



THE SOCIETY OF AMERICAN MILITARY ENGINEERS

# ARCHITECTURAL PRACTICE COMMITTEE

## QUARTERLY JOURNAL

### AN INTERVIEW WITH

# ANDY TEMEYER: 2015 USACE ARCHITECT OF THE YEAR

The U.S. Army Corps of Engineers sponsors annual awards recognizing the Architect, Interior Designer, and Landscape Architect of the Year for contributions of excellence in those respective fields as well as the nominees' contributions to their profession and community.

The evaluation factors are: Performance and Recognition including awards, performance ratings, positions, and honors received in the last three years; Specific Contributions defining excellence in each profession including design excellence, continuing education efforts, partnering experience, and service to the customer; Leadership in career development of others; and Professional Contributions to respective professions within and outside USACE including membership and participation in professional societies, teaching, publication writing, and guest speaking.

As one of the resident "old guy" architects in USACE, I've had more than one discussion on the future of our profession and our organization. Our organization, like so many others, suffered through an extended hiring freeze, creating a gap in the continuity of age and experience within the profession and the enterprise. I began to wonder whether there was any hope for our future. If the 2015 USACE Architect of the Year, Andy Temeyer, is any indication of this generation's potential, THERE IS HOPE!!!

**DP:** You've been an architect with the Omaha District since 2009. Did you choose USACE or did USACE choose you?

**AT:** I graduated from Iowa State University in the spring of 2009. Not a good time to be looking for a job in architecture! From what my professors had told me, there were a grand total of 7 job offers made to all architectural students graduating that spring (approximately 70 of us). I was fortunate enough to have 2 of those offers.

One was at a relatively small AE firm in Council Bluffs and the other was with USACE – Omaha District. The small private firm had employed me as an intern since my first summer after college. I had truly enjoyed working for them, but I felt that the projects, resources, and initiatives that USACE had to offer were something that directly aligned with my current interests and ambitions. While it was one of the most difficult decisions that I had ever made, I ended up taking the job with USACE. I have certainly enjoyed working for USACE over the past 6-7 years, but my initial experiences in the private sector are something that has served my projects and myself very well.

So, to answer the initial question, I chose USACE!

**DP:** What influenced/informed your career choice? Who are your architecture heroes? Where is the magic?



**Andy Temeyer**  
2015 USACE Architect  
of the Year



**David Packard, RA, PMP**  
APC Communications  
Vice Chair

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# WELCOME LETTER



**Daphne I. Gurri,**  
**AIA, LEED AP**

*APC SAME Liaison Coordinator*

## **Why** do you do **What** you do?

When I was 17, I remember looking at a house in my neighborhood in Miami, Florida thinking to myself, those windows and doors have such a squatty proportion and make that house look ugly. Another day I found myself looking at a series of one story commercial buildings that lined up Miracle Mile in Coral Gables and wondering, what could make this outdoor mall better? Why did the famous Lincoln Road on Miami Beach fail so miserably in the 1970's and 1980's, and what make it come alive again in the early 1990's? I didn't know that I was going to be an architect when I was 17, but I somehow stumbled on the realization that I wanted to improve the built environment. Isn't this why we all studied architecture? Don't all of us architects share in the desire to make this world and our environment a better place? So what happened?

Life got in the way. I went to college and got my architectural license (fast and furious) and was ready to change the world, or at least my own city. But, then I started working, got married, had three children, drove a lot to ballet competitions (confessions of an ex-dance mom), drove a lot to tutors, karate, baseball, gymnastics... OH MY GOD it never seemed to stop! My weekends were more tiring than any weekday. Yet, since being a working mom wasn't enough, I taught architectural design at Florida International University for 8 years, and then started my sole proprietorship business as an architect in 1996. In a more recent phase of my Life, I took care of my

aging parents for more than 6 years until they both passed away.

What happened to attending lectures on a Thursday night, or going to an art gallery opening on a Friday night? What happened to the stimulating conversations about architecture that happened on the rooftop of the University of Miami's School of Architecture at 3:00am before your final pin-up at 9:30am the next day? I didn't see what was happening because I was too busy with Life.

I took over my Life and reset it after my mother passed away on April 14, 2014. I realized that I was intellectually and socially starved by my Life and decided to do something about that like NOW. At that moment, I was a very mediocre and uninteresting member of SAME. Although I had joined SAME in 2012, I let my membership lapse in 2013 and only attended one luncheon of my South Florida Post in the entire year. After my mother's passing in April 2014, I had heard about the SAME JETC conference that was going to be held in May 2014 in Orlando, Florida and literally in the heat of the moment I made a split second decision on the first day of the conference, Tuesday, May 20th, 2014 to attend the JETC conference. My husband was OK but surprised at my quick decision, and my kids were a little bit shocked and somewhat angry that I just took off without saying goodbye! I just packed a few things and drove for 4 hours from Miami to Orlando. I arrived late to the conference, and didn't even know there was a black tie dinner event on the last day of the JETC. (The real truth is that I was still in shock and

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grieving the loss of my mother. I was emotionally numb and I had forgotten how to socialize). When I arrived to the Orlando Convention Center, I walked up to the SAME registration counter and asked the wonderful ladies with red SAME shirts if I could still register late. And of course, I did register late. They gave me a pep talk and insisted that I had to attend the black tie event even if I didn't have an evening dress or a date.

My Life started to change with my first step in that JETC event in Orlando. It is in this JETC event where I met for the first time the key members of SAME's Architectural Practice Committee: JJ. Tang, Dave Packard, Yvonne Lee, Rad Delaney, Paula Loomis, Ed Gauvreau..... I still remember Dave's infectious smile as he introduced me to everyone and somehow made me feel as if I was his old college friend. In the JETC, I attended architectural seminars and conferences that were relevant and very interesting to me. It was also great to meet and see architects in governmental capacities that have the ability to forge government policy and effect positive change on the built environment. It was a great discovery and I had a wonderful time. I met a group of people across this country that shared in my interest to discuss important topics. Immediately, I felt a

connection to "Why I do What I do"...

The Architectural Practice Committee (APC) is not only a great way to meet other architects nationwide and to connect intellectually and discuss issues and possible design solutions, but the APC is also a great way to give back too. The APC has multiple goals: expand the influence of architects in SAME, give back to the community by encouraging young students to enter into STEM Careers, and sharing ideas amongst other architects through webinars and live seminars. Life goes by quick, and we must enjoy our spouses, children and parents, but there is a reason why we decided to do what we do. The APC is a great beginning to engage with other like-minded architects in the United States or abroad to discuss innovative design solutions to common problems related to the built environment. However, my favorite part being a member of APC is the new friends I've made so far.

If you're ready to reconnect with your passion of architecture, join us in the APC.

Send me a message through my LinkedIn profile: Daphne Gurri Matute or email me at

[gurrimatutepa@gmail.com](mailto:gurrimatutepa@gmail.com)

Yours Truly,



# NEXT QUARTERLY CALL



**Lance Marrano**  
*Program Manager, USACE*

The Architectural Practice Committee will host a quarterly conference call on **Thursday, October 29, 2015 from 12:00 – 1:15 pm EDT**. For web connection, go to: <https://www.spiderphone.com/05698937> (This link will help connect both your browser) and **dial +1 212-812-2800** and **enter 0569 8937** for phone connection.

