

# Bulletin

## Inside >

Industry Report.....	3
Technology and Innovation.....	8
Member Projects.....	23
New Members.....	29
WBC Calendar.....	33

The Official Publication of the Washington Building Congress | **Feb./Mar. 2018**

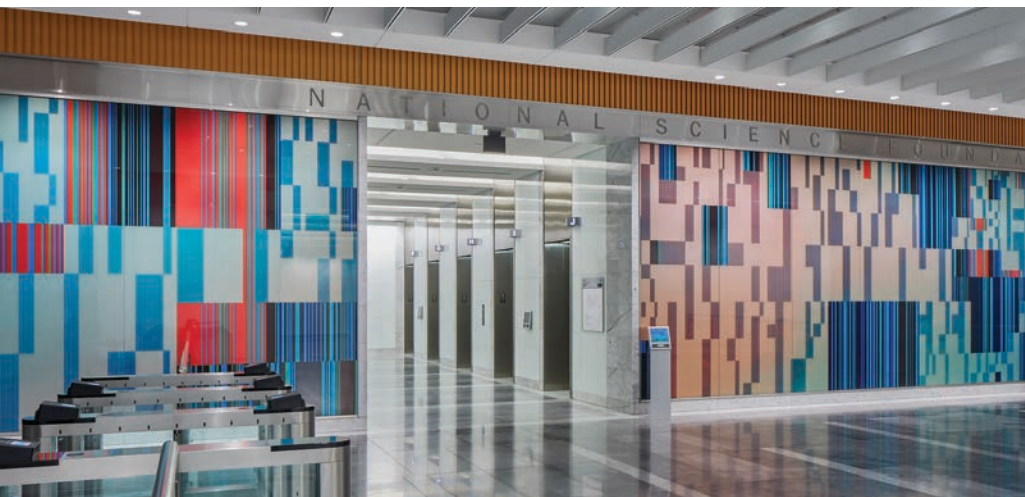


# TECHNOLOGY + INNOVATION Issue





A TESTIMONIAL  
TO EXCELLENCE



Premium Grade Architectural Woodwork and Casework  
Acoustical Wall and Ceiling Treatments  
Hospital and Laboratory Casework and Lockers  
Architectural Metal, Stone and Solid Surfacing

# Bulletin

February/March 2018

Washington Building Congress is a nonprofit association made up of professionals from a variety of disciplines, all with an active interest or involvement in the Washington Metropolitan Area's real estate, design, and construction community. The organization was established in 1937 to represent the collective interests of its members by providing education and networking opportunities and by promoting the advancement of the building industry. For additional information about membership, joining a committee or the WBC Bulletin, call (202) 293-5922 or visit us on the web at [www.wbcnet.org](http://www.wbcnet.org).

CHAIRMAN OF THE BOARD

**Dan Buckley**, Anchor Construction

CHAIRMAN-ELECT

**Mike Baruccheri**, AECOM Tishman

VICE CHAIRMAN

**Chuck Claar**

VICE CHAIRMAN

**Brett Snyder**, GreenBench Companies

VICE CHAIRMAN

**W. Emerson Teer**, Clark Construction Group, LLC

TREASURER

**Pat Mercer**, Siemens Industry

SECRETARY

**Bob Freas**, Exponent

IMMEDIATE PAST CHAIRMAN

**Joe Schall**

DIRECTORS

**Ken Ellis**, RK&K

**Julie Forsht**, Powersmiths

**Sean Frazier**, HSU Builders

**Bob Frew**, Balfour Beatty Construction

**Christine Heffernan**, HESS Construction + Engineering Services

**Mike Holland**, Boston Properties

**Gabriel Jahn**, Dynalectric Company

**Greg Koger**, Holland & Knight

**Tara McCarthy**, Page Southerland Page

PRESIDENT & CEO

**Steven J. Kenton**

ASSOCIATE DIRECTOR

**Rita F. Reis**

Bulletin is published 6 times a year by Washington Building Congress, Inc. The articles in this publication are the opinions of the authors and do not necessarily represent or reflect the policies or opinions of Washington Building Congress. Copyright 2018. All rights reserved.

Washington Building Congress

1100 Vermont Avenue, NW, Suite 700  
Washington, DC 20005  
T: (202) 293-5922 | F: (202) 429-1922  
[www.wbcnet.org](http://www.wbcnet.org)



CONNECT WITH US:



## Chairman's Letter

### Dear Members and Colleagues:



The Washington Building Congress is going strong! We achieved an amazing 91 percent member retention rate this year, and to date have added 18 new company members, 13 small businesses, and 62 additional reps. The Membership Services Committee hosted an interactive new member orientation for an enthusiastic group at the WBC on February 23. The committee, led by new Chair Kelly McGuire (Ruppert Landscape) and Board liaison Tara McCarthy (Page Southerland Page), is doing an incredible job this year. I would also like to recognize Alfred Llop (RK&K), who stepped down as committee chair in February when taking a new job, for his service over the past two years on the committee.

Since the beginning of 2018, WBC has been on the move with Craftsmanship and Star Awards judging, winter networking, Hammerheads Lucky Strike, Hall of Fame video session, Women's Roundtable program, and the St. Patrick's membership event. To top it off, the spectacular 62nd annual Craftsmanship Awards banquet and Hall of Fame induction were held on March 16 with over 1,000 attendees.

I would like to thank the Community Services Committee and the WBC member firms who participated in the 9th annual *Member Giving* edition of the *Bulletin*. The committee's next major initiative will be the April 28 Rebuilding Together Workday. This year's team, lead by House Captain John Matos (Langan), will be reaching out to the membership seeking donations of labor, materials, and financial support. Thanks again to the Community Services Committee, Chair Vanessa Carrion (Gilbane), Vice-Chair Edward Dudlik (Morgan Stanley), and Board Liaison Ken Ellis (RK&K).

The Program and Education Committee put together the extremely well received Women's Roundtable and Networking event February 15 with over 100 in attendance. Special thanks to Laura LoBue and Pillsbury Winthrop Shaw Pittman LLP for organizing and hosting the event in their beautiful meeting space. Thank you to the Program Committee, Chair Kevin Pavuk (Structural Technologies), Vice-Chair Owen Walker (Smith Pachter McWhorter, LLC), and Board Liaison Bob Frew (Balfour Beatty Construction).

The WBC Craftsmanship Awards Banquet was held at the Washington Marriott Wardman Park on March 16. We proudly recognized over 400 individual craftsmen for their important contributions to our industry. WBC received 255 entries this year, of which 84 were selected as Craftsmanship award winners. Out of these 84, the top eight entries were nominated for Star Awards. The three Star Awards winners were announced at the end of the awards banquet. We also inducted two new members into the WBC Craftsman Hall of Fame, including the first women to join this prestigious group.

I would like to conclude with a special thank you to the Craftsmanship Awards Committee, Chair Todd Scales (Manhattan Construction), Vice-Chair Karen Cotton (HITT Contracting), and Board Liaison Sean Frazier (HSU Builders). We sincerely appreciate your support of this significant industry event. Special recognition also goes to WBC Past Chairman Darrel Rippeteau, creator of the Star Awards program, who retired in December of 2017 following an illustrious career as an architect and artist.

Coming in May will be the Craftsmanship Awards special edition of the Bulletin featuring all 2018 Craftsmanship and Star Awards winners, Hall of Fame inductees, and event sponsors. This information is also currently available on the WBC website.

I look forward to seeing you at an upcoming WBC program or event. Thank you for your active participation and ongoing support of our great association!

Best regards,

**Dan Buckley**

*WBC Chairman of the Board*

WBC Corporate Sponsor





RECENT AWARDS

↓  
ABC 2014, 2016 & 2017  
Masonry Subcontractor  
of the Year

↓  
ABC 2014, 2015, 2016 & 2017  
Safety Training & Evaluation  
Process Award, Gold Level

↓  
WBC 2014 & 2017  
Craftsmanship  
Award

↓  
ASA 2014  
Carson V. Carlisle Jr.  
Safety Award

PARC MERIDIAN  
at Eisenhower Station

Architect:  
Architects Collaborative, Inc.

General Contractor:  
Paradigm Contractors, LLC



# Telligent

Masonry Construction

2273 Research Boulevard | Suite 550  
Rockville, Maryland 20850  
(301) 926-9600



————— YEARS —————

©Ron Solomon Architectural Photography

T e l l i g e n t M a s o n r y . c o m





## Grunley Named Vice President



Adam Grunley

Grunley is proud to announce that **Adam Grunley** has been appointed as vice president. He has served the company for more than half his life in various capacities, including

laborer, assistant project manager, project manager, chief estimator and project executive.

For the past three years, Grunley has successfully led the creation of all project budgets and estimates as the director of estimating. In his new role, his experience, expertise and knowledge of the construction industry will continue to align the company's capabilities with clients' needs.

"Adam has consistently proven his leadership abilities. His dedication to his colleagues and client satisfaction have been a tremendous asset to our growth," said Ken Grunley, President and CEO. "I am very grateful for the opportunity to work alongside my son, leveraging his own successes towards the growth of the company."

## Insurance Associates Moves its Headquarters after 10 Years

In January, the Rockville Staff of IA were welcomed into a new home at One Church Street. The agency moved from the building next door, 21 Church Street, where they operated for ten years.

This move marks the fifth historical move of the agency's headquarters:

- **1956 – Agency was Incorporated**  
Vermont Ave. Washington, DC
- **1970 – Connecticut Avenue**  
Chevy Chase, MD
- **1995 – The Historic Wire Building**  
Rockville, MD
- **2008 – 21 Church Street**  
Rockville, MD
- **2018 – One Church Street**  
Rockville, MD

Insurance Associates is fortunate to have the entire 5th floor of the building, which is the equivalent of 8,800 square feet, designed just for them! The new space at One Church Street features an open modern feel with low workstations and rounded desks so that employees can easily engage in client-centric conversation. The offices contain glass walls that enable light to enter and also contributes to the contemporary look. There are even new amenities such as a lounge for associates and a wellness room that were not able to be offered at the previous address.

"I am very excited about our new location," said Stephen A. Spencer, President of Insurance Associates Inc. "The added space of having an entire floor to ourselves will enable us to grow and serve our clients more effectively than ever. We simply cannot wait to share this new state-of-the-art office with our clients, company partners, and colleagues."

maintain  
develop  
design  
**TRUE PARTNERSHIPS MANAGE**  
consult  
perform  
analyze

**HP HENSEL PHELPS**  
Plan. Build. Manage.

Learn more at [henselphelps.com](http://henselphelps.com)  
in f @

*"We have found the knowledge possessed by IA of the surety industry and the Greater Washington DC construction marketplace to be unparalleled, even when compared to the national brokerage firms."*

- Brett McMahon,  
CEO  
Miller & Long

**Insurance Associates**  
[insassoc.com](http://insassoc.com)

A full service agency specializing in risk management in the construction industry.

**60**  
YEARS  
STRONG

Knowledge / Representation / Reputation

## DAVIS Announces Company-Wide Promotions

Recognized by the *Washington Business Journal* as one of the area's "Best Places to Work" for 11 consecutive years, James G. Davis Construction Corporation (DAVIS) announced several new year promotions, including multiple executive and senior vice presidents. Many long-time employees will take on new strategic roles, with a focus on efficiencies and sustainable long-term growth.

Jim Davis, President + CEO, will continue to lead the company alongside firm principals Dennis Cotter and Bill Moyer. Davis said, "These exciting promotions not only demonstrate our commitment to providing the best service to our clients, but also to the individual growth of our employees."

### Executive Vice Presidents

With nearly 100 years of combined construction experience and a career-long tenure at DAVIS, **Jim Dugan, Carl Hirlinger** and **Mike Pittsman** have each been named executive vice president. In this role, each will collaborate with multiple market sectors with a focus on further developing best practices related to project execution and market growth, ultimately carrying out DAVIS' mission: redefining the way people experience construction by building success for all.

