



Letter from the President

By Ray Smith (GHT Limited)

Greetings NCC Members!

In this newsletter you'll find informative articles on our recent event at ATI, Membership benefits, a recap of the NCBC, an article on Data Center CRAC Cx, and an article on the 1st Net Zero historic building.

I recently attended a mid-year forecast sponsored by the Northern Virginia chapter of NAIOP (National Association of Industrial and Office Properties). The event was a luncheon wherein the audience listened to a moderator and expert panelists that included investors, bankers, developers, an architect, and a General Contractor. The audience was similar in make-up, w/ the addition of lawyers. The questions posed, and responses given were very informative, but perhaps the most interesting to you might be their unanimous but individual forecasts that in the short term (1 year) the rate and type of construction activity would remain similar to the last 9-12 months, with essentially no significant economic growth and resultant lagging in the construction industry. However, in a 2 year outlook they unanimously, but individually, stated in different ways that this election cycle is playing a significant role in whether the economy would continue to languish, or improve. What I interpret from those comments considering the economic HP of the respondents is that those who take financial risk for a living will tend to *not* do so, if they are taxed of any reward for having done so.

Regarding Cx business opportunities, although this list is not comprehensive the Cx industry in our area is going to grow, helped largely by jurisdictions that are in the process of adopting, or have already adopted codes that compel commissioning, or provide other incentives for doing so. They are as follows;

- Baltimore City (BCGBS)
- Washington, DC (IGCC)
- IBC (Health Care Facilities)
- BG&E RcX Program (BGESmartEnergy.com)

In closing, please remember; We work so that we can live, not vise-versa. So, enjoy your health, and loved ones today!

Best wishes,
Ray Smith

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Event Recap

BUILDING COMMISSIONING ASSOCIATION (BCA) PRESENTATION

Location

ARCHITECTURAL TESTING HEADQUARTERS . YORK, PA . 5.4.2012

Presenters

JOHN A. RUNKLE, P.E. – ARCHITECTURAL TESTING, INC.
TONY DILEONARDO – BUILDING COMMISSIONING ASSOCIATION

Participants at the BCA Presentation held at the Architectural Testing, Inc. (ATI) facilities in York, Pennsylvania not only received an overview of the many different services that ATI offers to the building industry, but they were also educated on the emerging practice of Building Envelope Commissioning. John Runkle, director of ATI's Building Sciences division, explained to attendees the importance of Building Envelope Commissioning and its interaction with the more established practice of Building Mechanical Systems Commissioning. Attendees learned a brief history of Building Envelope Commissioning, the different steps of the process from the Pre-Design Phase to the Operations and Maintenance Phase, as well as the current trends of the practice.

The day at ATI began with a tour of the facilities that provide the wide array of testing and consulting services to the many entities involved in the building industry including product manufacturers, architects, engineers, and building owners and developers. The approximately 40 attendees were exposed to ATI's 200-foot shock tube (Figure 1), a demonstration of the Structural Wall department's impact cannon (Figure 2), a dynamic pressure water penetration test using one of ATI's 8 WOLF machines (Figure 3), and several other of ATI's building-related testing capabilities. The roles of this lab and field testing in the Building Envelope Commissioning process were also discussed during the tour.



Figure 1



Figure 2



Figure 3



Membership Pays!

BCA membership offers many benefits, including:

- **Unique training opportunities:** Our training courses allow members to stay up-to-date on the most recent trends and technologies in the commissioning industry.
- **Resources and publications:** We provide access to the latest techniques, tools, and procedures for effective and efficient commissioning through newsletters, resource listings, workshops, and training programs. Whether you are just entering the industry or are a seasoned commissioning provider, we offer the resources to satisfy your professional needs.
- **Professional development:** Through our training and certification programs, we can help commissioning providers achieve recognition as dedicated and knowledgeable professionals.
- **Marketing and business development:** BCA membership not only provides the opportunity to network with important industry decision-makers, it also markets commissioning to building owners.

The BCA also has something to offer building owners and commissioning advocates:

- **Qualified resources:** Our Commissioning Provider Directory provides owners with a list of commissioning professionals they can rely on to deliver the highest quality commissioning services.
- **Participation:** The BCA gives owners and advocates an opportunity to actively participate in setting new standards for training and practices, helping to shape the future of the commissioning industry.

Commissioning Country's First Net Zero Historic Structure

Reported by Wayne Williams PE, CCP, CFM

Roger Chang of Westlake Reed Laskosky recently spoke as the Engineer of Record at the National Capital Chapter of ASHRAE meeting about this soon to be occupied renovated LEED platinum and Net Zero courthouse building located in Grand Junction Colorado. Phased construction continues and, as of this summer, is about 75% done. LEED commissioning of the energy consuming systems will include HVAC, plumbing controls, lighting controls and the solar PV array. The commissioning work also included review of the energy model, design drawings and specifications, and construction submittals.