Time:  
12:00 to 13:15, Eastern  
11:00 to 12:15, Central  
10:00 to 11:15, Mountain  
09:00 to 10:15, Pacific  
08:00 to 09:15, Alaska  
07:00 to 08:15, Hawaii

The agenda for the quarterly conference call includes an update on committee focus area initiatives, open discussion, and 1 AIA LU/HSW/SD credited presentation.

The AIA credited presentation will be given by **Lance Marrano, U.S. Army Corps of Engineers**, titled **“Solving the Mystery of U.S. Army Corps of Engineers Research Labs”**.

Mr. Marrano will present a session geared to all architects in small and large firms to gain a greater understanding of the building technology mission of the Construction Engineering Research Laboratory, as well as its development of a comprehensive life cycle Sustainment Management System (SMS). AIA Learning Objectives include: 1) Understand the mission of CERL and its role in serving public interest in the built environment, both through material studies and technology development; 2) Gain a comprehensive understanding of the size and scope of the current DoD facility portfolio and the increasing

need for accurate facility data tracking; 3) Analyze the different modules under the umbrella of a Sustainment Management System (SMS) and understand how they are interrelated for all assets at an installation or base; and 4) Understand the functions of BUILDER and how to utilize it from planning through decommissioning of a facility.

Mr. Marrano is the Program Manager for the Sustainment Management Systems (SMS), a Government Off-The-Shelf (GOTS) suite of tools that assists facility management professionals with efficient, objective, and repeatable assessments and a configurable rules-based approach to forecasting investment requirements that enforces consistent performance standards across the enterprise. The SMS are developed by the CERL, part of US Army Corps of Engineers Engineer Research and Development Center (ERDC). Growing adoption of the SMS across the Department of Defense culminated in a September 2013 policy memo from the Under Secretary of Defense, Acquisitions, Technology, and Logistics directing all military components to adopt the SMS and complete implementation by 2018.

Mr. Marrano has more than a decade of experience developing software systems with the US Army Corps of Engineers. Mr. Marrano graduated in 1997 with a Bachelor of Science degree in Civil Engineering from the University of Illinois and joined CERL as a research assistant while pursuing interdisciplinary graduate studies in architecture, computer science, and civil engineering. In his early work with Computerized



Maintenance Management Systems (CMMS), he helped to upgrade maintenance systems for several DoD installations and was instrumental in performing maintenance management systems upgrades for Y2K readiness for the Bureau of Reclamation at 18 major hydroelectric sites in the western United States. Since 2000, Mr. Marrano has been a member of ERDC-CERL's SMS team. He became a product manager for the BUILDER™ module in 2003 and was named the SMS Program Manager in 2007. He has been recognized as a named inventor on two of three patents awarded to BUILDER product innovations. Mr. Marrano was honored as a USACE Emerging Leader in 2009. With his fellow team members, he received CERL's James D. Prendergast Technology Transfer Achievement Award (2009, 2011) and the ERDC Award for Outstanding Achievement in Technology Transfer (2009, 2011). Under his direction, the BUILDER technology has received an honorable mention for GSA Real Property Innovation Achievement (2011) and a FIATECH Celebration of Engineering & Technology Innovation (CETI) award (2011). Most recently, his team received the USACE Innovation of the Year Award (2013) for their successful efforts to develop USACE districts' capabilities to support DoD agencies in the SMS implementation programs. Mr. Marrano has received the Achievement Medal for Civilian Service (2009), the Commander's Award for Civilian Service (2010 and 2012), and the Superior Civilian Service Medal (2013).



## **US ARMY CORPS OF ENGINEERS**

### *CONSTRUCTION ENGINEERING RESEARCH LABORATORY (CERL)*

#### **Mission**

Develop and infuse innovative technologies to provide excellent facilities and realistic training lands for the Department of Defense, the U.S. Army and many other customers while also supporting ERDC's research and development mission in geospatial research and engineering, military engineering, and civil works.

#### **Service and Support**

Products and services from CERL research enhance the Army's ability to design, build, operate and maintain its installations and contingency bases and ensure environmental quality at the lowest life-cycle cost. An active technology transfer program ensures these products and services receive the widest dissemination among prospective users.

CERL researchers work in collaboration with other ERDC labs and with partners in government, industry and academia. This helps CERL develop technologies for the U.S. Army's current and future force as well as the private and public sectors where no similar applications and capabilities exist. While the CERL program centers on military installations, contingency bases, and sustainable ranges and lands, additional focus areas include enhancing socio-cultural understanding in theater operations and improving civil works facilities and infrastructure. The laboratory also conducts research on Resilient Facilities and Infrastructure; Smart Sustainable Materials; Installation Decision Support; and Urban and Stability Operations.

For more information about the US Army Corps of Engineers CERL please visit: <http://www.erd.usace.army.mil/Locations/ConstructionEngineeringResearchLaboratory.aspx>

# LAST QUARTERLY CALL

## *Department of the Navy Housing Privatization*

Architectural Practice Committee Chair, JJ Tang, opened the call with introductions and reviewed actions by all APC Committee Vice Chairs. Of primary importance was the development of a new Strategic Plan by SAME leaders. JJ asked that all APC leaders carefully consider our mission and work with him to develop a succinct objective or objectives based on our committee's role within the organization. Subsequently, the leadership developed two specific objectives:

- Promote, encourage, and enhance the participation of architectural professional within the Society through networking, mentoring, and professional developmental opportunities.
- Broaden the Society's exposure in the architectural community through collaboration with the American Institute of Architects.

These objectives were shared with SAME Executive Director Joe Schroedel during the Post Leaders' Workshop held in Alexandria, Virginia on September 20-22.

The AIA credited presentation was be shared by **Bob Harris, AIA, CFM, LEED-AP** and **Paul C. Macpherson, CPM**.

Bob's program, intended to focus on the involvement of architects in Public-Private Ventures at Naval installations, began with a history of DoD housing programs prior to privatization. You know... the housing that many of us identify from the 50's and 60's and prior. In an effort to overcome inadequate housing programs and to improve (speed) the process, legislation enacted in 1996 was developed to attract private sector financing, expertise, and innovation. While changes did not occur overnight, the investment by DoD has resulted in significant improvements in housing for both families and unaccompanied personnel. Energy efficiency and sustainability components are evident in many current projects.

Paul Macpherson's presentation addressed the Department of Veterans Affairs (VA) Enhanced-Use Lease (EUL) Authority, enacted in 1991 and renewed in 2001. The program continues to evolve as the VA seeks to broaden current EUL authority. The public-private partnership resulting from the EUL authority is intended to allow the VA to offer enhanced services

to Veterans while the current program is limited to "supportive housing" only...that is, housing that engages tenants in on-site and community-based support services for veterans or their families at risk of becoming homeless or those that ARE homeless.