### Senior Vice Presidents

Continuing the upward momentum, six individuals were also promoted to senior vice president, including **Dominic Argentieri, Constantine Athanas, Michelle Christen, Ben Cohen, Ron Juban** and **Chris Scanlon**. Each will continue to elevate DAVIS through their leadership and expertise, embracing and promoting DAVIS' core values and culture.

### Vice Presidents

With 20+ years in operations at DAVIS, **Dave Mesich** has been named vice president – construction operations. With his collaborative approach to connect office and field staff, Mesich will impart his extensive technical knowledge to these groups. Additionally,

**Dave Chandler, CSP** has been named vice president – safety. Chandler will continue to foster the inherent safety culture at DAVIS, spearheading safety initiatives and innovative program development, always ensuring that safety is the number one priority.

### PROMOTIONS – OPERATIONS

#### Senior Superintendent

- **Mike Miller**

#### Senior Project Manager

- **Tim Boyer**
- **Erin Ruiz, LEED AP**
- **Geert Visscher**

#### Project Manager

- **Katherine Adewole**
- **Chris Graziani**
- **Dylan Hutchinson**
- **Lauren Kennedy, LEED Green Associate**
- **Yasamin Massahi, LEED Green Associate**
- **Logan Phillips, LEED Green Associate**
- **Cameron Sheppard**

#### Project Superintendent

- **Ryan Devlin**

#### Assistant Project Manager

- **Adam Abramson, EIT**
- **Bryan Atkins**
- **TR Clausen**
- **Melissa Consiglio**
- **Tyler Daley**
- **Alec Desaulniers, LEED Green Associate**
- **Jaime Escudero Leon**
- **Abel Espinal**
- **Alex Fischer**
- **David Hieronymus**
- **Hala Ishak**
- **Kyle Jiron**
- **Matt Kelly**
- **Bryce Lenceski, LEED Green Associate**
- **Jeremy Mahn**
- **James Martin**
- **Jacob Stark**
- **Edward Stratton**
- **Doug Watson, LEED Green Associate**
- **Max Wnorowski**

#### Field Engineer

- **Willard Wilson**



OWINGS, MD  
410.257.5225

COAL CENTER, PA  
800.677.3815

[WWW.KGE.COM](http://WWW.KGE.COM)

## RELY ON OUR EXPERTISE



### YOUR PREMIUM GENERATOR SUPPLIER

*Generator & Transfer Switch Sales, Planned Maintenance Contracts, Generator Rentals, Replacement Parts, Load Banks, Service, Training.*

Kelly Generator & Equipment, Inc. is the Mid Atlantic distributor for Generac Industrial Power since 1992. We are a coordinated rapid response organization known for offering the proven reliability of a Generac Industrial Power solution, backed by the quality of our service and reliability of our generators. Kelly Generator & Equipment, Inc. strives to provide our customers with quick and professional solutions to their electrical power needs. KG&E operates on three solid principals: Ensure optimum quality in every product sold; professional, honest, straight-forward relationships with our customers; and superior service for the life of our products.



## Assistant Field Engineer

- **Dagoberto Ayala**
- **Josue Marquina**
- **Derek Shetenhelm**

## PROMOTIONS – NON-OPERATIONS

- **Mary Bartlett**, Pursuit Coordinator
- **Leslie David**, Senior Pursuit Manager
- **Ermias Legesse**, Sitework Manager
- **Saad Malik**, Senior Helpdesk Technician
- **Shayna Rice**, HR Coordinator
- **Janeen Stone**, ARM, CRIS, Senior Risk Manager
- **Cody Tomayko**, GSP, CHST, Safety Manager
- **Jamie Tyler**, Mechanical Manager
- **Nathalie Valle**, Senior Estimating + Preconstruction Engineer


## 3M Unveils New Innovation Center for Customers in Washington, DC

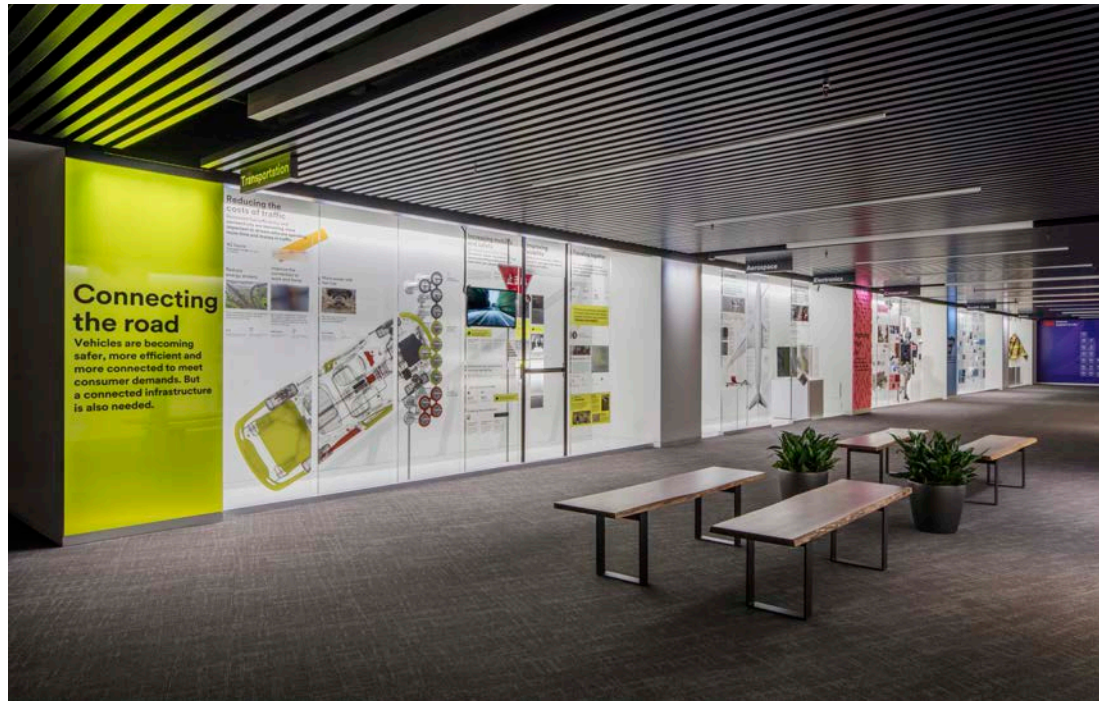
3M opened a new Innovation Center in Washington, DC at its offices near the Capitol to showcase how 3M science is solving some of today's biggest challenges. The Center highlights solutions for specific customer needs and enables more convenient collaboration with key decision makers in DC and across the East Coast.

At a ceremonial ribbon-cutting and reception attended by government officials, diplomats and customers, 3M Chairman, President and CEO Inge Thulin addressed how 3M science and technology improves every life.

"The opening of our Innovation Center in Washington, DC reflects our Vision to improve every life through innovation," said Thulin. "Everyone who has an opportunity to experience this Center can see the power of 3M science and how we apply science to life."

The new Center brings 3M's technologies and solutions to policy discussions, introducing lawmakers, regulators, diplomats and other stakeholders to the unique capabilities and technology platforms of 3M.

More information about the 3M's Innovation Center, Washington, DC, including its components, functionality, and capabilities can be found online at [www.3m.com/InnovationCenterDC](http://www.3m.com/InnovationCenterDC). 



The Exhibition Hall inside the new 3M Innovation Center in Washington, DC highlights 3M science for key markets.

# What's under our hard hat?

**HISTORIC  
RENOVATION**



## GRUNLEY



# More Member Charitable Giving

## HGA Architects and Engineers

Employees of HGA Architects and Engineers have been actively involved in the greater Washington, DC community throughout the year by volunteering time and resources to a number of organizations.

**Potomac River Clean-Up:** HGA partnered with the Alice Ferguson Foundation and the City of Alexandria to clean up a stretch of the Potomac River adjacent to the Canal Center Plaza in North Old Town. In two separate events, 33 employees volunteered and collected approximately 30 bags of trash, 25 bags of recycling, 62 plastic grocery bags and an estimated total of 1,445 pounds of trash.

**Construction:** Each fall, HGA participates in the local AIA Northern Virginia Construction competition, where teams design and build structures out of canned food items. After several weeks of fundraising and developing the design, the team assembled the 3,619-can structure at Reagan National airport, where it was on display for a week. Afterwards, all food was donated to the Arlington Food Assistance Center where it will go to families in need. HGA has won the top two categories, Best Original Design and People's Choice, for two years running.

**Warrior Canine Connection:** HGA provided pro-bono schematic design services for the Warrior Canine Connection, a non-profit organization that works with injured soldiers to train puppies as service dogs for other injured warriors. The project includes the re-purposing an abandoned, historic dairy barn into their new headquarters building.

**Race for Every Child:** HGA raised funds through a large team of runners and also provided several race day volunteers for the 5<sup>th</sup> Annual Race for Every Child in support of Children's National Health System.

**Salvation Army Angel Tree Program:** HGA employees purchased new toys, gifts and clothing for 15 deserving children "Angels" in need during the 2017 holiday season.

HGA is an integrated architecture, engineering and planning firm that helps shape culture, business and society by consistently creating forward-thinking design solutions for clients & the communities in which they live. **B**



Potomac River Clean-Up



Potomac River Clean-Up



Construction



Race for Every Child



Warrior Canine Connection



The background is a night-time aerial view of a city with illuminated buildings. Overlaid on this are several digital elements: a blue wireframe of a skyscraper on the right, a semi-transparent data dashboard on the left showing charts and graphs, and various icons (factory, CO2, lightning, Wi-Fi) connected by lines to the wireframe. Binary code (0s and 1s) is scattered across the scene.

# SIEMENS

*Ingenuity for life*

When smarter buildings drive smarter operations, that's ingenuity for life.

Transparency is the key to greater energy and operational efficiency. Siemens Navigator powered by Sinalytics acquires and analyzes performance data for every building in your portfolio. The result: Comprehensive insights and powerful analytics combined in an easy-to-use cloud-based platform that tells you exactly what your building needs to deliver peak performance.

[usa.siemens.com/navigator](http://usa.siemens.com/navigator)



# Bulletin

# TECHNOLOGY+

# INNOVATION

## Issue

## In this section:

### WBC Innovation Committee

Melissa Nelson, *Chair*

Rob Wenger, *Vice-Chair*

Mike Holland, *Board Liaison*

- + 360 Cameras Can Do It All(most)
- + Breaking Down Building Analytics: Putting Data to Work for You
- + DC Water's DC Clean Rivers Project
- + Reality Capture in Construction – What, Why, and Where
- + Lean Construction
- + Net Zero Energy Buildings – The Next Step Towards Sustainability
- + Practical Innovations Profile: W.E. Bowers, Inc.



# 360 Cameras Can Do It All(most)

By David A. Stone, Director, Virtual Construction, HITT Contracting Inc.



Figure 1: (Left) Raw 360 image from camera, (Right) 360 Camera.

The concept of an immersive image that allows you to look all around using a single click of a button is very enticing due to the amount of visual data that can be captured in a blink of an eye. But why do we need this technology? How can we apply it in the construction world? How much will it cost?

Panoramic images generated by cameras have existed since the 1840's. I personally recall going to Epcot Center 30 years ago and standing in a room with the movie wrapping all around the circular space. It was impressive, but I never correlated how this may one day relate to my profession. 360 images/collateral are now everywhere. If you have shopped for a house lately, it is likely that you had a virtual tour that was generated in this method with the addition of publishing software to create the interface. Previously, the image was created using an array of cameras pointing in all directions from a central point and then stitched together using a manual or automated system for a seamless experience.

Today, 360 camera technology has evolved to allow for two wide angle lenses mounted on a single device to generate an image or a movie at an affordable entry price. An entry level camera costs \$200 to \$500 for models from LG 360CAM, Ricoh Theta V, and Samsung Gear 360 to Nikon KeyMission360. Each feature tripod mounting and remote connectivity that allows the user to take a picture using a



Figure 2: 360 image embedded in Bluebeam Revu PDF plan.

mobile device like an Android phone or iPhone. Beyond that you can pick a camera based on other features that are important to you—ease of use, connectivity type, capacity, resolution, image quality, etc.

