESIGN DISTRICT:**

Los Angeles District, U.S. Army Corps of Engineers

**DESIGN FIRM:**

Jacobs Engineering Group Inc.

**CONTRACTOR:**

Archer-Western Contractors, Ltd.

THE PROJECT DOES AN OUTSTANDING JOB OF NATURAL TREATMENT FOR WASTEWATER EFFLUENT WHILE PROVIDING VALUABLE WETLAND HABITAT. IT ADDED 450 ACRES OF AQUATIC AND RIPARIAN HABITAT, ALONG WITH PROVIDING RECREATIONAL OPPORTUNITIES. THE TEAM SUCCESSFULLY WORKED WITH MULTIPLE STAKEHOLDERS AND PARTNERS TO ACHIEVE AN OUTSTANDING COLLABORATIVE EFFORT.

**JURY COMMENT**



APRIL 2009



SEPTEMBER 2009



JANUARY 2010



MARCH 2010





## Ecosystem Revitalization at Route 66, Middle Rio Grande – Albuquerque, New Mexico

The overall goal of the USACE Albuquerque District Ecosystem Restoration (RT66) Project was to reconnect and restore 121 acres of riparian cottonwood woodland (“bosque”) along a 2.5 mile stretch of the Rio Grande in the heart of Albuquerque, New Mexico. Connecting urban and natural environments, the project eliminates non-native vegetation, creates more opportunities for recreational access, and combats evaporative and other water loss issues. Stakeholders and customers included the sponsor, Middle Rio Grande Conservancy District (MRGCD), the City of Albuquerque Open Space Division (OSD, which co-manages the study area with the MRGCD), Bernalillo County, and the New Mexico Interstate Stream Commission (ISC). The study area fell entirely within the sponsor-managed Rio Grande Valley State Park (RGVSP).

The bosque provides foraging and nesting habitat for 80 percent of vertebrate species in the region, including two Feder-

ally endangered species, the Southwestern Willow Flycatcher (flycatcher) and the Rio Grande silvery minnow (silvery minnow). Badly damaged by flood control and irrigation diversion activities, this stretch of river had been transformed from its natural, meandering state into a narrow, channelized waterway disconnected from most of its historic floodplain. The river was no longer able to spill onto the floodplain during spring runoff, and the dominant native woody species including cottonwood, coyote willow, and Goodding’s willow, became displaced by dense stands of invasive species.

Serving as a pilot study for future restoration efforts along the Rio Grande and in other riparian cottonwood forests in the West, the RT66 project pioneered numerous novel designs. A critical innovation was the design of willow swale, which lowered the overall ground surface before planting thousands of native willows until it intersected the shallow floodplain water

table created a hydrologic regime in the swale that mimics natural overbank flooding. Immediately successful, the willow swale design, along with high flow channels, wetlands, outfall drain wetlands, and other project features have been included in the Middle Rio Grande Ecosystem Restoration (MRGER) Project, an ambitious, \$25 million effort to restore 916 acres of bosque habitat along a 26 mile stretch of the Middle Rio Grande.

The Ecosystem Restoration at RT66 is an outstanding example of an environmental and civil works project that restored critical ecosystem habitat and functionality to an area significantly altered by Corps flood control and other Federal water resources management activities. It also paved the way for restoration of an additional 916 acres of riparian cottonwood forest along a 26 mile stretch of the Rio Grande in the heart of New Mexico’s largest city.

**OWNER:**

Middle Rio Grande Conservancy District

**DESIGN DISTRICT:**

Albuquerque District, U.S. Army Corps of Engineers

**CONTRACTOR:**

Stoven Construction, Inc.

THIS PROJECT WAS A SUCCESSFUL INVOLVEMENT OF MULTIPLE STAKEHOLDERS, ENHANCES PUBLIC ACCESS, REDUCED WILDFIRE RISK AND MOST IMPORTANTLY, ITS ECOSYSTEM RESTORATION, INCLUDING RESTORING THE NATURAL HYDROLOGY AND MAKING AN IMPORTANT RIVER CORRIDOR MORE NATURALLY PRODUCTIVE.