At this location in Colorado, outdoor temperatures can get down to 10 degrees in winter and up to 100F in the summer. There is almost as much solar sunshine as in Phoenix - which is one of the sunniest climates in the United States. We're all hoping the weather in the future does not deviate from these sunny averages, because if so the design engineer is in big trouble! The alternate source of electricity for the project is a 140 kva photovoltaic array on the entire roof. This system has two arrays; one angled at 15 degrees and one horizontal. The historic geometry of the building had a cut out on the upper floors which made finding the required square footage for installing the solar PV challenging. Design had to be carefully coordinated with the historic preservationist to ensure the front elevation of the historic structure was maintained in a pristine state.



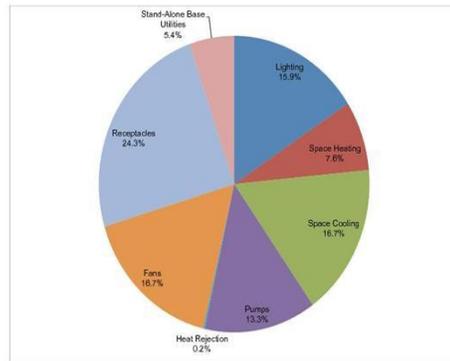
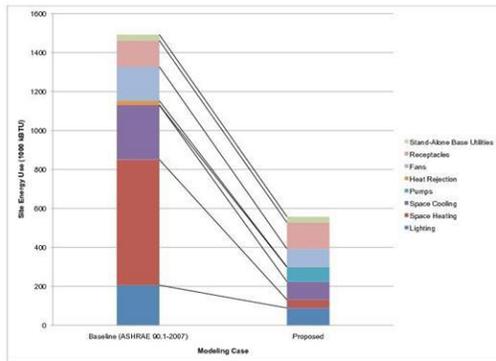
Wayne N. Aspinall Courthouse - For more information on this project see link below.
<http://www.gsa.gov/portal/content/229845>

The building's HVAC system includes a hybrid geothermal system with a fluid cooler and 32 vertical wells drilled to 500 feet in the parking area where the black asphalt has been replaced with light colored concrete. During construction and testing the drilling had to go deeper than expected as the ground temperature was closer to 63F (rather than the well-tested 55F). Central AHUs are a variable refrigerant system. There is also a dedicated outside air unit sized to provide an extra 30% of ventilation air. Energy is saved by reducing the ventilation flows as needed using CO2 sensors and solar powered Occupancy Sensors.

The design team optimized envelope performance, reduced internal loads, designed high efficiency systems and matched the building load with an on-site renewable source. Elements of work included an upgrade to R38 roof, and some walls had spray foam insulation and interior storm windows added to windows with a high performance solar film. Thermo-graphic imaging ensured weak spots in the façade were enhanced. Lighting was typically T-5 or LED with wireless lighting controls and increased day-lighting. Electricity use is minimized with plug load reduction so that each employee gets 100 watts (for computer, phone chargers, etc). Real time data with an energy dashboard will allow tenants to see on their own desk (and tenants can compete with each other).

Net Zero can be classified as Class A with all production in the building, Class B with production of energy adjacent to building, Class C if biomass is used, or Class D if green power is utilized. See the link below for the National Energy Resource Laboratory paper with good definitions on these classifications.

http://www.nrel.gov/sustainable_nrel/pdfs/44586.pdf



Energy Use much less than ASHRAE 90.1 2007

<http://www.eco-structure.com/net-zero-energy/grand-function.aspx>

Different Categories of Energy Use

<http://www.eco-structure.com/net-zero-energy/grand-function.aspx>

Commissioning Country's First Net Zero Historic Structure (continued)

Reported by Wayne Williams PE, CCP, CFM

This 1939 steel structure with very heavy thermal mass is being thoroughly modernized while also accomplishing the highest level of sustainability – which is preserving the historic structure itself. The work includes an accurate restoration of historic lobby lighting, a better sense of openness in the structure and enhancements such as a new way finding system for all floors. The design team's goal was to restore the original character (and keep hvac systems hidden). The t-bar ceiling system added several decades ago will be removed and the original (up to 15 foot high) ceiling heights on the main floor restored. This will eliminate the return air plenum system but then free the higher portions of the original very tall windows – which will then allow tenants to have modern day-lighting which will interface with the programmable dimmable adjustable lighting ballasts control system. Much of the demolished material is being donated to habitat for humanity.

The predicted results should be as modeled and shown in the energy graphs on this page. The utility company has paid for a 3rd party consultant who, at the end of the job will review and report on tests to verify if work was successfully completed. The Measurement and Verification is pending with expectations of an EUI of 28, 000 (before it was about 35 or 40 EUI). This facility is not an off the grid project. At some times in the year it consumes energy from utilities, yet the annualized average is targeted to be zero. Activities yet to be completed include educating occupants on how to reduce energy consumption, and continually monitoring the building performance.