So why is this good for construction? Construction personnel are constantly documenting existing conditions, progress,

## Technology and Innovation

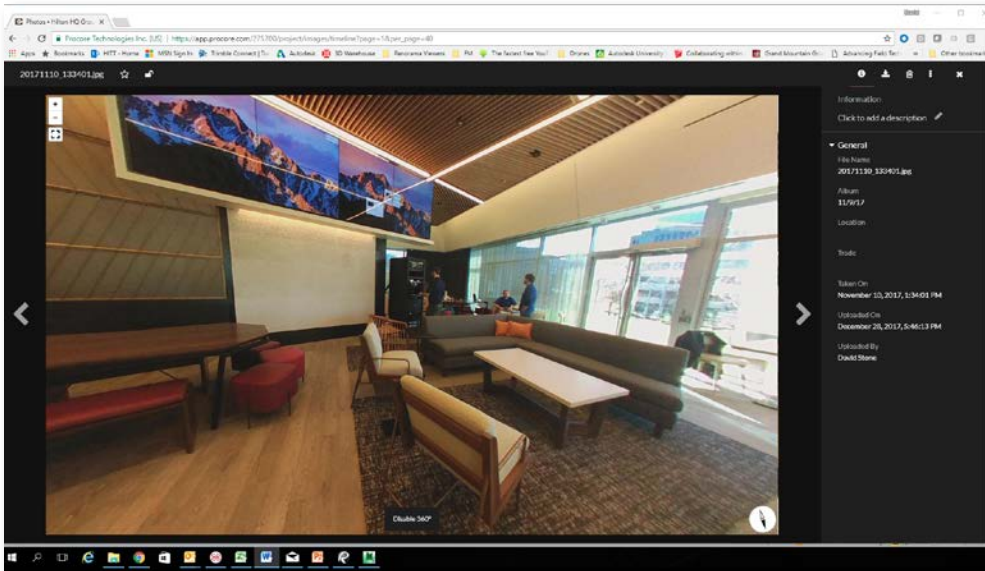


Figure 3: 360 image embedded in Procure.

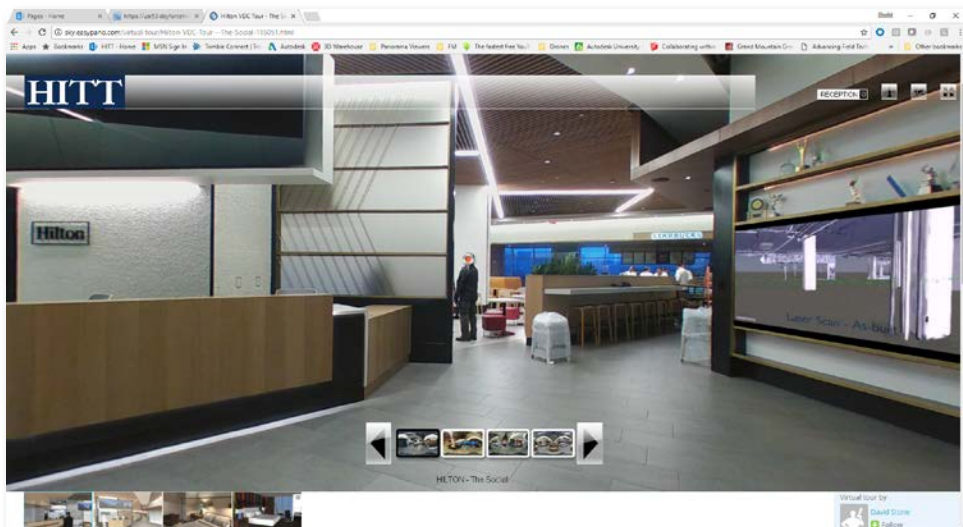
or the completed product. We typically use traditional cameras, and it is very difficult to capture every item one might be interested in reviewing at a later point. Inevitably, the one area you need to review is just outside the frame of view in your site photos. Let's face it—most of us are not professional photographers, so the photo quality is not always spectacular. If you want to capture a room or a space from a single point a view with a traditional camera, you would need to take a minimum of six images, most likely much more. Shooting and organizing these pictures becomes a monumental effort.

A few clarifications might be in order here. First, users need to keep in mind that a 360 photo is typically a larger file, and lacks the resolution of a standard camera. And, while the 360 cameras suggest an immersive experience if viewed in a viewer headset (such as Samsung Gear VR, Google Daydream), they lack the sense of depth associated with the stereoscopic image human eyes produce. To achieve this you would need

a much more robust system, or a rig with two 360 cameras to produce an image for the left and right eye. This technique is called stereoscopic imaging, which is relatively easy to produce in computer model based renderings.

While 360 images offer a more efficient workflow for a basic quantity of images, they are also being adopted as a standard format for project management systems like Procure and PDF editing like Bluebeam Revu. The latter solution allows a low technological threshold to create a graphic layout of the images on a plan. Through a markup link of a single photo or a series of images we can create a timeline of the project progress. Capturing multiple images over time allows the end user to have better documentation of work put in place for future renovations. This article only scratches the surface of how 360 images can be used, but I suspect that as this format becomes more ubiquitous, we will see this as a standard feature on your next smartphone. **B**

Figure 4: 360 image as part of a web based virtual tour.





## Breaking Down Building Analytics: Putting Data to Work for You

By Nathan J. Pritchett, Pritchett Controls, Inc.

### What is Building Analytics?

Building Analytics is a rules based software platform that evaluates building data to determine whether or not the building and its equipment are operating properly.

The biggest challenge I have seen in the 10+ years since the label of analytics has been given to the above-mentioned process is the ability to articulate what it is and how it operates to key decision makers in the building industry. The data used in building analytics comes from automation systems throughout buildings such as HVAC Control systems, Electric Metering Systems, lighting control systems, and access/security systems. In most commercial construction projects, these systems (or at least some of these systems) are in place and operate independently of each other, generating mountains of underutilized data. The analytics software platform extracts this data from the systems to build a picture how the building is operating as a whole. Once the data is pulled, the software provides actionable information regarding anomalies in the building (fault detection), prediction for upcoming problems, prioritizes maintenance tasks, or even recommends system modifications.

### Why Consider Analytics?

When it comes to technology and innovation in the building industry, building analytics is at the top of the list of ROI driven technology that contribute directly to reducing energy costs. Automation and efficiency are fantastic ways for building owners to achieve sustainability credit. But let's face it, if there isn't a financial benefit at some point in the sustainability chain of development, no sustainability projects would actually be completed. If you are a commercial real estate owner, would saving 20% of your annual utility costs be attractive to you? How would that impact the bottom line of your entire portfolio? The Department of Energy has invested heavily in building analytics and is a great source of product-neutral information on the topic. The DOE's Smart Energy Analytics Campaign promotes the use of energy efficient technologies like fault detection and building analytics technologies in the commercial building sector.

Every piece of mechanical or electrical equipment draws energy, which increases costs. Using analytics, the building operator can realize the direct cost of energy associated with the operating trends of the building and make adjustments to minimize those costs. If you know how much you pay for energy, how much energy your equipment uses, and when that equipment is in use, the building operator will have ultimate control over the utility costs of that facility.

The image shows a laptop screen displaying a BAS interface. The interface includes a sidebar with navigation icons (Home, Floorplan, Alerts, Plans, Dashboard, Reports, Tools) and a main content area with various data cards for 'CLASS-A COMMERCIAL' including weather, smart comfort (87%), equipment index (88%), chilled water (48.3°F), and energy contribution. Three pop-up boxes are overlaid on the right side of the screen, connected by arrows. Box 1 is titled 'ECONOMIZER Performance' and lists anomalies: 'Temperature sensor inconsistency, failure, or fault.', 'Not economizing when the unit should be economizing.', 'Economizing when the unit should not be economizing.', 'Damper not modulating.', 'Excess outdoor air.', and 'Insufficient outdoor air.'. Box 2 is titled 'Damper not modul...' and lists actions: 'Check the mixed air temperature sensor.', 'Verify that the mixed air temperature sensor input is in Auto.', 'Check the outdoor air temperature sensor.', and 'Verify that the outdoor air temperature sensor input is in Auto.'. Box 3 is a 'SELECT ALL' dialog box.

The three boxes shown above are examples of the fault detection anomalies working. They are actually pop up boxes that are accessible through the web interface of the BAS. Box 1 shows the rule. When clicked, it flips to Box 2 showing the possible problems (when there is a problem it will turn red). Box 3 shows various actions that can be taken to correct the problem. These boxes are a small example of one of the basic algorithms used in analytics.

# Technology and Innovation

The immediate financial benefit of implementing a continuous building analytics strategy also creates a ripple effect of positive benefits. Most importantly, analytics provide the ability to predict issues before they present themselves and maintain peak operational performance. Reducing problem calls is critical to maintaining tenant satisfaction/retention, especially in this competitive real estate market. Additional benefits include maintaining peak efficiency, identifying possible building system modifications, automated system commissioning, and providing the data to maintain energy efficiency requirements like Energy Star or LEED certifications.

## How does it Work?

Once the data is collected, the analytics platform uses software algorithms to determine if the building is operating properly and if there are faults in its operation that should be addressed. A few basic examples of this are listed below.

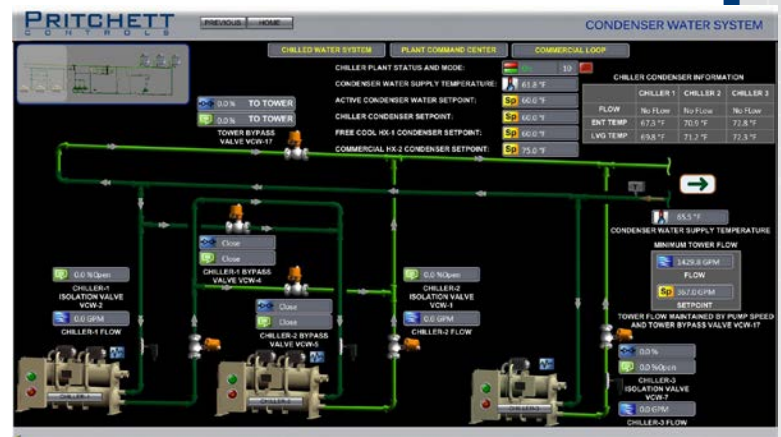
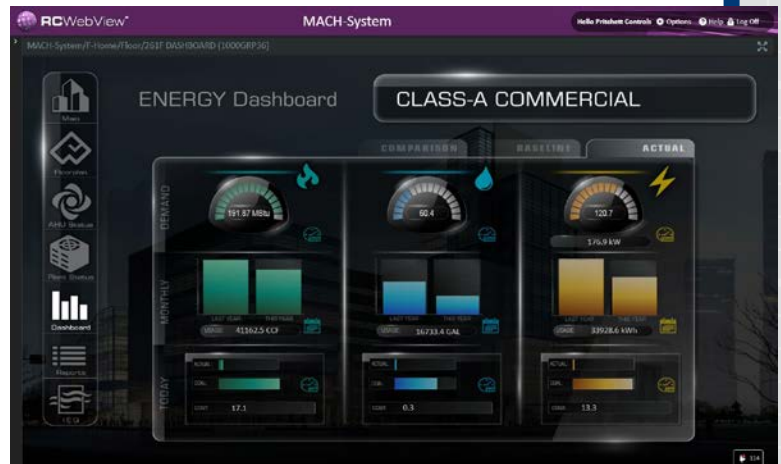
- **Equipment operating when buildings are unoccupied**
- **Simultaneous heating and cooling**
- **Excessive electric/gas usage of equipment outside of design intent**
- **Failure of economizing (free-cooling) operation**
- **Inability of equipment to maintain setpoints (temperature, pressure, humidity, etc.)**
- **Lights being left on when unoccupied**
- **Short cycling of equipment**
- **Valves stuck open or closed**
- **Prediction of clogged coils in HVAC equipment**

These faults are just a small sample of the capabilities. The full list varies based on the infrastructure and needs of the customer's portfolio. Identifying issues early will reduce catastrophic failures, reduce the cost of repairs, prioritize maintenance tasks, prioritize asset life cycle replacement schedules, and minimize the threat of tenant complaints.