**JURY COMMENT**





## Kissimmee River Restoration - Reach 4 Backfilling – Highlands County, Florida

Stretching from the Orlando area southward to Lake Okeechobee in central Florida, the Kissimmee River basin encompasses some 3,000 square miles. This restoration effort in the lower basin, referred to as the Kissimmee River Restoration (KRR) project, begins at the outlet of Lake Kissimmee. Here, the river’s floodplain slopes gradually to the south from approximately 50 feet above sea level at Lake Kissimmee to approximately 15 feet at Lake Okeechobee. An existing canal (C-38) constructed along the general alignment of the meandering Kissimmee River from Lake Kissimmee to Lake Okeechobee had reduced the run of the river from 103 to 56 miles, thus adversely affecting the natural flooding of the floodplain and historic wetland conditions. This restoration project aimed to rectify this problem.

C-38 included a set of locks and a straight transport route along the shortened run of the river. Water control structures and locks were constructed along the canal. Intended to provide flood and water controls for the upper and lower basins, it also led to an increase in organic deposits and reduced levels of dissolved oxygen in the river, as well as diminished habitat for shorebirds and invertebrates, including native clams.

Twenty-five measurable success indicators were established for the effort, and innovative construction techniques used during the effort increased the efficiency and reduced environmental impacts downstream of the project. Construction included backfilling approximately 22 miles of the C-38 Canal, excavating approximately 12 miles of new river channel to provide hydrologic connection, and removal of 2 water control structures and locks in the backfilled sections.

The KRR project restores natural flooding of the floodplain to reestablish historic wetland conditions. Comprehensive monitoring has documented that the river and its floodplain have improved in remarkable ways. Aquatic wading bird and duck populations in the restored river and floodplain region have soared. Shorebird species have also returned. Organic deposits on the river bottom have decreased by 71 percent, and reestablished sand bars provide new habitat for native species. Perhaps most important, dissolved oxygen levels have increased to a range normally observed in minimally impacted Florida streams, a critical criteria for long-term survival of fish and other aquatic organisms.

**OWNER:**

South Florida Water Management District

**DESIGN DISTRICT:**

Jacksonville District, U.S. Army Corps of Engineers

**CONTRACTOR:**

WRS Infrastructure and Environment, Inc.

BY PRODUCING A MORE NATURAL RIVER ENVIRONMENT CONSISTENT WITH ITS SETTING, THIS PROJECT DEMONSTRATES THE BENEFITS OF HIGH-LEVEL INTERDISCIPLINARY PARTNERING AND HAS RESULTED IN A RETURN OF NATIVE WILDLIFE WITH BEAUTIFUL RESULTS.

**JURY COMMENT**





## Alabama Living Shorelines General Permit

In the aftermath of Hurricane Katrina, the ACE Mobile District (SAM)'s Coastal Alabama Team, realized an urgent need to streamline the process of permitting to protect shoreline resources. Collaborating with other State and Non-governmental agencies, SAM developed the Living Shorelines Regional General Permit (LSGP). The first general permit of its kind in the South Atlantic Division (SAD) and perhaps all of USACE, this permit addresses erosion and degradation of shorelines by providing for the long-term protection, restoration, and enhancement of stable and degraded shorelines with plants, stone, sand fill, and other natural materials. The Coastal Alabama Team expanded on the concept to include structural and non-structural alternatives. They made it applicable for use in freshwater and marine ecosystems, and useable by the private as well as public landowners. The permit makes the "living shorelines" approach a viable and attractive option for shoreline protection and rehabilitation, allowing applicants to avoid a lengthy and costly permit process.

Through several renewals of the Alabama general permit program, SAM recognized the need for a general permit that specifically addressed the needs of beach protection. The flooding devastation caused by Hurricane Katrina followed by the largest oil spill disaster in U.S. history set the stage for development of an abbreviated permit evaluation process for non-hardened shoreline protection. In collaboration with the State and others, the USACE Coastal Alabama Team went to work on the parameter of the permit.