Commissioning is being provided by ME Group (link below)

<http://www.megroup.com/images/pdf/Cx%20&%20Energy%20Consulting%20Overview%2005-10-12.pdf>

Building Commissioning Associate Certification is now available

Associate Certification is now available. This is new to the Building Commissioning Association.

The ACP designation is created for those who are on the path to become a CCP but do not yet have the education and experience required to achieve that certification. It is the mark of a dedicated and goal-oriented commissioning professional. The benefits of this accreditation include:

a competitive advantage,
professional growth and development,
enhanced professional credibility, and
great job opportunities.

To earn the ACP designation, participants must complete an application that is reviewed by the Building Commissioning Certification Board and pass a comprehensive two-hour examination.

To be eligible for certification you must:

have a high school diploma, GED, or higher-level degree; and
have a minimum of one (1) year of building related experience depending on education level achieved.

Thanks Again to Radius and Façade for sponsoring BCxA 2011 Fall Event



<http://www.radiusystemsllc.com>

Radius is a full service provider of HVAC and Lighting Control Systems, and Indoor Environmental Quality systems and services, and Security Systems in the mid-Atlantic region. We are an action-oriented, results driven organization dedicated to providing innovative automation/control solutions. We seek to do business with building owners, engineering firms, ESCOs, and construction firms that are interested in long term high performance systems that maximize energy and operational efficiency.



<http://facadegroup.com/>

The Façade Group are building enclosure and detailing specialists who value artistry and performance in equal measure. Our multi-disciplinary experts assist clients in achieving their design goals through elegantly crafted details and practical, innovative, cost-effective facade solutions. The facade is the emotive first contact point of a building—the expression reflected out to the community. We understand, however, that the exterior enclosure is more than just a facade—it must be durable, provide shelter from the environment and comfort for the occupants. The Façade Group supports your project team in creating building enclosures of integrity. We provide consulting, documentation and verification services to improve a buildings performance while expressing its beauty simultaneously.

BCA National Capital Chapter Sponsors

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**Butler Balancing
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More Information on Commissioning Process

Certified Commissioning Professional (CCP) Certification Comparison and Equivalency

<https://netforum.avectra.com/temp/ClientImages/BCA/a47255a2-053d-45e3-91e9-1419db6d835c.pdf>

The Certified Commissioning Professional (CCP) is a certification for those individuals responsible for managing and leading the commissioning process (the Commissioning Authority). This certification was developed by the Building Commissioning Association (BCA) to provide an industry mechanism to recognize those with demonstrated experience and knowledge of the commissioning process. In 2005, the BCA created the Building Commissioning Certification Board (BCCB) to oversee the certification process, maintain the certification records, and ensure that the certification requirements and examination continue to maintain the highest industry standards. Achieving the CCP designation requires education, experience (both in number of years and size of projects), professional references, and a rigorous written examination. Successful candidates are allowed to use the CCP designation, and are required to recertify through a process of demonstrated continuous experience and education every three years. To maintain a high level of professionalism, the BCCB was created as an independent organization and one does not need to be a member of the BCA to obtain the CCP designation.

The BCCB has reviewed a comprehensive analysis of currently offered commissioning certifications compiled by the California Commissioning Collaborative (CCC). See the attached spreadsheet available at http://www.cacx.org/resources/provider_cert.html. The CCC's side-by-side comparison of commissioning certifications offered by seven separate certification bodies describes the eligibility, training, education, and experience requirements of each certification offered. The CCC's analysis clearly demonstrates the rigor of the CCP requirements compared to that of the other organizations certification requirements.

Based upon this independent review of the certification program requirements, it is the BCCB's opinion that the CCP certification requirements are consistent with the requirements contained in the highest level of certification of the other certifications reviewed, and therefore should be considered and approved equal for Commissioning Authority qualification purposes.

Your BCA National Capital 2012 Chapter Board Members

The following individuals consider it a pleasure to serve you as board members. Feel free to contact any one of them for information on committee work, events or what it means to be a NCC BCxA board member.

Ray Smith
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GHT Limited
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Tony DiLeonardo
BCA NCC Vice-President and
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BCA NCC Secretary and Website
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www.brookswright.com

RMF ENGINEERING, INC.

WFW
Wick Fisher White

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the NCC BCA Board and
Have your Logo include in this
newsletter!**



Architectural Testing



We Need Volunteers!

Participate · Build Your Resume · Get Published · Enhance Your Commissioning Industry Network
Opportunities for:

- Publication of short and medium length articles in regional and national publications
- Support logistics and marketing for regional events
- Participate in National trade conference booth on behalf of the BCA
- Openings in Membership, Events and Communications Committees
- Business development and fundraising opportunities

Contact an NCC-BCxA Board Member for further information