In most cases the organization that provides and installs the analytics package will provide key decision makers with a monthly report summarizing the actionable data provided by the software. These reports are designed to provide enough technical data for the operating staff to take swift action while also providing a layman's description for the C-level executives who monitor portfolio performance. Analytics packages do an excellent job of taking complex data, summarizing it, and generating tangible action items that can be addressed.

## Next Steps

If you are responsible for commercial property and have interest in exploring the feasibility of Building Analytics, the easiest place to start is inquire with your incumbent Building Automation service provider. Most of the software platforms available to perform building analytics are designed to work directly with the major BAS providers. Some of us actually build the analytics elements into the BAS already, so reaching out to them is a great place to start. Of course, the energy team



at [Pritchett Controls](#) will gladly help anyone with this (regardless of system manufacturer) so please do not hesitate to reach out directly to us as well.

Technology is a truly amazing thing and embracing it throughout the commercial real estate industry is necessary to stay competitive. There's no time like the present to put that technology to work for you. **B**



# DC Water's DC Clean Rivers Project

By *Bethany Bezak, PE, LEED AP, Green Infrastructure Manager, DC Clean Rivers Project*

“Well, would you look at that – it works!”

That was the response from an attendee after seeing newly constructed permeable pavement infiltrating water at DC Water's kickoff event on October 23, 2017. The event marked the beginning of a nearly \$27M project to implement green infrastructure (GI) that will improve water quality in the District of Columbia's rivers. Mayor Muriel Bowser, DC Water's General Manager and CEO George Hawkins, Councilmember Brandon Todd, and District Department of Energy and Environment Director and DC Water Board Chair Tommy Wells were among the speakers celebrating the event.

Like many older cities in the United States, portions of the District of Columbia (District) are served by a combined sewer system that manages stormwater and wastewater together in the same pipes. During rain events in the District, the capacity of the combined sewer system can be exceeded, resulting in discharges of untreated combined sewer water into the waterways. DC Water is responsible for the mitigation of CSOs and is under a federal consent decree to reduce CSO volumes. The Rock Creek Project A (Project) contract is being constructed as part of DC Water's DC Clean Rivers Project (DCCR), a \$2.7B program that will reduce combined sewer overflows to the Anacostia and Potomac Rivers and Rock Creek by 96% by 2030.

DC Water's consent decree requires the construction of GI to manage the volume equivalent of 1.2 inches of rain running off of 498 acres to be implemented over the course of eight GI projects. The goal of DC Water's GI implementation is to reduce and slow down stormwater before it reaches the combined sewer system. The vast majority of this volume will be managed by GI constructed within and along the District's streets and alleys, through bioretention in curb extensions and within tree planter strips and permeable pavement in alleys and parking lanes.

The work being implemented is the first of the eight projects and includes 79 GI facilities in the right-of-way, from Oglethorpe Street NW to Gallatin Street NW and 3rd Place NW to First Place NE. In addition, bioretention and permeable pavement will be constructed at two triangle parks on Kansas Avenue at 2nd Street NW and 3rd Street NW, which will enhance the existing green space and provide community benefits such as outdoor classroom space for nearby schools.



*Attendees at the kickoff event showcase the performance of the newly installed porous asphalt. (From left to right: Councilmember Brandon Todd, Mayor Muriel Bowser, DC Water's General Manager and CEO George Hawkins, and DC Water Board Member Anthony Giancola)*

DC Water's focus is to implement the GI projects with an emphasis on:

- **Performance:** The GI must manage stormwater for CSO control to meet the consent decree requirements. Rather than a focus on improving quality of stormwater through filtering, treating, and cooling runoff as in a separate sewer system, GI for CSO mitigation must focus on detention of stormwater to mitigate for peak flows to the combined sewer system. Retention and in situ infiltration provide additional benefits where possible.
- **Cost effectiveness:** DCCR's program is ratepayer funded through an impervious area charge, so decisions at all phases of the project (including planning, design, construction, and maintenance) are made with a strong emphasis on providing cost-effective solutions to meet the consent decree requirements.
- **Triple bottom line benefits:** Triple bottom line benefits, defined as environmental, social, and economic, can be provided by the GI beyond the reduction of CSOs. Reduction of the urban heat island and supporting local green jobs are among the important benefits that GI will provide the local community where the GI is being constructed.



Perforated underdrain pipe, double-washed aggregate, and waterproofing liner (at sides) being installed by Anchor Construction as part of a permeable pavement facility in an alley.

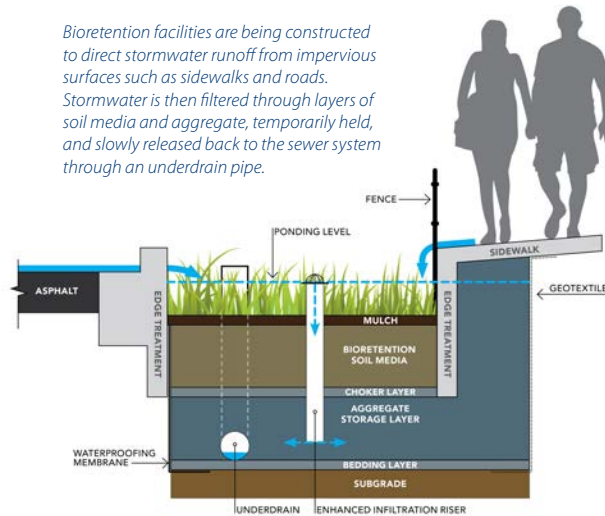


Raymond Coates discusses his experiences being trained and certified in GI through the National Green Infrastructure Certification Program and being newly hired at Anchor Construction.

DCCR Director Carlton Ray and Anchor representatives, Dan Buckley and Raymond Coates, also participated in the kickoff event and highlighted the partnership between the two organizations. Anchor Construction Corporation, a local certified business enterprise in the District, is constructing the GI work under a design-build contract with DC Water with the joint venture design team of Nitsch Engineering and AKRF. The construction scope of work includes utility marking, protection, and relocation; demolition of existing pavement and subgrade at the GI sites; excavation; installation of perforated underdrains, aggregate, bioretention soil, and native plantings; and installation of permeable pavement. The permeable pavement facilities in the parking lanes are being installed with porous asphalt and alleys are being installed with pervious concrete and pervious pavers.

In addition to the environmental benefits of constructing GI, the project will provide additional triple bottom line benefits (social and economic) such as local, green jobs for workers who install, inspect, and maintain the GI facilities. DC Water has committed that at least 51% of new hires on the project will be local, District residents and has committed to the use of trained and certified workers through the National Green Infrastructure Certification Program (NGICP).

Bioretention facilities are being constructed to direct stormwater runoff from impervious surfaces such as sidewalks and roads. Stormwater is then filtered through layers of soil media and aggregate, temporarily held, and slowly released back to the sewer system through an underdrain pipe.



DC Water and the Water Environment Federation partnered with 14 other jurisdictions nationally to develop and implement NGICP to train and certify GI inspection, maintenance, and construction workers to support performance of GI facilities and create a career path for individuals. Earlier this year, Raymond Coates successfully completed the GI training program and became certified under NGICP. He was hired by Anchor Construction to work on the Project, supporting DC Water's commitment to local, green jobs through the GI implementation. At the kickoff event, Mr. Coates highlighted his experience being trained and certified saying "The enthusiasm, the "can-do", "we will succeed and we will succeed with you" attitude permeated throughout this whole program."

After the construction is completed in early 2019, post construction monitoring will be conducted by collecting rainfall and measuring stormwater runoff in the sewer system to compare to the existing conditions before the GI was constructed. Additionally, DC Water has committed to the maintenance of the facilities after they are constructed and will include activities such as inspection of underdrains and cleanouts within the facilities, removal of sediment and debris from inlets, vacuuming permeable pavement, and weeding and mulching bioretention.

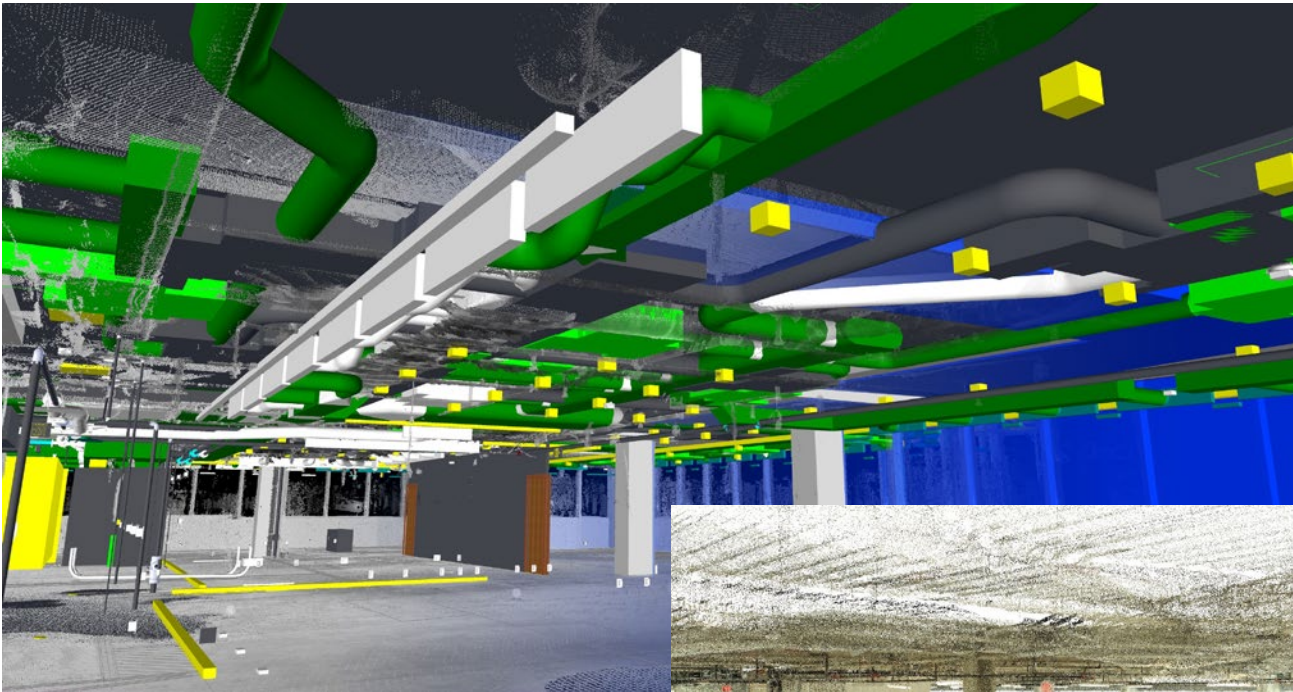
In addition to the project highlighted at the kickoff event, DC Water has worked with other District partners to implement cost-effective GI. This year, DC Water worked with the District Department of Transportation to include permeable pavement in the District's AlleyPalooza work, an initiative for construction, improvement, and repairs of alleys, and as part of the Kennedy Street Revitalization Project. DC Water also launched the Drain the Rain program in 2017, in partnership with Rock Creek Conservancy. Drain the Rain is a free, voluntary program to disconnect downspouts in residential areas. The program is available within a targeted area of the combined sewer system and offers free rain barrels to residents who participate.

For more information, please visit the following webpages: [dcwater.com/green](http://dcwater.com/green); [dcwater.com/rockcreekgreen](http://dcwater.com/rockcreekgreen); [dcwater.com/greenchallenge](http://dcwater.com/greenchallenge); [dcwater.com/draintherain](http://dcwater.com/draintherain); [ngicp.org](http://ngicp.org). **B**



# Reality Capture in Construction – What, Why, and Where

By David A. Stone, Director, Virtual Construction, HITT Contracting Inc.



Laser scan vs MEP composite.

First, let's define reality capture as a way to document the environment around us in a digital, 3D format. In the construction and design fields, we refer to this as the as-built condition; in this case, reality capture provides a true as-built versus an outdated set of drawings. As-built drawings may show a close representation of the built project, but more often than not, they lack some of the constructability elements and cumulative changes by owners to truly give accurate guidance for renovating an existing space.