Both programs have demonstrated significant successes. If you would like additional information on the great work these organizations are doing, visit the APC webpage at <http://www.same.org/apc> for copies of all slides. Many thanks to Bob and Paul for a great presentation!



# UPCOMING CONFERENCES

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## OCTOBER 2015

**Webinar: Post Leaders Best Practice: How to Manage Your Sustaining Membership**

October 21  
(virtual)

**SAME Virginia Peninsula Post Industry Day**

October 23  
Kiln Creek Golf Club and Resort  
Newport News, VA

**Sustainable Remediation Practices**

October 27  
(virtual)

## NOVEMBER 2015

**Continuing Education Program - New Orleans**

November 3  
New Orleans Convention Center  
New Orleans, LA

**Small Business Conference**

November 4-6  
New Orleans, LA

**Webinar: Your Automating Green Practice**

November 12  
(virtual)

## DECEMBER 2015

**Webinar: Build Powerful Relationships that Improve Your Business**

December 3  
(virtual)

**SAME Cincinnati Post Industry Day / Veteran Business Outreach**

December 3  
Hyatt Regency,  
Cincinnati, OH

**Webinar: Integrating Social Media to Your Firm's Communications**

December 8  
(virtual)

**SAME Jacksonville Post Industry Forum**

December 9  
UNF University Center  
Jacksonville, FL

For more information on upcoming SAME events, please visit:  
<http://www.same.org/index.php/events/calendar-of-events>



# COLLABORATION WITH AIA



**Ed Gauvreau, AIA**

*2015 Chair, AIA Public  
Architects Knowledge Community*

## **Welcome from the AIA Public Architects Knowledge Community**

Our partnering agreement with the Society of American Military Engineers (SAME) Architecture Practice Committee (APC) is starting to bear fruit. Both AIA and SAME are sharing articles for our respective publications – theirs for *The Cornerstone*, ours for the APC Journal. Several SAME APC members have expressed interest in joining the PAKC group; I will become the SAME liaison to AIA in May 2016 but expect to transition after January 1st. We have initiated conversations to share our respective professional education sessions, which will expand the offerings of education to both groups.

In March I was honored to represent AIA at SAME's Golden Eagle Awards Banquet. One of this year's recipients was Suzanne DiGeronimo, FAIA, FSAME, who has spent her entire career supporting quality architectural practice for the Department of Defense as well as a pioneer for women in SAME. As a long time colleague and friend, I was humbled by being able to honor Suzanne as she received the Golden Eagle.

Public Architects had a significant presence at the 2015 AIA National Convention in Atlanta this past May. The two half-day sessions of the Public Architects Workshop were extremely well attended, with a roughly 50/50 split between public and private sector architects. This split continues to encourage me and the rest of our community to broaden our opportunities to educate and embrace the rest of our profession. I wish to again thank David Trevino,

FAIA, for chairing this year's PAW, and our session moderators Catherine Chan, AIA and Casey Martin, AIA. We had an excellent reception at Heery International's headquarters near the Convention Center where we all had a chance to relax before Convention swung into full gear. On the last day of Convention, I moderated two public owners' sessions to discuss both how to gain public work and how to retain public work. While the attendance was not quite what we hoped for, a good time was had by both panelists and attendees as we laughed and learned our way; we hope to improve on this topic for the 2016 Convention.

In July, David Trevino, Lee Solomon, AIA and I attended AIA's Knowledge Leadership Assembly held in Denver. KLA is the one opportunity for all AIA Knowledge Communities to meet and interface with each other to share best practices, build relationships and future directions along with AIA Staff. This year AIA chose a whole new direction by holding 30 minute sessions on multiple and myriad topics – the equivalent of speed dating among 22 KCs and over 100 attendees, including both Elizabeth Chu Richter, FAIA, 2015 President, and Russell Davidson, FAIA, 2016 President. We made numerous connections for initiatives between KCs and with AIA Staff to help Public Architects move forward. Lee Solomon has eagerly accepted the challenge and will be reaching out to many of you to support a whole new set of initiatives.

While we do not have any formal events for the rest of this year, I solicit your suggestions about possible fall activities. We want reach out



to our SAME colleagues and ask how we can best participate in joint activities, including the Small Business Conference this November in New Orleans. The linkages that already exist between local chapters of AIA and SAME are great, and wish to expand those linkages to improve architectural practice for the military and open practice opportunities. The Federal Government Task Force is reviewing options on design-

build, statutory limit on A-E design fees, and other issues – Paula Loomis, FAIA and I are providing valuable input to AIA on how to approach these and other issues. The Institutional Membership Task Force has done a great deal of research and discussion on the charge to determine a possible category of agency membership, with formal proposals coming later this year. I can say that the conversation has been spirited and

enlightening for the entire group, using that input to create a better proposal that will benefit the entire AIA.

Time to let the rest of the community speak up! Please feel free to contact me at either [Edmond.g.gauvreau@usace.army.mil](mailto:Edmond.g.gauvreau@usace.army.mil) or [sixofone57@gmail.com](mailto:sixofone57@gmail.com).

Go forth and excel!

## ARCHITECT'S FIELD SKETCH CORNER

In today's architectural practice, architectural design concepts have been conveyed predominately through computer images to others. Even though these images can offer us very realistic feel for our design, but what is missing in most cases is the connection between the artistic emotion of an architect and his design product. To that end, architect's freehand sketches are the most direct translation of his design thought and emotion on paper. Therefore, it is more intimate and closer to our hearts.

- JJ Tang, AIA, APC Committee Chair

*This edition of the Architect's Field Sketch is by Steven Kalkman, AIA, NCARB, GGP.*

*If you are interested in submitting a hand sketch please send your scanned image(s) to [ysimon@stoaarchitects.com](mailto:ysimon@stoaarchitects.com)*



# Collaboration Benefits Both SAME & AIA

## *Omaha Post & South West Iowa AIA Chapter*



**David Packard, RA, PMP**  
*APC Communications*  
*Vice Chair*

In recent months, I have shared the news that the Omaha Post and the South West Iowa Chapter of the American Institute of Architects have developed a strong relationship through shared interest in professional development for members of both organizations. Monthly "Dine and Discover" sessions, originated through the AIA, are now co-sponsored by the Omaha Post. Product vendors complete the requirements for AIA accreditation on technical topics similar to presentations many of you may have experienced in your own communities. The emergence of the SAME/AIA alliance has energized the leadership of both organizations resulting in exploration of other educational (and social) opportunities.

One such opportunity arose recently when the Presidents of the South West Iowa Chapter of the AIA and the SAME Omaha Post discussed the idea of an autumn site visit to Omaha's Henry Doorly Zoo and Aquarium. The Henry Doorly Zoo is rated by many as the #1 zoo in the nation and in the world by TripAdvisor. Their most recent addition is the construction of a \$73M, 28-acre African Grasslands project, the largest construction project in the history of the zoo. The development includes Elephant Family Quarters,

African Lodge, and Giraffe Herd Rooms. On Friday, September 25, 2015, 20+ architects gathered to tour the active construction site. Zoo and construction contractor staff members helped explain the challenges of the human/animal interface and the animals' need for a natural environment. They also discussed phasing requirements which allowed for construction of all facilities within the operating facility environment, working to minimize impacts and disruption for the animals, keepers, and visitors. Design features of the entire facility offered insight into the special design features required by this unique customer.