Their solution was to develop an expedited process for the creation of living shorelines that restore habitat or enhance natural processes presently occurring. Recommended for use in areas subjected to scour, erosion, sloughing, high energy wave action, storm damage, and other similar issues, the LSGP allows restoration, with focus on a minimalistic, naturalized approach. It emphasizes limited or temporary structural enhancement in order to achieve a self-sustaining, stabilized

shoreline in lieu of the traditional hardened stabilization methods (e.g., seawall, bulkhead revetments).

The LSGP provides an efficient and effective one-stop shop for shoreline protection and enhancement projects. For the majority of permit actions, additional agency coordination is not required, which greatly reduces permit evaluation time and expense. At the same time, the LSGP encourages protection and enhancement of aquatic natural resources based on best practices. Eliminating the need for securing multiple permits and cutting permitting time in half—from 120+ to 30 to 60 days—the LSGP greatly improves customer and stakeholder satisfaction by allowing work to begin sooner, cheaper, and ultimately, better—especially for the shorelines' long-term health.

**DESIGN DISTRICT:**

Mobile District, U.S. Army Corps of Engineers

THE LIVING SHORELINES GENERAL PERMIT IS A LEADING EFFORT TO FOSTER SUSTAINABLE DESIGN AND CONSTRUCTION AND CAN SERVE AS A MODEL TO ENCOURAGE LIVING SHORELINE PROTECTION IN OTHER AREAS.

**JURY COMMENT**



2007



2007



2012



2012





## High Performance Computing Green Team

The Department of Defense (DoD) operates five DoD Supercomputing Resource Centers (DSRCs) operated by the Army, Navy, and Air Force, and federated under the DoD High Performance Computing Modernization Program Office, which provides funding for procurement, operations, and maintenance. Housing some of the most powerful computers in the world, these centers consume significant amounts of electrical power—between two and five megawatts (MW) per hour. Sustainable growth in supercomputing power represents the most critical challenge to the five centers in the next 20 years. So, since 2009, an interagency team of supercomputing facility experts called the Facilities Community of Practice (COP), has been meeting regularly to develop sustainability improvements and energy efficiency enhancements. This green team has proposed numerous cost saving changes to supercomputing center infrastructure consistent with best practices.

As these practices have been implemented, each center has seen a marked increase in efficiency and cost savings.

The COP is currently led by the U.S. Army Engineer Research and Development Center (ERDC). ERDC hosts one of the five DSRCs and has experience developing energy conservation measures. Power consumption is planned to grow at a rate of 36 percent over the next five years. At this rate, the power consumed will more than triple by 2032; at five MW, a center's operation costs would grow from \$4M to near \$15M—or become more energy efficient.

One of the best practices recommended by the COP was the use of magnetic-levitation chiller compressors with economizers, which save approximately 30 percent on mechanical power consumption. Additionally, the COP implemented a requirement

that supercomputer vendors use high-voltage power supplies in systems they sell to the centers. COP-recommended savings efforts will be seen in the near future, as three of the five centers install water side economizers in FY12, resulting in a savings of \$225,000 per year at the ERDC site alone. Changes at the center at Maui in 2011 are estimated to save \$600,000 per year. As the recommendations continue to be implemented, savings continue to grow.

The COP is a highly effective strategy for promoting the pursuit of energy efficiencies in DoD's supercomputer centers. Where centers were once insular, the COP has emerged as a cooperative mechanism to combat the threat of rising energy costs and make sustainable energy a reality going forward.





## Bioremediation of Solvent-Contaminated Low-Permeability Zone

The Department of Defense (DoD) oversees numerous chlorine contaminated sites and aquifers on installations across the United States that require remediation. DoD's research and development (R&D) strategy is to address environmental needs through investments in technology, build partnerships, and accelerate the commercialization of technologies. In this spirit, Dr. David Gent entered into a Cooperative Research and Development Agreement (CRADA) between the U.S. Army Engineer Research and Development Center (ERDC) Environmental Laboratory (EL) and Geosyntec Consultants to hasten the transfer of a unique technology for amending low-permeability soils, termed EK-BIO™, an electrokinetics remediation technology (Figure 1) that DoD R&D developed to address the problem of bioremediation of solvent-contaminated areas.