### Why do we need it?

Renovations and/or additions of existing spaces require a specific sequence of events to take place to allow a successful outcome. Ideally an as-built model of the structure and other MEP elements that will remain is available, allowing new renovation or addition to seamlessly be added. But frequently this model is unavailable. Typically general contractors receive a 2D blueprint of the space or CAD drawings of the original design. Sometimes the design team creates an as-built model based on the best information available. All of these scenarios include a certain degree of risk that general contractors need to account for in the schedule, cost, or change orders due to unforeseen conditions.

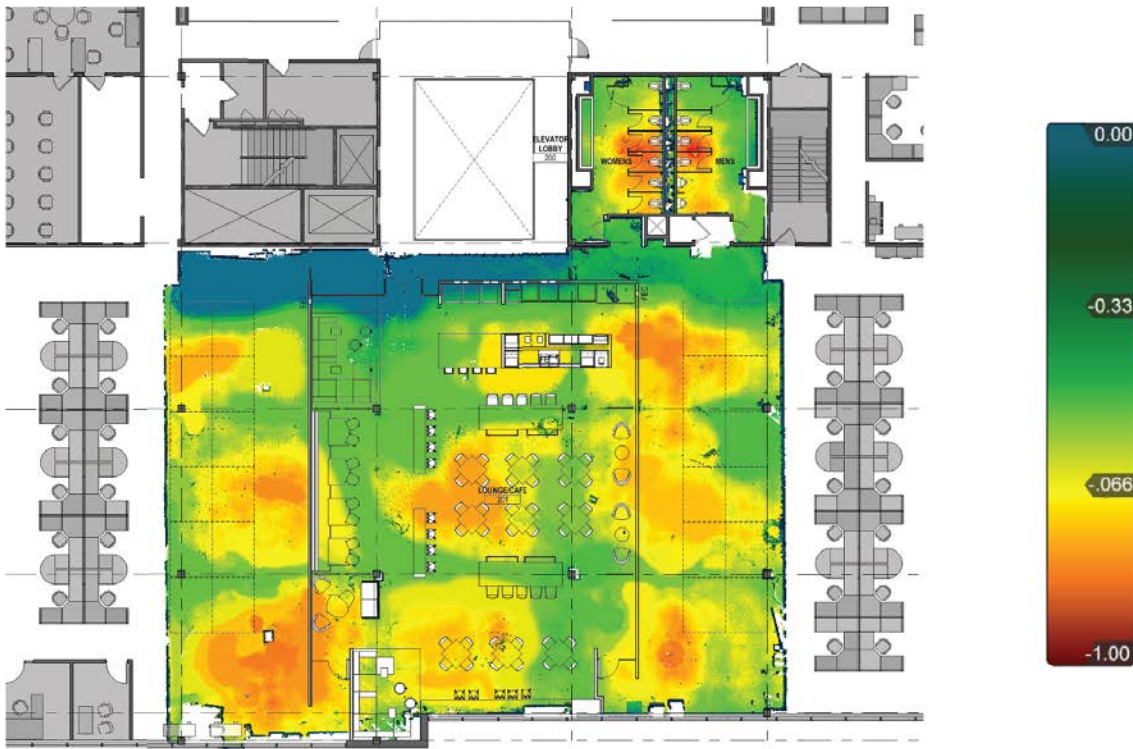


View in the cloud.

In the best case scenario, the project team can scan the space after demolition and leverage the scan data in the design and construction coordination phases. Very seldom do general contractors get sufficient time to allow efficient scanning and coordination workflow desired, but we find hybrid approaches to achieve scanning just in time to allow coordination and fabrication to proceed on schedule.

So let's explore some of the alternative reality capture methods. The most common use involves using a terrestrial scanner, like Faro, Leica, Top-Con, etc. Similar to a surveying instrument, the scanner shoots a light beam that bounces off the objects and back to the scanner based on line of sight to determine the distance for each point. The scanner creates millions of points per scan location to generate a 3D model called a point cloud. This process needs to be repeated several

Floor leveling sample.



times to capture the entire space under consideration. While this method is the most accurate way to create an as-built, it is also the most labor-intensive due to the multiple static locations needed to produce a complete record of the space. The scanning typically includes an additional time-consuming process called registration, where all the static scans get integrated into one complete model. Some newer scanners allow for the registration process to occur simultaneously with the scan process. Terrestrial scanners are ideal for vertical construction and civil work due to the high accuracy (typically 1/4-inch or better), range (about 1,000 feet on the high end), and ability to support sufficient data granularity for floor levelness heat maps.

The next method leverages photogrammetry and an optical scanner such as the Matterport, which uses a 3D camera to capture spaces and uploads the photos onto the Matterport cloud. Once the spaces are uploaded, users can perform a virtual walkthrough of the project at each capture point. We can now gather 360 degree photos of existing conditions to more accurately price fit-outs or renovations. These views of the existing conditions are also pertinent to ensure no damage was done to areas surrounding construction projects. As construction continues throughout a project, the progression can be tracked using 3D scans. This is especially applicable when performing unit rough-ins or locating studs and/or blocking after dry-wall has been installed. After the completion of construction, potential tenants can virtually tour a unit or building. The Matterport also allows 3D scans to be exported into a scaled PDF that can be used for takeoffs, dimensioning, etc. This method is more cost effective than terrestrial scanning, but is limited

in range/distance, is primarily for interior work, and lacks the accuracy of a terrestrial laser scanner.

Lastly we have LiDar scanners. These scanners are the newest to the industry and bring some significant benefits. They work similarly to a terrestrial laser scanner but allow the user to scan and navigate the space simultaneously. This method eliminates the need to register the scans, reducing the time and effort to produce an as-built. The most common application for this is to generate 2D as-built plans, or repeatable QA/QC models to compare construction progress with minimal effort. LiDar is comparable in price to terrestrial laser scanners. This method trades speed for accuracy (typically +/-1/2 inch at best) and is limited in range (about 60-100 feet).

Many project managers who have not had the opportunity to leverage laser scanning to create an as-built model for coordination will question its value, and this is the initial challenge due to cost and time constraints. My response starts with the importance of finding unforeseen issues such as drop beams or column heads, floor levelness, missing mechanical shafts or storm drains, and the potential MEP/FP to remain. Additionally, we discuss the value of certainty, quality, and safety. From a client/stakeholder perspective, the more we know about the existing space before we build allows us to proactively engage with the design team to address issues in a more efficient manner. Laser scanning has the potential to save the owner significant costs due to last-minute changes that typically are costlier and not the ideal solution due to time constraints, cost, and/or construction progress. **B**



## Lean Construction

By Sree Kala B Kadiani, Manager, Integrated Projects, Balfour Beatty

### WHAT is Lean Construction

Lean Construction adapts Lean production thinking coined by Toyota to the Construction industry. The Lean Construction approach to construction project delivery focuses on maximizing the value while minimizing waste. It encourages project teams to standardize processes that provide predictability and encourage continuous improvement. Lean projects better integrate teams through the use of collaborative tools and processes that improve trust.

### WHY: Value of Lean

Construction industry studies have shown that 50% or more of the effort required to deliver a built environment is non-value-added effort or waste in the eyes of the customer.

Lean Construction encourages the use of processes and techniques that eliminate this waste and increases overall efficiencies in the industry. It results in predictability and accountability that will help measure project performance at regular intervals. These metrics form the foundation for continuous improvement

### HOW: Tools and Techniques Implementing Lean Construction

Some of the processes that are most commonly practiced in Lean construction are:

#### Last Planner System®

Last Planner is a production planning system that helps create a predictable work flow with reliable promises promoting communication between different team members performing the work. It also promotes dialog and builds trust between various team members on the project. Using lean planning, monitoring and control systems, such as Just-In-Time (JIT) delivery and value stream mapping (VSM), and Pull Planning,



Figure 1: Benefits Reported by a High Percentage of Lean Practitioners (By Level of Achievement). Source: McGraw Hill Construction, 2013

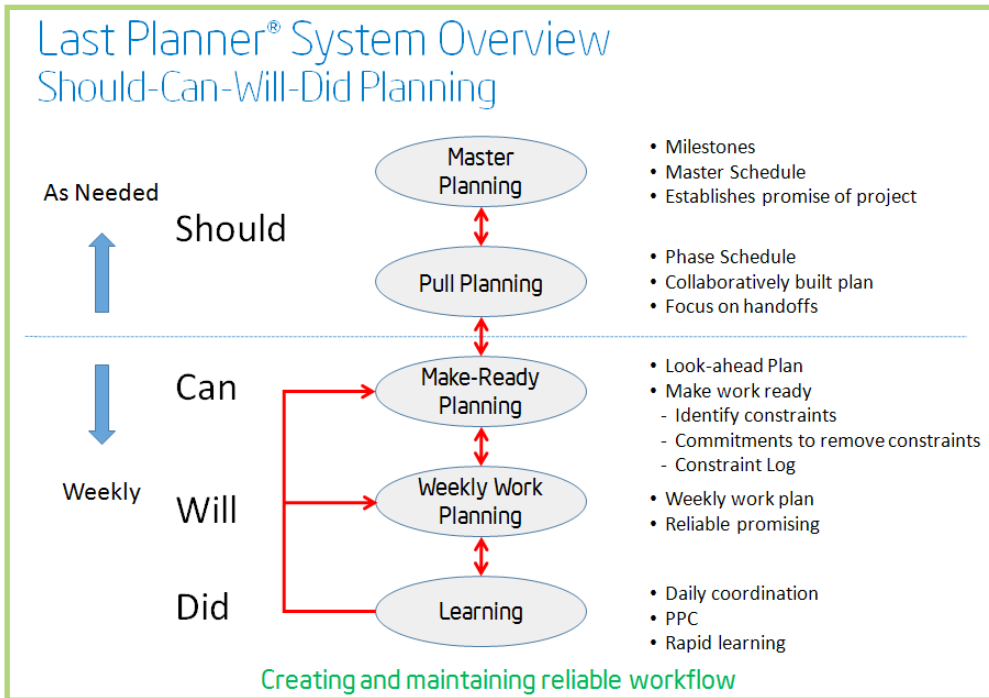


Figure 2: Last Planner System Overview  
© Lean Construction Institute

the Last Planner system can be adopted during both design and construction.

The goal of system is to continually improve the reliability of our commitments and thus the reliability of the flow of information and production on a project.

### Target Value Design

The Lean Construction Institute (LCI) defines Target Value as Delivery as follows: “A discipline management practice to be used throughout the project to assure the operational needs and values of the users, is delivered within the allowable budget, and promotes innovation throughout the process to increase value and eliminate waste.”

Target Value Design (TVD), offers the potential to ensure that owners get what they pay for. Owner plays a key role in defining and establishing the values for the project such as sustainability, staffing, square footage, operations and life-cycle costs. Design team can use these established values as the criteria to develop design within project’s budgetary constraints. The driving force of TVD is to increase value while decreasing cost for all team members.

### BIG Room /Co-Lo

The term Big Room refers more to the behaviors and actions of the team than the physical space. The Big Room is more than co-location of people; it is about collaborative behavior and the work they are producing.