Future programs involving both organizations are being explored, including the Omaha Post's annual Industry Day and programs for the General Membership during monthly Omaha Post luncheon programs. The AIA has graciously supported SAME efforts by assisting in the preparation of the AIA CES Course Submission Template and approval process. SAME is grateful for the assistance we received from the AIA and Henry Doorly Zoo and Aquarium staff. We were so well-behaved that we've been invited back to tour the second phase of the project, due to be completed in May 2016.



# COMMITTEE LIAISONS

The APC liaisons help coordinate architectural programs within their local SAME post as well as coordinating shared programs between SAME and local architectural organizations.

If you are interested in becoming a SAME Architectural Liaison, please contact Daphne for more information: [gurrimatutepa@gmail.com](mailto:gurrimatutepa@gmail.com)

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Air Force	Gene Mesick, AFCEC	gene.mesick@us.af.mil	
Post	Name	Email	Company
Alaska	Harley Hightower, FAIA	hhh@gci.net	Harley Hightower
Albuquerque	Jim Oswald	jim.oschwald@urs.com	URS
Baltimore	Bill McCarthy	bmccarthy@rtkl.com	RTKL
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# FEATURE FIRM

## **A Giant in the Industry** **BD+C Magazine Ranks HDR #1 Military Design Firm**

Building Design +Construction magazine (BD+C) has released its 2015 Giants 300 Report, ranking the nation's largest military sector architecture firms. HDR fills the #1 spot with over \$26 million in annual military revenue. We think you'll understand why. HDR's military work extends across nearly all top tier government agencies, with the most recent contract awarded for the \$1 billion National Geospatial-Intelligence Agency (NGA) secure campus project through the U.S. Army Corps of Engineers, St. Louis region. Below are three examples of the recent military projects design completed by HDR.



*Figure 1 Ft. Bliss Army Medical Center*



*Figure 2 USSTRATCOM Headquarters*



*Figure 3 Ft. Carson 13th Combat Aviation Brigade BEQ Complex*



# Homeport Ashore Housing

## *Efficiency via TOC Process*



*Photograph copyrighted Aerophoto America*

### **Project Summary**

Willis Manor, named for the WWII Medal of Honor Winner, was procured as Design-Build P-123 Bachelor Quarters, Homeport Ashore Norfolk Naval Station (N40085-11-C-4572). The Clark Construction/LS3P design team was awarded the project as the first NAVFAC MIDLANT project evaluated for Total Ownership Cost (TOC). For the design-build team, P-123 represents the culmination of 12 years of involvement in design-build competition and delivery for NAVFAC and USACE. Many Clark Construction/LS3P projects have included BEQs and barracks, and the team has developed a wealth of knowledge in appropriate systems selection and implementation.

The facility includes state of the art energy efficiency systems selected via analyzing the TOC over the 40 year life cycle in the design/build award evaluation. This strategy allowed trade-off of first cost saving versus long-term energy costs. The resulting mechanical systems included a hybrid geothermal water source heat pump system. The hybrid system

optimized energy savings from ground-coupled heat exchangers for the majority of hours, without sizing the expensive well field for peak loads that only occur for a few hours of the year. The system also rejects energy from the dominant cooling load of the facility to preheat domestic water.

### **Architectural Goals and Features**

The architectural massing with linear wings on the east/west axis takes advantage of effective passive solar design, with only one side of the building receiving direct solar exposure at a time. This orientation allows individual dwelling unit heat pumps to share a common condenser water loop with beneficial load equalization. During the moderate parts of the annual solar/seasonal cycle, one side of the building is contributing heat to the loop and the other side is drawing heat from the loop.

A high-performance building envelope with air barrier and insulation performs 40% better than ASHRAE A90.1 requirements. The air barrier blower test

completed at commissioning provided significantly better results than RFP requirements.

## Integrated project delivery

The design-build team developed an Integrated Project Delivery protocol to bring together all elements of the project in an intensive multi-day design charrette, hosted at the geographically central Atlanta office of MEP consultant Newcomb & Boyd.

The mechanical system was conceived as a total system that would optimize energy efficiency, first cost, and operating cost to provide the best TOC. The initial design integrated all mechanical spaces and distribution paths.

Civil engineers mapped the geothermal well field for several scenarios, with the geothermal field contribution at 30, 50, 75, and 100% of the total load. At 100%, the well field consumed the total site area including planned contractor work/lay down areas, creating construction sequence and schedule issues which would have disrupted construction sequences and overall schedule.

## State of the Art Energy Systems

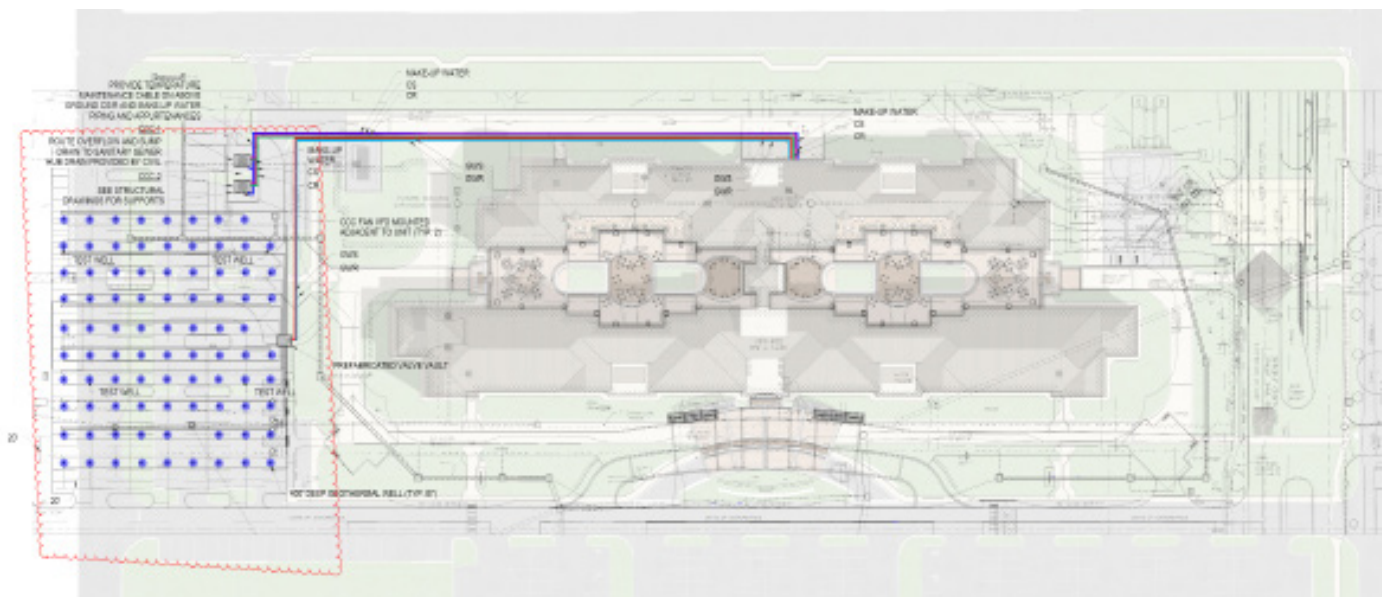
The HVAC system is a Hybrid Ground Source Heat Pump (HGSH) with geothermal well field, supplemental closed circuit cooling tower, and back-up boiler. The fully integrated solution takes advantage of the east-west building orientation and geothermal water source heat pump technology to produce optimum performance, minimum energy usage, minimum maintenance, and lowest TOC.