The CRADA was initially developed to address problems at Hot Spot IV in Skudelev, Denmark. Dr. Gent developed a scope of work for a bench-scale treatability study conducted at Northeastern University, Boston, MA, and a full-scale pilot treatability study for implementation of EK-BIO™ at the Skudelev site. Traveling to Denmark, he assisted in the two week installation and startup of a field-scale pilot demonstration of his EK-BIO™ in situ remediation process.

The demonstration site is adjacent to a power transformer manufacturing company that poured waste cleaning solvent into the sewer system over 30 years ago. The EK-BIO™ treatment system operated for 60 days followed by a one-year evaluation. Results from soil core samples taken at the end of the test (60 days) showed a 4-log increase in gene copies/gram of soil based on *Dhc* and *VcrA* analysis. Organic acid anions (i.e., lactate and its biological breakdown products) increased from 8 to 380 mg/L in the soil. Chloride in the monitoring wells increased from 40 to 290 mg/L, indicating dechlorination of the PCE.

This technology treats contaminants in place, eliminating the need to remove contaminated soil from a site to a hazardous waste landfill. The Air Force alone can spend over \$15 billion on typical remediation strategies, and depending on the site conditions, the EK system would cost about half of what the typical "pump and treat" or "dig and haul" remediation operations would cost.

**OWNER:**

The Capital Region of Denmark

**DISTRICT:**

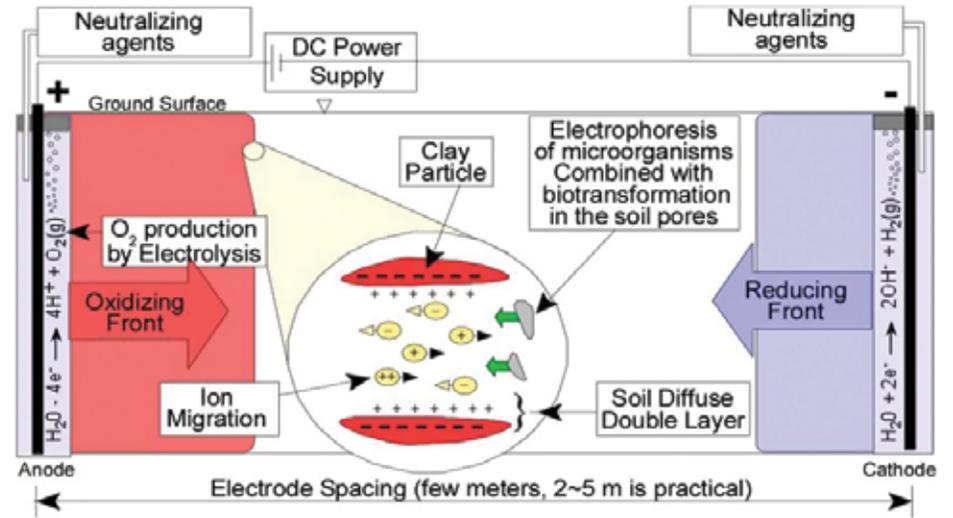
U.S. Army Engineering Research and Development Center - U.S. Army Environmental Laboratory