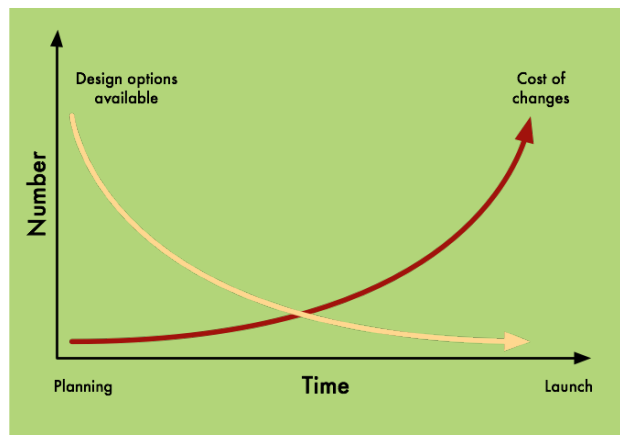


Figure 3: Increased Cost of Late Design Decisions

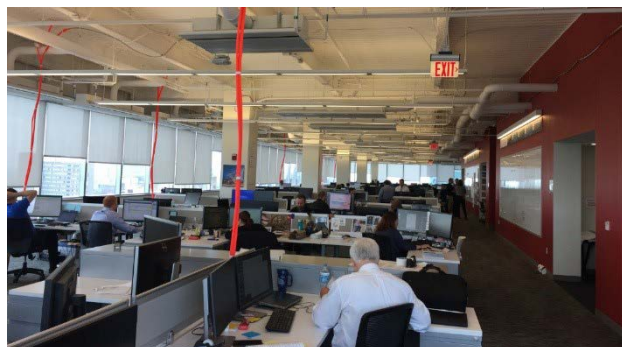


Figure 4: PennFIRST Colocation space, Philadelphia, PA



# Technology and Innovation

Big Room environment fosters team collaboration across function and disciplines. It provides an opportunity for the team to discuss project-wide concerns that effect multiple clusters of workgroups.

This helps ensure all project stake holders are up to speed on progress of activities of other groups or individuals. It also eliminates the waste generated (Time and Resources) through complex hand-off of information. Ideally the Big Room behaviors start as early in the project as possible. The duration and frequency of Big Rooms will vary from project to projects based on the stage and complexity of each project. The nature of the Big Room is expected to change several times throughout the project life. The focus of a Big Room should be continuous improvement that helps increase efficiencies for the project, each cluster groups, companies involved and each individual.

For the success of a Big Room, it is essential that all team members are empowered to provide input and communicate any concerns. Trust and respect for the people in a Big Room environment will help teams rapidly advance work in a relatively short amount of time with less rework.

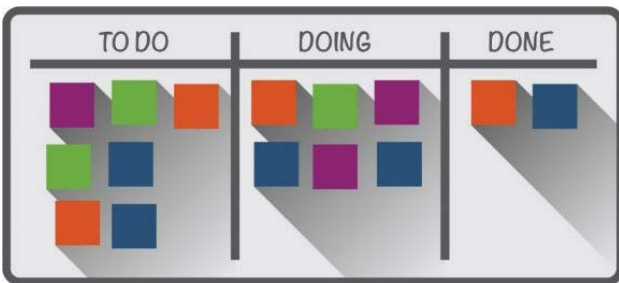


Figure 5: Kanban Task Management  
©Smart Sheet

## Daily Huddles/ Kanban

A daily huddle helps project teams focus on short term goals and tasks of each team or individual for the day. As the name suggest, these are conducted daily and limited to 10-15 min duration.

The three components discussed in a daily huddle are:

1. What did I complete yesterday?
2. What will I do today?
3. What are the constraints effecting my work?

The idea of a daily huddle is not to solve any project issues but to highlight possible constraints that may affect the progress on the project. This helps project team prioritize their work based on the workflow. This is a quick communication tool that brings a wholistic approach to the project progress and keeps the team moving forward. **B**

## Lean Construction Institute (LCI)

Lean Construction Institute is a non-profit organization, founded in 1997. The Institute operates as a catalyst to transform the industry through Lean project delivery using an operating system centered on a common language, fundamental principles, and basic practices. LCI has 31 operating Communities of Practice (CoP's) dedicated to advancing the mission of LCI within the industry.

Continuing education is the core for each Community of Practice. By offering education programs throughout each year, at both national forums and local Communities of Practice, we share new learnings and address questions and methods. Seminar topics include the tenets of Lean (Project Definition, Lean Design, Lean Supply, Lean Assembly, Production Control and Work Structuring) as well as specific topics such as safety, contractual agreements, cost control and implementation approaches. LCI offers education courses presented by instructors for: Business Case for Lean, Introduction to Lean Project Delivery, Introduction to Last Planner System, Target Value Design, Mindset of an Effective Big Room. Our education sessions are known for facilitating some of the best conversation in the industry.

## Upcoming LCI Events:

National Events:

- **20th Annual LCI Congress**  
<http://www.lcicongress.org/2018>  
October 15-19, 2018  
Orlando, Florida
- **2018 Lean in Design Forum**  
<https://www.leanconstruction.org/events/2018-lean-in-design-forum/>  
May 30-31, 2018  
Chicago, IL

DC Metro Community of Practice Events

- **A Lean Coffee – March**  
March 16th, 2018  
AGC, 2300 Wilson Blvd, Suite 300, Arlington, VA
- **A Lean Coffee – April**
- **A Lean Coffee- May**
- **A Lean Coffee- June**  
Mindset of an Effective Big Room  
July, 2018

## Additional Resources

- **Lean Construction Institute Website**  
<https://www.leanconstruction.org>
- **Lean Learning Videos**  
<https://www.leanconstruction.org/learning/getting-started-with-lean/#lean-videos>
- **Lean Articles**  
<https://www.leanconstruction.org/learning/getting-started-with-lean/#lean-videos>

## Author:

**Sree Kala B Kadiani**  
Manager, Integrated Projects  
Balfour Beatty  
LCI DC Metro CoP Core Team Member  
[skbkadiani@balfourbeattyus.com](mailto:skbkadiani@balfourbeattyus.com)

# Net Zero Energy Buildings – The Next Step Towards Sustainability

By Henry Ko, Service Sales Manager, Siemens Industry, Inc.

As the earth's population of over 7.6 billion people continues to grow, our society continuously seeks to develop sustainable practices with our limited resources and reduce emissions of greenhouse gasses. With population growth, naturally comes construction of more buildings and renovations of existing buildings. These construction projects are the most opportune time to integrate energy efficient designs and practices to achieve a Net Zero Energy Building (NZEB).

The concept of a Net Zero Energy Building is to produce as much energy onsite as it consumes over the course of a year, without the use of onsite combustion. These buildings are still connected to the grid and typically have a main source of energy generation from a form of renewable energy such as solar or wind. Most importantly, NZEBs deploy energy efficient design strategies to minimize consumption as much as possible. To properly execute and maintain these highly efficient buildings, all of the systems within the building need to be tightly integrated which include the electrical, lighting, shading, and HVAC systems.

A great example of a NZEB up and coming in the Washington DC area is the American Geophysical Union (AGU) HQ. It is the first building renovation in the area with a NZEB design. AGU is utilizing a rooftop solar PV array for its renewal energy source and is approximately a 250kw system according to the information on its project site. This solar system along with the building's efficient design strategies will potentially generate 100% of the buildings annual energy consumption.

Some of the design strategies that the building is deploying are a radiant cooling system, municipal sewer heat exchanger, electrochromic glass, DC Electrified Grid, and a smart lighting system. The radiant cooling system, like a chilled beam system, requires less energy to run compared to a forced air system because the temperature of the chill water has to stay above dew point to prevent condensation. This allows the main plant to run at a lower load, lowering energy consumption.

For the condenser water system, AGU is utilizing a municipal sewer heat exchanger in place of a traditional cooling tower. This system utilizes the sewer water to cool or heat the condenser water feeding a water to water heat pump system, so there is no energy spend on a cooling tower fan and more room on the roof for solar panels.

The electrochromic glass that will be utilized all around the exterior of the building will be able to automatically tint as needed to block out solar heat when it is unwanted in the cooling season and can be fully transparent to allow solar heat in



*The American Geophysical Union (AGU) HQ is the first building renovation in the area with a NZEB design.*

the heating season. The dynamic glass will allow the aesthetic design of the building to maintain its true form as no shades or blinds are required, while contributing to the energy efficiency of the building.

Since most led lights, appliances, and computers are powered by Direct Current, and the solar PV array generates Direct Current, AGU is implementing a DC electrified grid to deliver DC voltage directly without AC to DC conversion. This strategy eliminates the energy efficiency loss when converting AC voltage to DC, which can be up to 20 percent.

With all of these systems and strategies that will be in place, complexity increases when it comes to operations and maintenance. To holistically operate and monitor a building with these systems, it becomes necessary to integrate them together to ensure the building continues to operate as designed to meet NZEB requirements. Many building automation vendors and contractors have naturally taken on this role to be the system integrator. Having all of the smart systems within a building integrated into one robust user platform will allow facilities like AGU HQ to be a shining example in the DC area that Net Zero is achievable and sustainable. As more buildings in the area are being constructed and renovated, a Net Zero design should be considered to take a step further towards sustainability. **B**



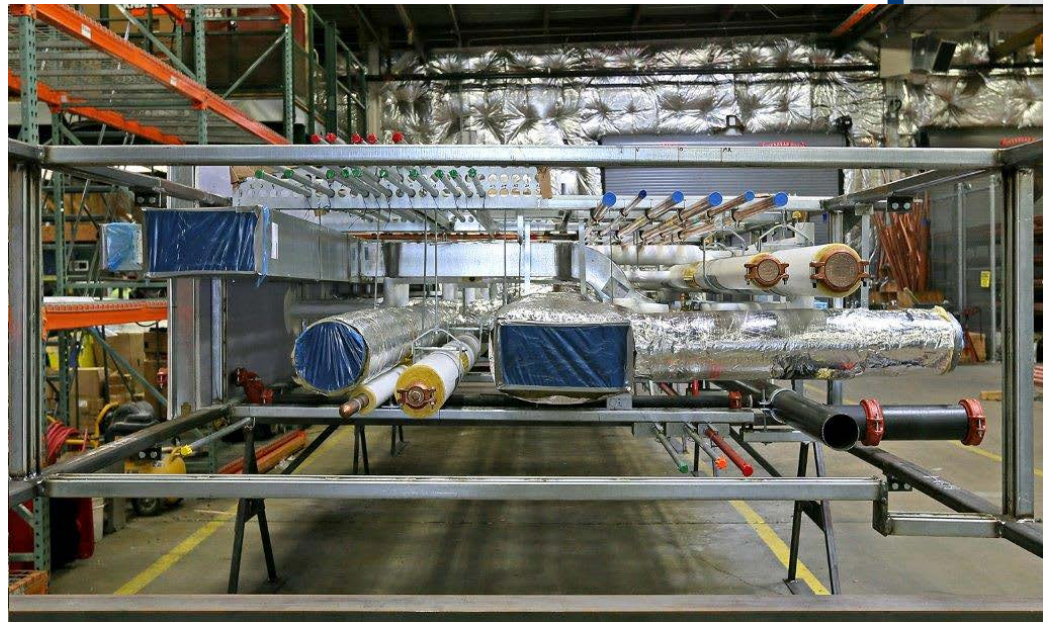
# PRACTICAL INNOVATIONS PROFILE: W.E. Bowers, Inc.

By **Melissa Nelson**, Carrier Sales Engineer,  
[Melissa.m.nelson@carrier.utc.com](mailto:Melissa.m.nelson@carrier.utc.com)

*How colleagues in the AECO industry are implementing technology to benefit the business of building.*

As a supplier with Carrier Commercial HVAC Equipment, I have a firsthand understanding of the importance that the mechanical contractor plays in successful HVAC project execution. Their work in the field, from building and running piping and ductwork, to rigging and installation of complex machinery, to controls and systems interface, and much more, is the lynch pin in the whole process. The mechanical contractor workers are the boots on the ground that turn the job from lines and code in a file, and disparate pieces, into a functioning system that comfortably heats and cools these class-A office spaces in DC and beyond.

When the WBC Regional Development Committee invited the Innovation group to come along on a tour at WE Bowers, I saw it as a great opportunity for an inside look on the process that I thought I knew. What I found out was that the team at Bowers has instituted a build process that is taking advantage of the leading Building Information Modeling technologies and off-site coordination to gain tremendous efficiencies and ultimately a competitive advantage on projects. Pat Bowen, the WE Bowers Sales and Marketing Manager, and member of the WBC Regional Development Committee, provided key insights into the “practical innovations” that are driving everyday work at their fabrication and assembly facility in Beltsville, Maryland.



*Pre-fabricated rack section for Sibley Hospital project*

**Q.** After I took the tour of the Bowers facility, I wanted to tell everyone how expansively your team is leveraging technology in each step of your work. At a very high level, can you give us a picture of the ideal digital workflow practice at WE Bowers from job start to finish?