Energy recovery from simultaneous heating and cooling of the common water loop contributes to energy savings. In addition, compressor efficiency from low lift by transferring heat to the moderate earth temperatures further increases energy savings. The high-efficiency envelope design and the reduction of lighting loads also substantially reduce energy loads.

Energy Recovery Units recover heat from the exhaust air to pre-condition outside air. In the Willis Manor design, the Energy Recovery Units are also water cooled heat pumps connected to the geothermal loop, so they have the same efficiency improvements from the earth as the heat sink/source for the balance of outside air heating and cooling. The system includes variable speed drives for all pumps and fans.

The geothermal loop also produces domestic hot water pre-heating; dual use of the system to both increase HVAC performance and provide hot water pre-heating further enhances the benefits of this system. Compared with other systems such as VAV and VRF, the team found the HGSHS system to have the lowest 40-year life-cycle cost.

Adoption of ground-coupled heat pump systems has suffered over the years due to the high cost of the well field. Drilling, piping and grouting of the wells is expensive. When systems are designed to meet 100% of the peak heating and cooling load, the cost is often more than the project can bear. Also, in the southern states, cooling loads far exceed winter heating loads. This disparity leads to an imbalance of heat transferred to the earth in summer versus heat extracted from the earth in winter. Over the 40 year life of this project,



Hybrid Geothermal System Well Locations



the differential can lead to substantial increases in average earth temperature at the well field, which lowers the energy efficiency of the heat pumps and reduces system cooling capacity. A better, hybrid, approach uses fewer wells which are sized based on the goal of more evenly balancing annual heating and cooling heat transfer, with supplemental evaporative fluid coolers picking up the peak cooling loads and supplemental boilers picking up the peak heating load when the well field is unable to meet the demand.

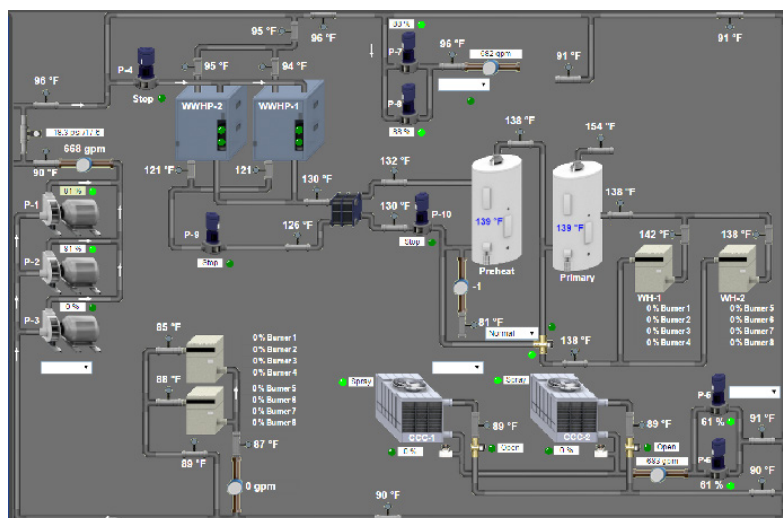
The lowest TOC resulted from a system with a well field sized for approximately 50% of peak cooling loads. This approach cut the size of the well field in half, substantially reducing first cost while maintaining most of the energy savings since the number of hours the system operates at peak cooling or heating load is relatively small as a 24/7 operations building.

## Sustainment

In addition to substantial energy savings, the HGSHP system offers numerous advantages from a sustainment cost viewpoint. First, all cooling is provided by the geothermal well field in conjunction with a supplemental evaporative fluid cooler. The geothermal well field is a network of underground fused polymer piping that requires no maintenance and is considered to have a life of 50 years. Similar to a closed chilled water system, only normal periodic closed water loop water treatment is required. By the nature of its occupancy and use patterns, a BQ will rarely operate at full cooling capacity. Most of the time the geothermal well field should be able to handle the load, reducing the run time and maintenance cost of the fluid cooler. Stainless steel basin construction will extend the life of the fluid cooler.

The water source heat pumps are installed in corridor-accessible closets for easy maintenance. Each heat pump is connected to geothermal loop piping risers via isolation valves and flexible hoses. If a problem develops that cannot be readily repaired in place, the heat pump can easily be disconnected and replaced by a spare unit by maintenance personnel with a hand truck, without draining and refilling the entire system.

Energy recovery outside air units are provided with fully hinged, easy-access doors for service and include clearances meeting or exceeding manufacturer's recommendations. With heat pumps connected to the geothermal loop, the refrigeration systems are subject to less extreme operating conditions. Cooling/heating



*Hybrid Geothermal Loop Commissioning Screenshot*

is done by refrigerant DX cooling and reheat coils, thus avoiding concerns for freeze protection of the outdoor air coils.

## Water Heating Systems

Domestic hot water heating comprises a very significant portion of the total energy consumption for this type of facility. Water-to-water heat pumps connected to the geothermal loop will handle a significant portion of heating of domestic water. During cooling mode, which is most of the time, the energy extracted from the geothermal loop is actually recovered from the space-cooling heat rejection without imposing a load on the well field. Supplemental domestic water heating needed during morning peak conditions will be provided with modular condensing boiler type natural gas water heaters with no less than 95% efficiency. Supplemental condensing water heaters are stand-alone boilers with separate large hot water storage tanks. This system allows simple replacement of the boiler at the end of its life without disturbing piping or large storage tanks.

## Start-up and Commissioning

The official ribbon cutting for the facility took place on September 3, 2015 so actual operating data is not yet available. During system start-up and commissioning the system performed exactly as expected. During mid-July with outdoor conditions exceeding ASHRAE design day conditions, the system can be seen in Figure X (loop screen shot) to be experiencing a temperature rise of 6 degrees on the supply loop to the building (from 90 degrees



Photograph copyrighted Aerophoto America

to 96 degrees). The water is then pumped to the geothermal field by pumps P-7 and P-8, where is cooled from 96 down to 91. The closed circuit coolers, with no fan energy expended, cool the loop the remaining one degree from 91 to 90. At this condition, the well field is handling 83% of the cooling load with the conventional cooling system finishing off the balance. While the building was not yet occupied, the facility was experiencing full outside air conditioning and solar load. When fully occupied, the hybrid system should more closely split the load 50/50 under peak cooling conditions. This approach provides excellent energy efficiency while lowering first cost, exactly as the TOC process was intended to achieve.