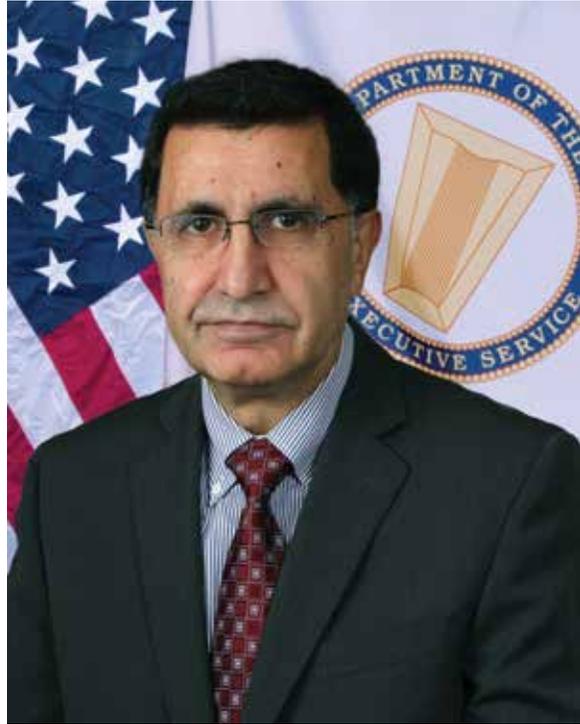
**CONTRACTOR:**

NIRAS

THIS MULTIAGENCY DEVELOPMENT OF AN INNOVATIVE TECHNOLOGY UTILIZES NATURAL MICROORGANISMS IN A WAY THAT COULD TRANSFORM HOW THE FEDERAL COMMUNITY HANDLES CONTAMINATED SOILS.

**JURY COMMENT**





**Dr. Ilker Adiguzel**

Richly deserving of the Chief of Engineers Sustainability Hero Award, Dr. Ilker Adiguzel is a strong champion and change agent for energy and sustainability. An influential technical leader within USACE, Army, and Department of Defense (DoD), he is also a global voice in the sustainability movement. He has delivered keynote speeches at international conferences and provides leadership in his local community. Recipient of the Civil and Environmental Engineering Distinguished Alumnus Award for 2011, he is a tireless advocate for students who are underrepresented in engineering. Dr. Adiguzel is truly a sustainability champion.



**Sven Lie**

Supervisor of the Electrical/Mechanical Section of Design Branch, Engineering Division of the Seattle USACE District, Sven Lie has a well-earned reputation for capturing sustainability in program and project development. Maintaining a high-level view, Sven also focuses on the details that achieve tangible results. Cost is often the primary limiting factor in sustainable design, so Sven has developed techniques for improving cost-effectiveness. He has also developed techniques for reviewing claims of energy-use reductions submitted by others. Through his combination of innovation and critical examination of sustainable practices throughout his district, he exemplifies the USACE value of pursuing and verifying energy efficiency and sustainability efforts, making him a true sustainability hero.



**Karl von Rosenberg, P.E., PMP**

*Program Manager, National Park Service*

Mr. von Rosenberg began his career in civil engineering in the design group for earth dams with the Bureau of Reclamation. He soon moved to the National Park Service, where he has managed many unique engineering and architectural projects. Projects have included upgrades to the trans-canyon water system in the Grand Canyon and replacing mechanical and electrical systems at Independence Hall in Philadelphia. He is currently Program Manager for the project to restore the Elwha River ecosystem and fisheries in Olympic National Park. The project is the largest dam removal ever implemented, with removal of two large dams and multiple associated facilities to protect life safety, fisheries, and water quality.



**Lance Davis, AIA, LEED AP**

*U.S. General Services Administration*

Lance Davis is the Program Manager for Design Excellence Architecture + Sustainability for the Chief Architect's Office within GSA's Public Buildings Service (PBS) in Washington, DC. His sustainable expertise focuses on gaining knowledge, educating GSA and its client agencies on best practices and a broader concept of sustainability. He helped author and publish Sustainability Matters that provides examples of GSA's progress toward sustainability to date. Mr. Davis's experience also includes twelve years as an architect focused on integrated sustainable design. Mr. Davis's more prominent architectural work includes the Korean War Veteran's Memorial, the U.S. Capitol Visitor Center, and the Walter Reed Community Center in Arlington, VA which achieved a LEED Silver rating. He has a Bachelor of Architecture from Mississippi State University, is a member of the American Institute of Architects, AIA Committee On The Environment, a founding Board Member of the National Capital Region Chapter of the USGBC, a committee author for the new LEED EB: Operations and Maintenance, and he is a LEED Accredited Professional.