**A.** Upon contract award, Bowers management will meet and determine our construction strategy for the project. Construction strategies discussed during this meeting include, but are not limited to:

- Coordination department requirements
- Prefabrication percentage goals
- Material storage and laydown options
- Document management plan
- Project staffing plan and schedule

The digital workflow plan for the project is developed based on the five factors listed above. For a larger, more complex project, Bowers would perform full BIM modeling of the piping and duct systems for



(Top) Steel shop pre-cutting pipe to length before it is released to the job site.  
 (Bottom) Quantity of pre-fabricated pipe fittings.

## Technology and Innovation

all components ¾" and larger. After confirming with other trades that there are no utility clashes for the proposed work, Bowers would start the spooling process for the piping and duct systems for components where prefabrication is to be used. The spool sheets (fabrication drawings) are developed by the Coordination Department and sent to the field foremen for their review. Upon their approval, the drawings go to the Fabrication Shop where they are built.

The Coordination staff is much stronger if the individuals have an understanding of the systems that they are drawing. They must be more than just "CAD" technicians. It starts with a coordination team leader who is well versed in the HVAC, Plumbing and Sheet Metal trades and also has a good general understanding of the related trades (electrical, life safety, automatic temperature controls, insulation, and air/water balance). The coordination manager must have the ability to multi-task moving between duties which include general management of personnel, interaction with the coordination departments of other firms working on the project, and insuring the timely flow of current information (submittal data, specifications, addenda, RFI responses, etc.) to the coordination staff. The project management staff must be in tune with this by facilitating timely flow of information items to the Coordination Department Manager. Development of the Pre-Construction checklist with follow-up team meetings is very helpful in organizing which individual tasks each individual on the team is responsible for administering.

**Q.** When I visited, I saw the "racks" that you had built for modular installations on job sites. They are impressive! Can you describe the rack and the objective behind building them?

**A.** Bowers led the effort in the construction of over 2,000 linear feet of "rack" construction at Sibley Hospital. These racks were multi-trade assemblies which consisted of a structural steel frame, drywall walls, mechanical piping, medical gas piping, plumbing piping, electrical conduit, insulation, ductwork, HVAC equipment and fire protection. Each rack was approximately 8' wide, 20' long, and 3.5' high and were installed as the corridor ceilings of the hospital. The racks were fabricated in the Bowers Prefabrication Shop, shipped complete to the field, and hung as an assembly. The corridor ceilings of a hospital are some of the most congested areas of construction. By prefabricating these assemblies, Bowers and the project team were able to eliminate the field stacking of trades, damage to work due to insufficient working space, as well as save significant time on the overall construction schedule.

**Q.** The WBC has a cross section of building industry members who will be reading this article. What advice would you give them in order to make the BIM process for effective and efficient for the mechanical contractor?

**A.** The BIM process has revolutionized how we manage and prefabricate a project. As a project team, we are now able to virtually build the project before a single piece of pipe is delivered to the field. By using this method, we can virtually resolve almost all of the construction conflicts. Prior to BIM, these conflicts would have to be resolved in the field and at a much higher cost and more significant impact to the project schedule.

As with most things, the more effort that is put into the model, the more accurate it will be. Adequate time needs to be given by the General Contractor to properly complete the model, and all trades need to buy in and support the process. Architectural and structural features need to be accurately modeled, and maintenance access for mechanical and electrical equipment needs to be considered. With proper scheduling and support of all the trades, an accurate model will assist the General Contractor in ensuring a smoother running project and will improve the overall quality of the project being turned over to the Owner. **B**



# Member Projects




100 K, Washington, DC (Top) and project team (Above).

**Donohoe Construction Company** hosted a “Topping Out” celebration in January for **100 K**, a 13-story, luxury apartment building in Washington, DC’s NoMA neighborhood. Developed by **Equity Residential**, the project is conveniently located two blocks from the NoMA-Gallaudet Metro and three blocks from Union Station. **WDG Architecture** designed 100 K with 222 residential units, below grade parking, and several amenities, including a rooftop pool and terrace, a courtyard, fitness center, and a private bar and lounge. The project is expected to reach substantial completion in Fall 2018.


Donohoe Construction’s **Brandywine Living at Alexandria** project has received its Certificate of Occupancy,



# Member Projects



**SITE PREPARATION  
DEMOLITION  
EXCAVATION**



**AMERICAN PHARMACIST**

2851 V Street NE - Washington DC, 20018  
202-882-2600 - FAX 202-882-5330



Keeping the legal side  
of your industry  
in perspective  
while you soar  
to new heights

**W T** BUILDING SOLUTIONS  
**WATT TIEDER**  
WATT, TIEDER, HOFFAR & FITZGERALD, L.L.P.  
www.watttieder.com



**WCS** CONSTRUCTION

BUILDING PARTNERSHIPS EXCEEDING EXPECTATIONS

[www.wcsconstruction.com](http://www.wcsconstruction.com)



## Member Projects

*Brandywine Living at Alexandria, Alexandria, VA*

marking an important project milestone. Brandywine Living at Alexandria is a six-story, 116-suite community with ground floor retail space and two levels of below grade parking. Located in the Camden Park development in Alexandria, this senior living community includes a therapy pool and gym, indoor and outdoor courtyards, a movie theater, beauty salon, a pub, patios, and private dining areas. **Architect Niles Bolton and Associates** designed the building to achieve a LEED silver certification.

**Lendlease** will be providing construction services for two high profile projects with **Monument Realty** — **One M** and **Avidian**, both are located at the Capitol Riverfront in Washington, DC.

One M will be an 11-story office building that will serve as the new headquarters for the **National Association of Broadcasters** when completed. One M, designed by **HOK**, will feature a rooftop, two-story conference center with unobstructed views of the U.S. Capitol and Washington's monumental core.

Avidian, a 14-story residential condominium, designed by **Gensler**, is located adjacent to One M — just outside Nationals Park. The project will feature a diverse mix of unit types, as well as a fitness club, zen garden and rooftop terrace with swimming pool, fire pits, club lounge and outdoor seating with sweeping views of the monuments. **B**



**BUILT to SUCCEED**

in



**COHEN SEGLIAS**  
PALLAS GREENHALL & FURMAN PC  
Attorneys at Law

1828 L Street, NW  
Suite 705  
Washington, DC 20036  
202.466.4110

[www.cohenseglias.com](http://www.cohenseglias.com)  
[www.constructionlawsignal.com](http://www.constructionlawsignal.com)  
[www.fedconblog.com](http://www.fedconblog.com)  
[www.investigationslawblog.com](http://www.investigationslawblog.com)

PENNSYLVANIA NEW JERSEY NEW YORK DELAWARE MARYLAND WASHINGTON, DC KENTUCKY

**PIONEER**  
Cladding & Glazing Systems

**Proud New Member of the WBC**

**513.583.5925 - [www.pioneerglazing.com](http://www.pioneerglazing.com)**



**FOOD & FRIENDS®**

Help prepare and package, meals for and delivers meals and groceries to more than 1,400 people living with HIV/AIDS, cancer and other life-challenging illnesses throughout the Washington area.

[foodandfriends.org](http://foodandfriends.org)

# Freestate

## Electrical Companies

Comprehensive Electrical Construction and Service

- Commercial
- Government
- Industrial
- Secured Facilities
- Healthcare
- Financial Institutions
- Educational



Toll Free: 866-863-7272

[www.freestateelectric.com](http://www.freestateelectric.com)

Member of THE ELECTRICAL ALLIANCE

A Powerful Advantage



# Forrester

CONSTRUCTION



Thank you to the outstanding craftsmen and women who build Forrester's award-winning projects. *You keep us building.*

[www.forresterconstruction.com/subcontractors](http://www.forresterconstruction.com/subcontractors)



Rebuilding Together®  
*Rebuilding Together Workday*

Saturday,  
April 28, 2018



# 2018 Annual Sponsors

## CORPORATE SPONSOR

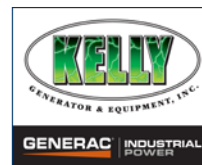


**Anchor Construction**, a CBE, specializes in utility construction: water, storm, sewer, ductbank, and concrete flatwork restoration. Also, as a general contractor, we perform roadway and bridge construction. Anchor's capability and expertise allow us to build new infrastructure and rehabilitate existing infrastructures.

## STEEL SPONSORS



## ALUMINUM SPONSORS



## CONCRETE SPONSORS

Asmar, Schor & McKenna, PLLC  
Clark Construction Group, LLC  
Cohen Seglias Pallas Greenhall & Furman PC  
EDG2, Inc.  
Grunley Construction Company  
Hensel Phelps

PCC Construction Components  
Peckar & Abramson, P.C.  
Rosendin Electric, Inc.  
Telligent Masonry, LLC  
Watt, Tieder, Hoffar & Fitzgerald, LLP

## AGGREGATE SPONSORS

Chutes International

ECS Mid-Atlantic, LLC

# AECOM Tishman proudly serves the Washington Building Congress!



[aecomtishman.com](http://aecomtishman.com)

**AECOM TISHMAN**

[pepco.com](http://pepco.com)



## POWERING BUSINESSES FOR COMMUNITY GROWTH.

We're committed to providing safe, reliable and affordable energy that local businesses need to help our communities grow.



An Exelon Company

© Pepco, 2017



## New Members

### ACI & Senza Fine, Inc.

23430 Rock Haven Way, Suite 170  
Dulles, VA 20176  
p: 703-204-2300  
f: 703-204-2307  
www.facebook.com/ACIandSenzaFineInc  
Representatives: **John Schubert, David Wiegel**

### Heller Electric Company, Inc.

14218 Brandywine Rd.  
Brandywine, MD 20613  
p: 301-372-6816  
f: 301-372-6816  
www.hellerelectric.com  
Representative: **Brian J. Heller**

### Kastle Systems

6402 Arlington Blvd.  
Falls Church, VA 22042  
p: 703-528-8800  
www.kastle.com  
Representative: **Ibrahim Sagatov**

## New Small Business Members

### Commun-ET, LLC

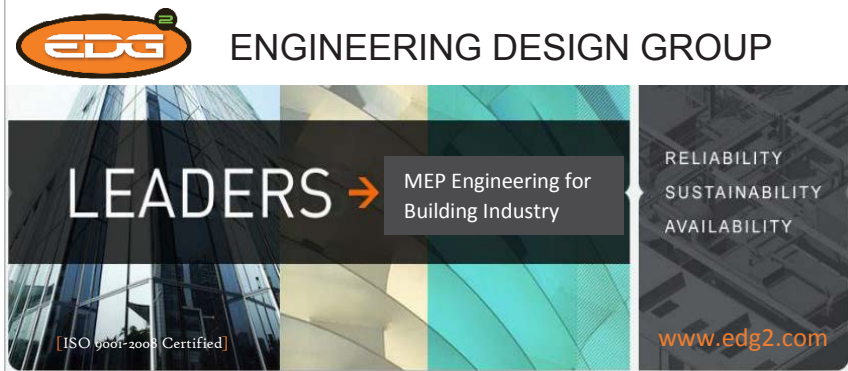
100 M St., SE, Suite 620  
Washington, DC 20003  
P: 202-688-0484  
F: 202-688-0439  
www.commun-et.com  
Representatives: **Charlotte Ducksworth, Ian Swain**

### Field & Tung Structural Engineers

2031 Florida Ave., NW  
3rd Floor  
Washington, DC 20009  
www.fieldtung.com  
Representative: **Jon Tung**

### KLM Consulting LLC

1007 North Orange St., Suite 412  
Wilmington, DC 19801  
p: 800-520-8135  
f: 800-520-5818  
www.klmcons.com  
Representative: **Kristin L. Marinelli**



**EDG** ENGINEERING DESIGN GROUP

**LEADERS** → MEP Engineering for Building Industry

RELIABILITY  
SUSTAINABILITY  
AVAILABILITY

www.edg2.com

ISO 9001-2008 Certified



SUCCESS

RESULTS FIRST™

**PA**  
Peckar & Abramson, P.C.

COUNSEL TO THE CONSTRUCTION INDUSTRY

2055 L STREET, N.W.  
WASHINGTON, D.C. 20036  
202.293.8815

NEW YORK, NY • RIVER EDGE, NJ • MIAMI, FL • WASHINGTON, D.C. • LOS ANGELES, CA  
OAKLAND, CA • CHICAGO, IL • AUSTIN, TX • DALLAS, TX • HOUSTON, TX • DEVON, PA  
WWW.PECKLAW.COM

## Full Service Electrical Contractor Specializing in the Following Services:

- 24-hour Emergency Service
- Preventive Maintenance Services
- Infrared Thermography Scan
- Lighting Retrofits
- Estimating/Budget Services
- Mission Critical Facility Maintenance
- Service Contracts
- Generator/UPS Installations
- Design-Build/Assist Capabilities
- 3D Modeling
- Fire Alarm Tenant Fit-out
- Fire Alarm Retrofits of Existing Systems
- Fire Alarm/Sprinkler Testing & Service

Celebrating 50+ Years of Gold Standard Service!