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# Section 179D

## Energy Efficient Commercial Building Tax Deduction

Since 2006, IRC Section 179D has permitted qualifying buildings to receive tax deductions for energy efficiency. In general, the Design and Build Industries have been unaware of this tax break and, as a result, have not taken advantage of it. Let's take a look at the 179D tax deduction.

Section 179D of the Internal Revenue Code (IRC) is an engineered based tax incentive available for the reduction of energy and power costs in commercial buildings. The tax provision was initially enacted under the 2005 Energy Policy Act (EPACT) and allows for a tax deduction of up to \$1.80 per square foot. The 179D Tax Deduction specifically applies to those commercial buildings that notably reduce their interior lighting energy costs, as well as energy efficient heating, cooling, and building envelope systems. Buildings can partially qualify for \$0.60 for HVAC, \$0.60 for building envelope, and \$0.60 for Lighting systems.

### What are the requirements needed in order to qualify?

Section 179D requires for the taxpayers building to meet or exceed a 50% savings in energy and power costs when compared to a theoretical ASHRAE 90.1-2001 baseline building. If the target of 50% savings is met, the building will qualify for \$1.80/SF (capped at the costs of the capitalized improvements). For buildings which do not meet the 50% savings, the tax provision also allows for partially qualifying systems.

- \$0.60/SF for HVAC systems meeting 15% savings
- \$0.60/SF for Lighting systems meeting 25% savings
- \$0.60/SF for Building Envelope systems meeting 10% savings

Additionally, the Interim Lighting Rule allows for lighting systems to qualify for 30¢-60¢ per square foot for a 25%-40% savings in Lighting Power Density (LPD) compared to ASHRAE 90.1-2001 LPD standards. The taxpayer benefiting from the 179D incentive is required to obtain and maintain a certification from a 3rd party verifier. The IRS and DOE have provided guidance for requirements within the certification. One being that the energy and power costs savings calculations must be performed with a Dept. of Energy approved software. Additionally, field inspections must be performed after the energy efficient property has been placed into service.

The certification provided by the independent study shall be maintained in the taxpayers' records in order to establish the entitlement to, and amount of, the 179D deduction claimed.

### 179D and Government Owned Buildings

Because governments are non-taxable entities and are unable to benefit from the section 179D tax incentive the IRS established guidance in 2008 allowing governments to allocate the deduction to the parties responsible for and involved in the design of the energy efficient systems. In addition to the certification, the designers of the government own buildings must obtain an "allocation letter" in their records. On April 7, 2008 the IRS published Notice 2008-40 providing guidance for the Allocation of the deduction to designers. The few key points which must be addressed in the "allocation letter" are verification of the cost, placed in service date, and amount of the deduction being allocated to the



**Nelson Marin**

*Director of Engineering for  
Walker Reid Strategies*

designer (multiple designers may share the deduction).

### **What types of buildings qualify and who can benefit?**

In general, the 179D tax provision may apply to any and all types commercial buildings. In addition to commercial buildings, the incentive may be used on residential buildings which are 4 stories or more. In the case of government owned buildings, there are also no limitations on the types of buildings which may qualify. Schools, municipal, courts, jails and all other government owned or occupied buildings are candidates. Government owned housing buildings are also limited to 4 stories or more.

### **179D Applicable Time Frame**

The 179D tax provision expired on December 31st, 2014. Currently (as of 8/26/2015), the provision remains expired but has been included in the Tax

Relief Extension Act of 2015 (S.1946) which has been approved by the Senate Finance Committee. The proposed bill would extend Section 179D for 2 years (through the end of 2016) along with 50+ other expired provisions.

Under this current expired landscape, designers of government owned buildings looking to receive an allocation are only able to take the 179D deduction for currently "open tax years" (generally 3 years from date of filing). For property placed into service in previous years, the taxpayers are required to amend their returns.

For Commercial Building Owners, the section 179D deduction may be claimed for new construction or improvements placed into service between January 1, 2006, and December 31, 2014. Form 3115, Change in Accounting Method, may be used to retroactively take the deduction in current year tax filings and avoid amending previous year returns.

## **HISTORIC ARCHITECTURE: WRIGHT PATTERSON AFB HISTORIC DISTRICT**



Versar, Inc., under contract to the Air Force Civil Engineer Center (AFCEC), is providing historic architecture consultation and services to support an Environmental Impact Statement (EIS) for Phase II Housing for Wright Patterson AFB, OH. The Phase II housing project includes 89 units located in the Brick Quarters Historic District (BQHD). Designed in the Tudor Revival style, the BQHD homes are one-and-a-half and two-and-a-half story brick houses located in a planned community setting centered around the "Turtle Pond," a strong axial-plan reflecting pond named for cast stone turtle sculptures and landscaped

by Frederick Law Olmstead, Jr.

Versar was tasked to provide a range of historic architecture services, including Facility Condition Assessments to determine the condition, safety, and useful life of the exteriors, interiors and building systems of the 1935 houses. We also used 3-dimensional laser scanning and point clouds to document, in detail, the interior and exterior facility conditions, unit massing and finishes. Building Information Modeling (BIM) models were developed from the laser scans for the eight different unit types to serve as the cost estimating platform and the basis for conceptual renovation designs. The BIM models were also used to identify life safety code issues and opportunities for consolidation of mechanical equipment.

The highly accurate BIM models also served as the starting point for conceptual designs for various levels of renovation for the interiors as well as an investigative tool for exploring and evaluating potential adaptive reuse alternatives. Finally, the BIM models helped expedite cost estimates for all alternatives and maintenance and repair and all adaptive reuse opportunities.



AIT Concept Rendering

AT: At the time I interviewed, I was highly engaged in a collegiate design and construction competition called Solar Decathlon. This competition required that our school design, fund, and construct an 800 SF passive solar home and transport it to Washington DC where it would compete against homes from 20 other universities on the National Mall. This project generated a strong interest in delivering high-performance, sustainable designs.

When visiting Omaha District, it was clear to me that green design and sustainability was something that the federal government was putting its weight behind. While these topics were becoming “hot” in private arenas, it was clear to me that the federal government had much more momentum. While the government’s motivation may be more directed at saving tax dollars and less-so concerned with the “green” aspect of sustainability, motivation was a secondary concern for me. I still think my original assessment holds true and while we certainly focus on energy and water savings in our designs, we’ve been very successful in integrating those “green” features as well.

For me, the magic in architecture lies in the people that we work for and with – regardless of whether that’s a public or private entity. I had a professor that always told us that excellent projects required excellent design teams but also excellent clients. USACE seems to have those clients in spades! I truly

enjoy working with the wide array of customers that this organization presents itself to. Whether it’s small civil works projects or large MILCON construction, the vast majority of our customers have a real and genuine interest in delivering the best possible project for the Government and taxpayer’s dollar. It’s easy to go to work or work long hours when you know the work you do serves the people and functions that USACE serves!