**Sarosh Olpadwala, LEED AP**

*Director, Sustainability and Capital Placement*

Sarosh Olpadwala is a Director with Norcross Boldt, a full service commercial advisory firm specializing in real estate, renewable energy and government markets. His career has spanned both the public and private sector, including positions with Clark Construction Group, Cherokee Investment Partners and the U.S. General Services Administration (GSA).

Returning to DC after his MBA, he joined the GSA in a Recovery Act funded position with the Office of Federal High Performance Green Buildings. In this role he developed government-wide policies on enterprise carbon accounting and green leasing, helped start the GSA's Green Proving Grounds program and managed GSA's participation in the Global Superior Energy Performance program piloting ISO's 5001 continuous energy improvement standard. Mr. Olpadwala is active in the Cornell Real Estate Council, and is currently serving on the Executive Committee of the DC Building Industry Association (DCBIA) Leaders in Development group and the Board of Directors for the Cross Laminated Buildings Industry Association. Outside of the industry he is a reserve firefighter and Trustee with the Varna Volunteer Fire Department, Past-President Cayuga Heights Fire Company and Past-President Zoroastrian Association of Metropolitan Washington, DC.



**Rodney L. Swink, FASLA, PLA**

*Past President, American Society of Landscape Architects*

Mr. Swink has had an award winning career working with communities interested in revitalization and redevelopment. He directed the North Carolina Main Street Program in the Department of Commerce for twenty-four years, guiding and facilitating efforts in 57 designated North Carolina Main Street towns plus countless others across the state and nation. Through the Office of Rodney Swink he continues to consult with communities interested in creating better futures, while also serving as Professor of the Practice at the North Carolina State University College of Design.

Mr. Swink is a past president of the American Society of Landscape Architects and past chair of the ASLA Council of Fellows. Currently he serves on the boards of Preservation North Carolina, the Caldwell Fellows Alumni Society, and the North Carolina Partners of the Americas. Named the 2004 Distinguished Alumnus of the NCSU College of Design, Swink has a B.A. in Economics and a Masters in Landscape Architecture, both from North Carolina State University.



**Dr. Raj Barr, FAIA, RIBA, IIDA**

*Barr Architects*

An architect, interior designer and environmentalist, and President of Barr Group International LLC and Barr-Kumar Architects Engineers PC, established in Washington, DC in 1981. A Pioneer of sustainable design, he is internationally renowned for his environmentally sensitive design. Project experience includes Hyatt Regency and Hilton Hotels, the Eco-Maya Condominiums in Playa del Carmen Mexico, the Altos Escondidos Eco Development in Panama, the Cortlandt Medical Center in New York, the World Bank and Embassy of Trinidad and Tobago in Washington, DC, The York District General Hospital in England, and prototypical building types for the US Army worldwide.

In 1997 Dr. Barr became the National President of American Institute of Architects. Dr. Barr has served as keynote speaker at international symposia, and provided expert testimony to the U.S. Congress. He has lectured at numerous Universities including Harvard, Yale, Princeton, London, Oxford, Singapore and Hong Kong. A graduate of the University of Ceylon, he earned his post-graduate degrees from the University of London and the University of Kansas. He earned his Architecture Doctorate in Sustainable Design from the University of Hawaii.



**Brendan Owens, LEED AP, P.E.**

*Vice-President, LEED Technical Development, United States Green Building Council*

Mr. Owens is USGBC's vice president of LEED® technical development. In this role, he collaborates with volunteer technical committees to evolve and refine USGBC's LEED Green Building Rating System. During his time at USGBC, Mr. Owens has led development activities for several LEED rating systems and is currently focused on development of LEED v4.

Mr. Owens represents USGBC on the executive committee for ASHRAE/IES/USGBC Standard 189.1 and is the liaison to the International Code Council for the International Green Construction Code. He is also on the board of directors for the New Buildings Institute. Prior to joining USGBC, he worked designing, implementing and verifying performance contract based energy conservation projects in existing buildings.

Mr. Owens is a LEED Accredited Professional and a licensed Professional Engineer. He received his Bachelor of Science in Engineering from Purdue University in West Lafayette, IN.