 **Dynalectric**  
An EMCOR Company

22930 Shaw Road, Suite 100, Dulles, VA 20166  
Call: 703-724-3500  
Visit: www.dynalectric-dc.com

# New Members

## Stone Mountain SDVOB, LLC

545 Beckett Rd., Suite 204  
 Swedesboro, NJ 08085  
 p: 856-294-9440  
 www.stonemountaininsdv.com  
 Representatives: **Harry Blackburn, Elena Matysyna**


## New Member Descriptions

### ACI & Senza Fine, Inc.

ACI & Senza Fine, Inc. is the exclusive Armourcoat partner for Virginia, Maryland, Washington, DC and the Carolinas, offering natural polished plaster, stone effects and decorative painting. They are a certified installer of acoustical plaster and proficient in all hand-troweled interior applications.

### Commun-ET, LLC

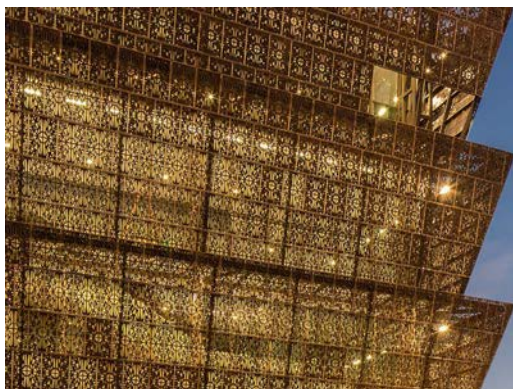
Commun-ET, LLC is a full-service, strategic consulting firm concentrating in permit expediting, public engagement, and drone/unmanned vehicle systems operations (including underground operations) in the Baltimore/Washington, DC Metropolitan area. The firm is a CBE/DBE firm based in Washington, DC.



# WT


## WHITING-TURNER

Construction Management | General Contracting | Design-Build | Specialty Contracting  
 6305 IVY LANE SUITE 800 | GREENBELT, MD 20770 | 301.656.7800



BUILDING  
 WASHINGTON  
 FOR OVER  
 A CENTURY

**CLARK**  
 CONSTRUCTION



**ROSENDIN**  
 ELECTRIC

DATA CENTERS. BIOTECH/  
 PHARMA. HEALTHCARE.  
 COMMERCIAL. HIGH  
 TECH. RENEWABLE  
 ENERGY. EDUCATION.  
 HOTELS. INSTITUTIONAL.  
 TRANSPORTATION.

WWW.ROSENDIN.COM

### THE PRACTICE OF SOLUTIONS

Construction | Government Contracts  
 Real Estate Transactions

Ranked by **Chambers USA** as one  
 of the leading Construction law  
 firms in Washington, DC

**ASMAR | SCHOR**  
 MCKENNA

5335 Wisconsin Avenue, NW Suite 400  
 Washington, DC 20015  
 202-244-4264 ♦ www.asm-law.com



## New Members

### Heller Electric Company, Inc.

Heller Electric Company, Inc. is a full-service Electrical Contractor serving the Washington, DC metro area since 1946.

### Kastle Systems

Kastle Systems is the leading complete building management security / access control solution for the past 45 years, providing innovative construction site remote video guarding solutions.

### KLM Consulting LLC

KLM Consulting LLC, an affiliate of AIM, is led by seasoned insurance advisor, Kristi Marinelli, who has been in the insurance industry since 1984. KLM's focus has been providing the construction and commercial real estate development and property management industries through well-designed commercial insurance and risk management solutions since 1992. Risk management solutions being: third-party documentation tracking and compliance (i.e. Certificates of Insurance), workers' compensation cost reduction, outsourced EHS/OSHA consulting and safety supply, insurance audit dispute, certain human resource services, and commercial insurance program design services.

### Stone Mountain SDVOB, LLC

Stone Mountain SDVOB, LLC is a general contractor that provides a wide range of services to government and commercial customers. The company's management staff includes: project managers; safety, quality control, procurement and environmental managers; superintendents; and an in-house field construction team.<sup>B</sup>

Advertise in the  
**Bulletin**  
Call (202) 293-5922  
for more information



### ARCHITECTURAL WALL SYSTEMS

**Design assist specialty contractor supporting the building envelope with custom curtainwall and architectural wall systems.**

7600-C Lindbergh Drive, Gaithersburg, MD 20879  
301.417.1020 | [www.teamppc.com](http://www.teamppc.com)



**Fox Rothschild** LLP  
ATTORNEYS AT LAW



**Experienced Construction  
Litigation Attorneys and  
Trusted Business Advisers in the  
Private and Federal Arenas**

*Proud Sponsors of the  
Washington Building Congress*

**Reggie Jones**  
Construction Partner

Chair, Federal Government Contracts Practice  
202.461.3111 | [rjones@foxrothschild.com](mailto:rjones@foxrothschild.com)

**Dirk Haire**  
Construction Partner  
202.461.3114  
[dhaire@foxrothschild.com](mailto:dhaire@foxrothschild.com)

**Doug Hibshman**  
Construction Partner  
202.461.3113  
[dhibshman@foxrothschild.com](mailto:dhibshman@foxrothschild.com)

**Nick Solosky**  
Construction Partner  
202.696.1460  
[nsolosky@foxrothschild.com](mailto:nsolosky@foxrothschild.com)



# ANCHOR CONSTRUCTION CORPORATION



**EXCELLENCE,  
OUR BEDROCK FOR SUCCESS**

**Our mission is to form**

"Partnerships resulting in innovative, cost effective and quality construction, exceeding our customers' expectations in a safe environment."



Approved Contractor for:



"Anchor Construction Corporation is Happy to Support the WBC FY' 18 Annual Corporate Sponsorship"

- Florentino Gregorio  
President

*Anchor Construction, a CBE, specializes in utility construction: water, storm, sewer, ductbank, and concrete flatwork restoration. Also, as a general contractor, we perform roadway and bridge construction. Anchor's capability and expertise allow us to build new infrastructure and rehabilitate existing infrastructures.*

Offices in Washington, D.C. & Maryland

Licenses in: VA, MD, DC, DE



WATER



# WBC Calendar & Advertising Information

## Events Calendar

### April 2018

- **April 12**, 10:00 & 11:00 a.m.  
U.S. Capitol Dome Tours  
Hammerhead's Committee Members
- **April 24**, 5:30 to 8:00 p.m.  
Silver Line Corridor Evening Program  
Sheraton Tysons Hotel – Tysons, VA
- **April 28**, 8:30 a.m. to 4:00 p.m.  
Rebuilding Together Workday  
Fairfax County, VA

### May 2018

- **May 2**, 8:30 to 10:00 a.m.  
Buy America Act Seminar  
WBC Conference Room
- **May 4**  
Hammerheads Potomac River Cruise
- **May 23**, 4:00 to 5:00 p.m.  
WBC Member Testimonial Forum  
Spring Networking Pre-Event  
Location TBA
- **May 23**, 5:00 to 7:00 p.m.  
Spring Networking Event  
Location TBA

### June 2018

- **June 6**, 5:30 to 8:00 p.m.  
Healthcare Industry Panel Evening Program  
The Sunset Room By Wolfgang Puck  
National Harbor, MD
- **June 11**  
Golf Outing  
Golf Club at Lansdowne and Belmont  
Country Club, Leesburg, Va.

### August 2018

- **August 22**, 5:00 to 7:00 p.m.  
Summer Networking Event  
Cactus Cantina - DC

The **Bulletin** covers issues of importance to the building industry, news about WBC members and information about upcoming events. The topics listed below will be covered as feature articles in upcoming issues of the **Bulletin**. Persons interested in contributing information or advertising should contact WBC before the third week of the month preceding the issue. The **Bulletin** is published ten times a year by WBC. To place an ad, submit material or for more information call **(202) 292-5922**.

## Editorial Calendar

**December/January**  
Member Charitable Giving

**February/March**  
Technology & Innovation

**June/July**  
Rebuilding Together Workday

**April/May**  
Craftsmanship Awards  
& Hall of Fame

**August/September**  
Marketing & Business  
Development

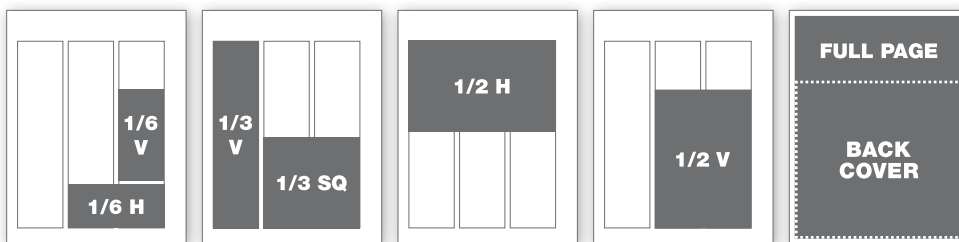
## Ad Rates

	1 time	3 times	6 times
<b>Member Rates:</b>			
<b>Black and White</b>			
1/6 horizontal or 1/6 vertical	\$155	\$130	\$110
1/3 vertical or square	\$230	\$190	\$150
1/2 horizontal or vertical	\$430	\$350	\$290
Full-page	\$630	\$510	\$410
<b>Color</b>			
Inside Front Cover	\$730	\$590	\$480
Inside Back Cover	\$730	\$590	\$480
Back Cover	\$830	\$670	\$540

	1 time	3 times	6 times
<b>Member Rates:</b>			
<b>Black and White</b>			
1/6 horizontal or 1/6 vertical	\$210	\$176	\$149
1/3 vertical or square	\$311	\$257	\$203
1/2 horizontal or vertical	\$581	\$473	\$392
Full-page	\$851	\$689	\$554
<b>Color</b>			
Inside Front Cover	\$986	\$797	\$648
Inside Back Cover	\$986	\$797	\$648
Back Cover	\$1,121	\$905	\$729

Magazine trim size: 8.5" w x 11" h | Live area: 8.375" w x 10.875" h

## Ad Sizes



1/6 horizontal	4.43" w x 2" h
1/6 vertical	2.1" w x 4.2" h
1/3 square	4.43" w x 4.2" h
1/3 vertical	2.1" w x 8.6" h
1/2 horizontal	6.75" w x 4.2" h
1/2 vertical	4.43" w x 6.38" h
Back Cover	8.0" w x 7.5" h
Full-page	8.25" w x 10.75" h
Full-page + bleed	8.5" w x 11" h +125" bleed



# Formulated for the **Future of Glass**

PPG's former flat glass business unit was acquired by Vitro Glass to form North America's largest glass producer. Now, with an exclusive focus on glass, we're making investments to expand capabilities and capacity. Yet, there are some things that won't change.

- **Same Products** from the **Same Plants**
- **Same Technology** and **Distribution**
- **Same People**

**Vitro and PPG. The same, but better.**

That's why we're Formulated for the Future of Glass.



**Local contact and WBC member:**  
**George Sultage**  
*Senior National Architectural Manager*  
412-400-2920  
gsultage@vitro.com



**Vitro Architectural Glass**  
vitroglazings.com  
1-855-VTRO-GLS (887-6457)