**DP: Maybe related to the last question...what has been your favorite project, to date?**

AT: Bigger isn’t always better, but my favorite project so far happens to be my biggest. I am working through construction of a 150,000 SF hangar at Fort Carson, CO. Designed to house four CH-47 (Chinook) and five UH-60 (Blackhawk) helicopters, it is approximately 540 feet long and 60 feet tall! This project has its share of challenges, but all things considered, it is going quite well! I have to say that the scale of this project amazes me every time I see it. Walking out onto the jobsite reminds me of those early childhood dreams of wanting to be an architect.

My most unique project was helping on 2012 flood efforts within Omaha District. Our team was tasked with writing a scope of work to repair our own Missouri River project office facilities while the entire site was still flooded! This project was obviously a high-priority due to the functions that office executes during flood operations. We had to wade through partially flooded buildings (~4 feet of water) to assess damage (water,



mold, raccoons, etc) so that repair activities could occur immediately after water subsided. I'm open to it, but I'm reluctant to assume that I'll have to do that ever again!

**DP: Have you worked in the private sector? If so, how would you compare work in the private sector to working for a public agency?**

AT: Not better, not worse, different. I interned with a firm in Council Bluffs for 4-5 years during summer and winter breaks. That firm provided a great environment for me to learn the business and contribute to projects in measurable ways. I owe them so much for that and I think that my experiences there have proven to be some of the strong points of my career at USACE.

Too many people try to compare these environments to determine an outright winner. Problem is that very few people intend to work in both realms at once. I have architect friends that would never enjoy (and likely not succeed) in a public organization like USACE. Further, I've had coworkers think the "grass is greener" in the private sector, leave, and find themselves returning to federal service in a year or two.

I have heard too many debates regarding which environment is better for an architect. People will talk themselves silly debating one side or the other. I don't think there's an outright answer to this question as every professional's career goals are different. All working environments hold their own pros and cons. It's up to the individual to find the spot that fits for them.

For someone at the beginning of their professional career, I suggest they seek insight from both realms

and reference those with their short and long-term career goals. There is still a need for architects in both arenas and we all need to find the best fit for our own values and ambitions!

**DP: You are a young architect, but are you licensed or seeking licensure?**

AT: I became licensed in February 2013 at the age of 27. My son was born in 2012 and I quickly decided that exams were going to take a back seat to the ever increasing joys of fatherhood. Knowing that, I cracked the books and passed all of my exams in a little over 5 months. There's a seat in a booth at Panera Bread in Council Bluffs with my imprint in it! I also had obtained my LEED Accredited Professional (LEED AP BD+C) certification the year prior.

My perspective on licensure is relatively rigid. USACE considers itself a professional organization. I feel strongly that in order to maintain that standing and face, its employees need to be considered professionals in their field of expertise. Regardless of the realities of federal supremacy (that technically don't require a federal architect/engineer to be state licensed), licensure is what defines and elevates our profession for the country as a whole. If only for that reason, I feel it's important that public architects/engineers pursue and maintain licensure as part of the professional and ethical burden that we assume. As stewards of taxpayer dollars, I feel that is something that we (individually and as an organization) owe the public. In my opinion, public organizations need to find ways to incentivize and reinforce the importance of licensure/certification to their employees.

**DP: Professional organizations like SAME and AIA provide tangible benefits to architects? Do you participate and what are your favorite benefits?**

AT: This is a bit embarrassing, but I only recently joined SAME and I have not been an active member of AIA since I obtained my licensure. That said, I do agree that professional organizations do provide benefits to professionals, industry, and their customers. I look forward to getting much more involved in SAME and other organizations as my career develops.

I was privileged to present on Omaha District's experiences with Building Information Modeling (BIM) at the Omaha SAME conference in 2013. I was impressed to see so many common interests to mine there, at that experience served as my primary motivation for joining SAME. I look forward to the many opportunities that SAME offers for collaboration with industry and developing professionals!



BT Concept Rendering



AIA offers a lot of resources and lobbying power when it comes to the practice of architecture in the United States. That said, it's been difficult for myself, as a public architect, to justify the cost of belonging to the AIA. I do hope that AIA can find a way to include more public architects in their ranks and include public architecture as one of its many focal points in the broad scope of its efforts relating to architecture and design.

I have been a member of United States Green Building Council (USGBC) for several years now and I enjoy the local and national resources that they provide with regard to sustainable design and construction. With the huge emphasis that we have on these topics within USACE, membership with USGBC offers many valuable resources for the type of projects that we are tasked to deliver.

**DP: Tell me something about the teamwork you've experienced in USACE...internal and external.**

AT: I was the Design Team Lead and project architect for the EAB COF at Fort Carson, CO. This facility is the first in-house designed LEED Platinum building in USACE. Further, it's only one of 5 or 6 Platinum buildings designed by any entity for the Army. While the certification is a fine achievement, the teamwork that was experienced on the project was truly amazing.

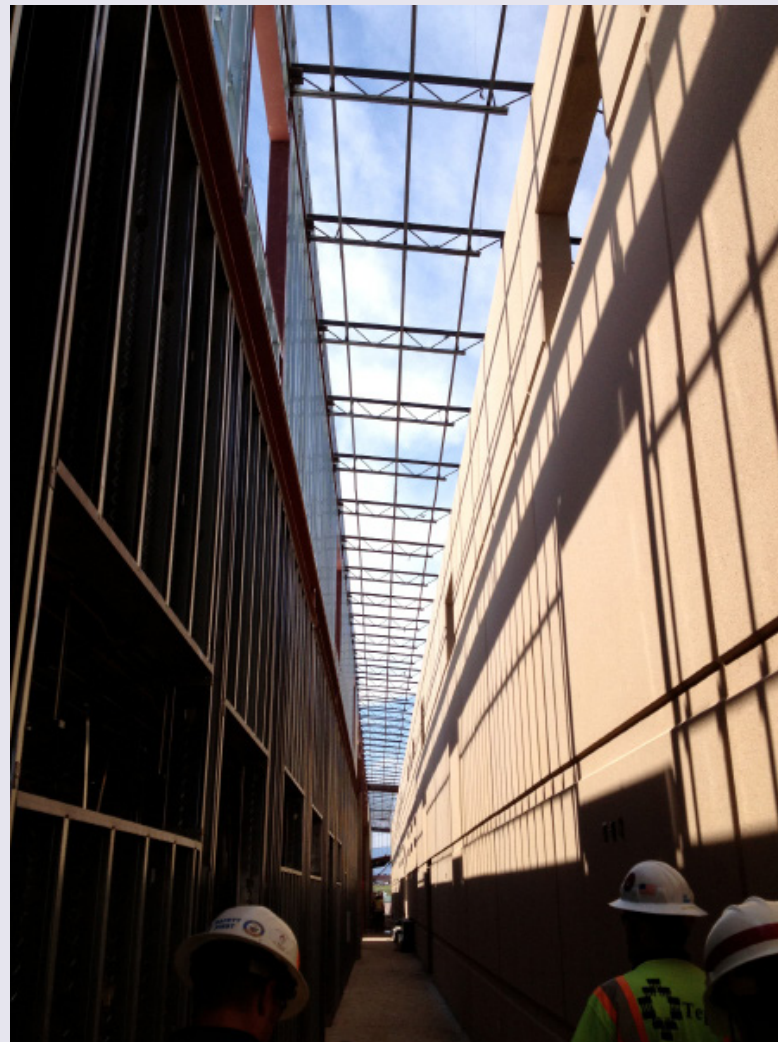
The design team was faced with a site change at 65% design that necessitated a complete facility redesign. Open communication and good follow-through by design team members meant that we were able to establish clear goals and deliver a high-performance design solution aside from the obvious schedule constraints that a full redesign would typically impose.

The prime construction contractor was understanding of these goals and went out of their way to deliver on goals and expectations. Communication between the design and construction teams was open and bi-directional throughout the construction process. Looking back, projects don't run much smoother than that.

**DP: As an architect in 2015, do you have a career roadmap?**

AT: Roadmap? Maybe something more of a career GPS...a re-route feature is a must!

I've wanted to be a practicing architect since I was about 12 years old. That desire took me all of the way from high school to architecture school, to my early career and licensure. As I look forward, project management and supervisory positions hold



*EAB COF Interior Construction*

a degree of appeal to me. That said, neither of those opportunities offer the very direct opportunity to design and coordinate the built environment.

The best managers and supervisors that I've worked with have a solid foundation of design and construction experience and understanding. I can only hope that I have that depth and breadth of understanding as I look forward to future opportunities.

Designing buildings is not easy, but it's heck of a lot of fun. No two projects ever end up the same. Our customers are currently demanding high-performance, sustainable design solutions. To that end, I strive to identify and implement the best tools, metrics, and processes to (hopefully) deliver on those expectations.

**DP: Your resume references participation in the USACE/Industry BIM Consortium. What can you share of that experience?**

AT: The USACE/Industry BIM Consortium is a working



EAB COF Exterior Elevation - Photo courtesy of Harry Weddington

group started, I believe, by USACE – Seattle District. It includes BIM experts from across USACE and industry with the combined intent of providing tools and resources to leverage BIM across private and public sector projects. We aim to develop tools, processes, and requirements that are practical, fair, and reasonable for all involved.

I became most heavily involved with this working group last year during a developmental assignment at USACE – Headquarters. I'd been successful at helping integrate BIM at the district level, but felt strongly that our corporate design and execution processes suffer from being developed in a time that the potential benefits of BIM did not exist. The consortium meets quarterly in person and at least monthly via telephone to discuss ongoing concerns and initiatives. We work together to identify, prioritize, and address challenges relating to BIM and project execution - such as contracting language, BIM tools, quality control metrics and standards, etc.

Working with this group of professionals has been outstanding! I feel like this group provides an environment where we can tackle problems that none of us could ever take on individually. Further, I feel like my regular experiences on design projects help frame and prioritize problems so that they can be resolved in a manner that respects our existing organizational processes and resources whenever possible. I think we've only begun to realize the power of these tools and they will become increasingly important as our stakeholders demand ever-increasing performance from our designs.

**DP: What does this award mean to you?**

AT: For better or worse, I am a person that's always looking for validation. I've had the opportunity to work on a pretty large array of projects – some of which do

not fit the traditional molds of conventional design and construction. Receiving this award, for me, serves as a type of validation that what we are doing here in Omaha District is pushing in the right direction. None of the efforts that I've been involved in are solo tasks, and I think it's a testament to the integrity and nature of our District that we can claim an award like this. I'm not the only architect from this District that's received this award and I'm confident I won't be the last!

**DP: What does Andy Temeyer do for fun, outside the Corps?**

AT: As I had previously hinted, my wife, Jen, and I have a three-year-old son. His name is Will and he occupies a good majority of our time outside of work. By default, his interests have driven the majority of our interests in the past few years. To that end, the family enjoys everything train, dinosaur, and construction related! Will and I enjoy going on bike rides together, and we find ourselves outside in our yard doing a wide array of chores and activities. Will also has a particular interest in traveling and in his few years, he's found himself in Washington DC, Texas, and Florida. We're currently thinking a driving trip to Yellowstone may be in store for next summer.

We recently moved into a mid-century (modern) styled home in Council Bluffs. The wife, I think, has regretted the move, as I have become somewhat obsessed with trying to preserve the unique character of the home as we make updates. We've spent the last year doing major and minor improvements from painting, to utility improvements, to installing a new roof. While we're making progress, there's still a lot of work to be done! Next on the list are bathroom improvements and an appropriately-styled playhouse for Will! **APC**



# USAFRICOM & USACE co-host Workshop

## *Mali Military Base Design & Operational Energy Workshop*

**3-7 August 2015; Bamako, Mali**

The USAFRICOM Environmental Security Branch and U.S. Army Corps of Engineers (USACE) co-hosted a Military Base Design and Operational Energy Workshop in Bamako, Mali from 3 to 7 August. The workshop was conducted to help Senior Mali Military Leadership develop a standard design for an enduring 600 to 1000 person military installation.

The U.S. team, which included personnel from USAFRICOM Logistics Directorate Environmental Security Program and Office of the Command Surgeon, USACE, and the Department of Defense Office of Expeditionary Energy and Sustainment Systems. They visited the 33rd Parachute Airborne Regiment installation in Bamako to assess existing Mali camp conditions. During the tour, the Base Commander emphasized that his primary concern was to establish sanitation and waste management systems in the medical and living facilities so he could improve the health and welfare of his soldiers and their family members.

A key objective of the workshop was to strengthen the skills, competencies, and abilities of Malian military engineers to design and construct base camps. Colonel Major Nana Traore, Director of Malian Military Engineers, opened the workshop that included over 15 stakeholders the Malian 33rd and 34th Brigades military engineers, architects from the Mali Ministry of Defense, physicians from their Medical Corps, and a Special Advisor to the Malian President.

The workshop engaged in enthusiastic debate on the benefits of energy, water, health, and waste management designs. After two days of discussion on the environmental and health aspects of base planning the Workshop participants conducted a design exercise using their newly gained information to review the USACE developed Base Design Template.

"The reason we participate in these workgroups is to develop new partnerships and to assist with capacity building focused on environmental and health aspects of security," said Mr. Jeffrey Andrews, Environmental Security Chief. LTC Sueann Ramsey further explained, "The significance of incorporating medical aspects into base camp design is to ensure the health of the force."

The USAFRICOM Environmental Security program,

the ACE Engineer Research and Development Center in concert with U.S. government agencies and international partners participate in African environmental engagements to promote a stable and secure environment through partner capacity building in support of U.S. foreign policy. Facilitation of these events is key to identifying on-going initiatives and programs that USAFRICOM and its partners can leverage for further African capacity-building efforts.

COL Robert Hailey of the U.S. Army Corps of Engineers stated, "The event was a valuable opportunity to provide the Malian Military the skill set required to design base camps and meet their specific mission requirements. Involving multiple decision makers and capabilities is essential to designing base camps." Mr. Andrews concluded that it was "overall, a very successful collaborative event."



Photo by LTC Sueann Ramsey (USAFRICOM, Chief, Force Health Protection Branch) – 33rd Brigade Family Housing



Photo by LTC Sueann Ramsey – COL Hailey (USACE LNO to USAFRICOM) leading a discussion on base camp water management

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